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The Big Weekly { Fifty-two issues, each containing from 24 to 32 pages of practical information, } For $1 the Year

California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES JANUARY 5, 1911 SAN FRANCISCO

COCOS PLUMOSA PALMS. A MIDWINTER SCENE IN SOUTHERN CALIFORNIA.

Cocos Plumosa

Nothing so impresses the stranger who visits California for the first time as the great wealth of tropical vegetation to be seen along the older residence streets, the chief glory of their dignified, majestic appearance, their dignified, majestice appearance, coupled with a grace and elegance that might well be termed royal, the palms have been called the "Kings and Princes of the Vegetable Kingdom." While we may grant the truth of this appellation in general there certainly should be queens where there are princes and the title of "Queen of the Palms" is an honor to which Cocos plumosa is indisputably entitled.

Throughout a trial extending over more than a score of years, Cocos plumosa has proven peculiarly adapted to our soils and climate. In luxuriance of growth and grace of habit this palm is unsurpassed and adds more of a tropical touch to our gardens than any single plant we grow and on this point is only surpassed by a huge clump of rank-growing well-cared-for bananas. Cocos plumosa hails from central Brazil and is sometimes confounded with C. Romanzoffiana from the more southerly parts, a palm stiffer in habit, slower in growth and with smaller parts. In general appearance it has not that bold, rampant growth which is the chief landscape charm of the Cocos plumosa. This palm is peculiarly easy of cultivation and thrives marvelously well in all the more favored parts of the state. In San Diego there is a truly royal group surrounding the small plaza in the central part of the city and many fine specimens in private grounds. In and about Los Angeles they may be found in profusion and nowhere do they grow with greater rapidity or more luxurious foliage. Scores of fine specimens might be listed that are worthy of a visit by all plant lovers. Up in Santa Barbara, both in city and county, they have been planted everywhere; much more universally than elsewhere in the state. Many city blocks may be found where they are used as street trees and nothing used for the purpose has such a softening influence upon the harsh, monotonous lines of curb and sidewalk as has the foliage of this truly royal palm.

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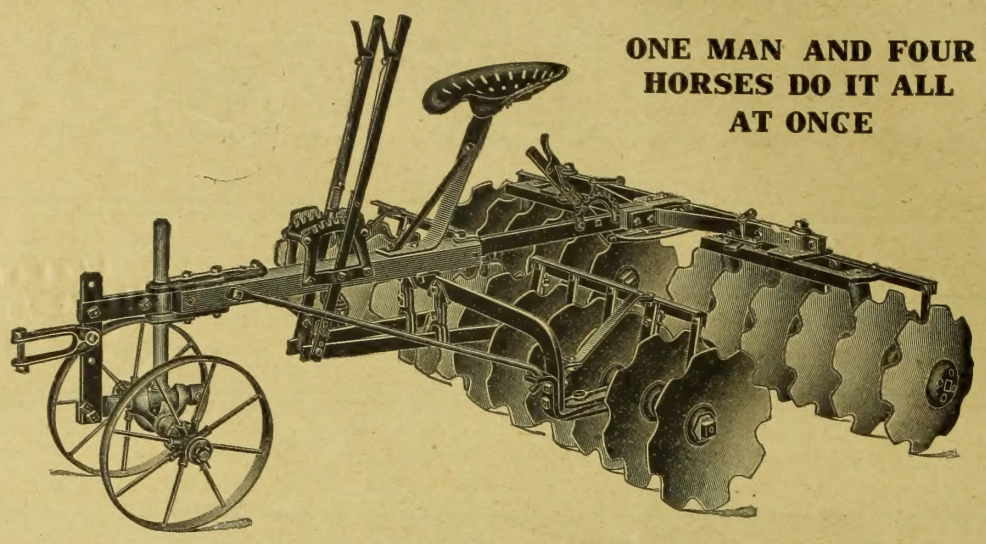

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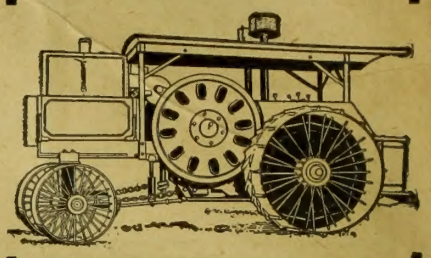

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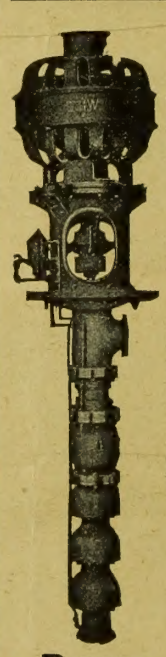

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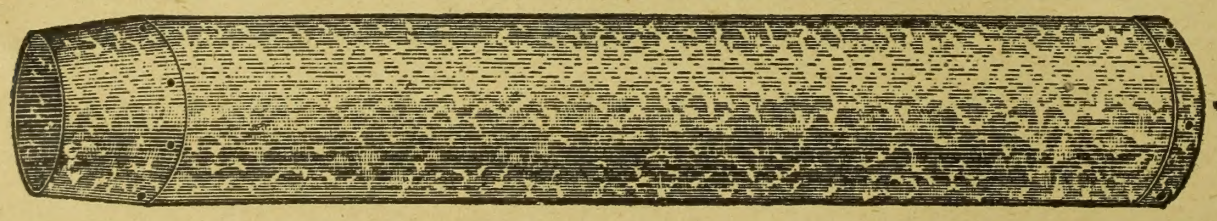

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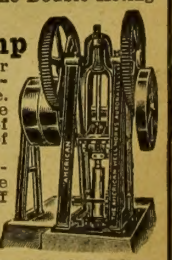

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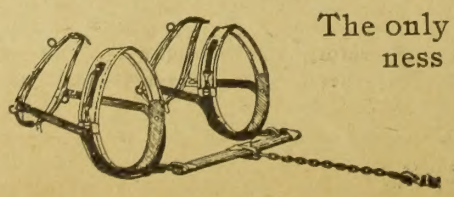

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California Cultivator

Vol. XXXVI. No. I. LOS ANGELES: THURSDAY, JANUARY 5, 1911 One Dollar the Year

Squirrels Bring Death and Financial Loss

Address of Dr. Rupert Blue before the State Fruit Growers Convention at Stockton, in which the Investigations into the Work of the Squirrels is Emphatically Told

The extermination of squirrels has become one of the serious problems of this state. The interest in the subject prior to 1907, was almost wholly an economic and financial one. Since that date evidence has been collected which proves that this animal is responsible for the transmission of plague and the chief source of its continuance in this country. As a result, the sanitarian has become interested in the natural history of the ground squirrel, and has joined hands with the economic interests in the war of extermination.

A statement of the annual losses due to these animals should not be necessary. In a recent paper, Dr. Merriam, of the Biological Survey, stated that they inflict injury on all classes of crops, and rank among the most destructive of our native rodents. The amount of annual loss to agriculture was given as $10,000,000. This we can readily believe in view of their wide distribution and great numbers on the Pacific Coast. It is time for us to consider another aspect of the problem, namely, the sanitary importance of the rodent species. The following pages contain a brief review of the field work and an outline of the infected area.

Report of Field Operations.

As far back as 1903 Bubonic plague was suspected to be present among the ground squirrels of California, but every effort made to confirm this as a fact failed until the summer of 1908 when in Contra Costa county, four naturally infected ground squirrels were found. Investigations which followed during the fall of 1908 and spring of 1909, disclosed the presence of a rather widespread epizootic, and in April, 1909, a well organized campaign was inaugurated for the purpose of determining the extent of this infection, and to evolve, if possible, a plan for the destruction of squirrels found within the infected area. This date, April, 1909, marks the beginning of systematic work, and in the early part of the campaign operations were confined to the counties of Contra Costa and Alameda, contiguous to San Francisco Bay.

It may be suggested in passing that since that date there have been received from these counties up to November 5, 1910, squirrels as follows: Contra Costa county, 32,318; of which 247 were infected; human cases during same period, 3.

Alameda county, 9663; infected, 83; human cases during that period, 2.

In order that one may not be misled by the comparative number of infected squirrels herein reported, I should state in advance that while the percentage of cases of infection found represents roughly the comparative degree of infection in the various counties shot over, it is not to be regarded as representing the total amount of infection present, since the work was undertaken primarily to determine the limit of the zone of infection, and in the majority of cases hunting operations have been pushed into new territory upon the finding of a positive focus.

In October, 1909, infection among the ground squirrels had been found so widespread in Contra Costa and Alameda counties, that scouting parties were sent farther south and east into Santa Clara, San Joaquin, Stanislaus and Merced. Three weeks after this advance into new territory infection was found in Santa Clara and San Benito, and as a result of subsequent work up to November 5th of this year, twenty-three infected squirrels have been found among 7286 received from San Benito. During the above period there has occurred in each of these counties a case of human plague, in each instance the disease arising in communities known to harbor infected squirrels.

In November following, just one year ago, it again became necessary to push the work farther afield, and the skirmish line was extended to include Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Fresno, Tulare and Kern counties. A few weeks after this advance was made infection was found in Santa Clara county, and at the end of the year, December 31, 1909, infection among ground squirrels was known to exist in five counties, namely: Contra Costa, Alameda, Santa Clara, San Benito and Santa Cruz. Since this date work has been continued, from time to time, and on November 15th, just passed, there have been received and examined from the counties named 72,208 squirrels, eight of which proved infected: three from Santa Clara, four from Monterey and one from San Luis Obispo. It is of interest to note, in passing, that over ten thousand squirrels had been examined from Monterey county before the first case of infection was found.

The number of squirrels received from the various counties is: Santa Cruz, 1,673; Monterey, 22,855; San Luis Obispo, 18,635; Santa Barbara, 4,767; Ventura, 2,354; Tulare, 6,442; Fresno, 15,143; Kern, 339; or a total of 72,208.

In January, 1910, realizing the danger residing in foci of squirrel infection scattered immediately beyond the bay cities of Berkeley, Oakland and Alameda, the creating of a squirrel free zone around these cities, as a protective measure, was decided upon, and a squad of men, in charge of an inspector and under the immediate direction of a foreman, began squirrel eradicative work. A point of the bay just north of the city of Berkeley, on the county line, was selected, and following the county line from the point of origin to a point just north of Fruitvale, a belt or zone averaging one mile in width has been made practically squirrel free. This work has continued without interruption and a vast territory has been covered. Shortly after the work was undertaken two foci of infection were found within the limits of this zone—a stone's throw from a suburban home, and later, during January, February, March and April, a total of 22 infected squirrels were found within the northern end of this belt. When it is remembered that this zone just skirts the inhabited portions of these cities the importance of the work can be appreciated.

Apparently San Mateo county has remained free from infection, for nothing of a suspicious character has been noted after an examination of over 3000 squirrels, but as a precautionary measure, pending the further examination of the rodents infesting this county, a squirrel free zone averaging a mile in width, extending from the bay to the coast, just below the San Francisco county line, has been thrown across the peninsula. It is believed this barrier if maintained squirrel free, will effectively prevent the introduction of the disease into San Francisco county, should infection subsequently develop in San Mateo county.

In the spring of this year work was again undertaken in San Joaquin, Stanislaus and Merced counties, resulting in the finding of infection in all three counties, five in San Joaquin, five in Stanislaus and three in Merced, all west of the San Joaquin river.

From these counties we have received: San Joaquin county, 10,020; Stanislaus, 2,012; Merced, 11,658.

Later in June squirrel shooting was extended to include a portion of Southern California, and hunters have shot within the city and county of Los Angeles, and the adjacent counties of Orange, San Bernardino and Riverside. Specimens are still being obtained from Los Angeles county and to date over 12,000 squirrels have been received from Southern California, but without record of a suspicious case.

The totals from the South are: Los Angeles county, 8,591; Riverside, 1,096; Orange, 1,8544; San Bernardino, 606.

The statistics given, while representing the individual amounts of work done do not enable one to readily grasp the situation; the vastness of the work performed will be better appreciated by a short resume.

From the inception of the work until the 5th of November, there have been received and examined at the laboratory 173,717 squirrels. These have been obtained from 29 counties; 397 of the animals proved to be infected with bubonic plague, and were shot or found at widely separated points over an area embracing ten counties. During the same period of time eight cases of human plague have been reported, all having occured within the limits of the squirrel infected zone. (Human cases, Contra Costa county, 3; Alameda county, 2; Santa Clara county, 1; San Benito county, 1; Los Angeles county, (1908) 1, and in every instance there existed a sufficiently intimate association with ground squirrels to warrant the statement that the squirrel was the probable source of the disease. Several of these cases, fortunately mild, were diagnosed only after surgical interference—plague being a secondary consideration—and these should serve to place the practitioner on his guard; other cases may occur and remain unrecognized, and the possibilities, following failure to properly diagnose plague, can be appreciated only by those who have served throughout an epidemic of this grave disease.

In conclusion it may be said that the work just outlined, while extensive, is preliminary in character; localized squirrel free zones remain protective only while kept squirrel free; localized foci of squirrel infection may be destroyed, and temporary safety be secured, but just as surely will subsequent migration of the squirrels reinfect this territory. The squirrels over the entire infected area must be destroyed; the state of California must be made a squirrel free zone. Only in this way can we effectually remove this menace.

Remedial Measures.

The necessity for co-operation and organization in the work of squirrel destruction is fully appreciated. Without the assistance of the farmer, orchardist and land-owner generally, success will be impossible. With a view to securing the personal co-operation of property owners, a state-wide campaign of publicity and education has been inaugurated by the state health authorities. It is pointed out, in the literature issued, that the project should be taken up for the purpose of protecting the lives of the citizens and also to save the crops from destruction. The viewpoints of both the sanitarian and the agriculturist are thus considered.

A plan of campaign has been proposed which places the legal responsibility upon the shoulders of the county boards of supervisors. As they are the source of authority all official work should be done with their consent and co-operation.

It is the purpose of the health authorities, both Federal and state, to enforce the state law of March 13, 1909, called an "Act for the Extermination of Rodents." It is believed, however, that the land owner will willingly take up the work in view of the

(Continued on Page 23.)

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Citrus and Tropical Fruits

USE OF POTASH IN CITRUS GROVES.

The office of the Citrus Experiment Station of Riverside has been the gathering place for many who discuss scientific questions of horticulture, especially those of soil chemistry. The Cultivator gave some months ago liberal extracts from the debate on phosphoric acid. A similar discussion was recently held on the subject of potash. We quote from the report of the Riverside Press:

The speakers included J. H. Norton, the director of the station, who gave the results of experiments covering one year in the use of potash on Southern California soils, and E. S. Babcock and Fred M. Reed. Mr. Babcock discussed the scientific relations of potash to plant growth, and took up the geological phases of the question.

Mr. Reed cited the available sources of literature covering the subject of potash. In his remarks he called attention to an experiment made in this city with the use of potash that proved the inadvisability of drawing any conclusions from the apparent results of one year's experiments. For instance, the sugar content of the oranges in one grove was very materially increased one year when potash was used in liberal quantities. There was a decrease in the sugar content the following year, although potash was used, proving that the sugar content was not governed by the use of potash.

Hitherto Unpublished Experiments.

In his summation of results of fertilizer experiments on citrus seed beds during the year 1909, Mr. Norton used the pomelo, both sweet and sour stocks.

The figures were obtained by weighing all the plants of each plot, the time of transplanting, and taking an average of the three stocks. All figures have been reduced to percentages, using the check plot as 100.

Where the single elements were used the following results were obtained (check 100): liquid manure, 62; sodium phosphate, 84; nitrate of soda, 92; sulphate of potash, 97. There was a loss in every case from the use of the single elements, which was probably due to the fact that the use of a single element created a more unbalanced condition in the food supply for the plant than was in the original soil. However, it is to be noted that the loss from liquid manure was 38, sodium phosphate 16, nitrate of soda 8, while that of sulphate of potash was only 3.

"From the standpoint of pure mathematics," said Mr. Norton, "we would naturally think that while each of the elements gave a loss, any combination of these elements would also give a loss. But such was not generally true. On the contrary, it was the exception, and in every exception liquid manure had been used, which seems to say that the manure was responsible for the loss. And yet the loss in these cases was not nearly as great as where the manure had been used alone.

"After using potash in combination with each of the three elements above, the following yields were obtained: Manure and potash, 88; phosphate and potash, 119; nitrate and potash, 123. From the mathematics known to me there is no way of calculating the amount of gain which should be credited to each of these elements.

"Where the elements were used two at a time, not including potash, the following results were obtained: Nitrate and manure, 94; phosphate and manure, 106; phosphate and nitrate, 100. On adding potash to each of these combinations, the following were the results: Manure, phosphate and potash, 94; nitrate, phosphate and potash, 113; nitrate, manure and potash, 119. This gives a gain for the potash in the last two figures and a loss in the first.

"Nitrate, manure and phosphate gave a yield of 83, while nitrate, manue, phosphate and potash gave 82."

Results With Alfalfa.

Mr. Norton also gave a summary of the results of a year's experiments with alfalfa. All calculations were made in percentages with the check as 100. The yield of the check plot was 100; the sodium nitrate plots, 117; the super-phosphate plots, 118; the sulphate of potash plots, 129. The gypsum plots were found faulty, because of grass getting into the plots and for that reason no figures on the purely gypsum plots are given. While each of the three elements gave a decided gain over the check plot, it is to be noted that the potash plots were decidedly superior to the others.

The plots in which potash was used in addition to each of the other three elements, gave the following results: Nitrate and potash, 126; gypsum and potash, 134; phosphate and potash, 135. In a way these figures are similar to the corresponding figures on the seed bed, in that the benefit derived from the use of the two elements is not the algebraic sum of the results of the elements used singly. In these figures the result of the two is not the sum of the two used singly. A marked benefit was derived from all combinations by the use of potash, with the exception of the case of potash added to nitrate, and it is doubtful whether nitrate has an economic use in this climate on leguminous crops.

Where two elements were used, not including potash, the following results were obtained: Gypsum and nitrate, 115; gypsum and phosphate, 116; nitrate and phosphate, 119. On adding potash to each of these three combinations the results were as follows: Gypsum, nitrate and potash, 128; gypsum, phosphate and potash, 136; nitrate, phosphate and potash, 121. Again, the lowest yields were obtained where nitrate had been used, yet in every sense the addition of potash gave an increase over the plots without potash.

Gypsum, nitrate and phosphate gave a yield of 121, while potash added to to the above gave a yield of 122.

DRINK THE JUICE.

All of the famous hostelries in the world now serve their oranges in the form of orange juice, instead of furnishing the fruit itself. This is done for several reasons.

In the first place, sweet orange juice is sweet orange juice—it all looks alike, no matter whether it comes from a "nigger head russett" or an "extra fancy." Everyone knows

that the russett orange is sweeter and juicier than the bright, as a usual thing, but its appearance is against it, while the fancy bright orange sells mainly on its looks.

In the second place, the cleanly way to eat an orange at the table at least, is to drink the juice from a glass, instead of spattering it all over everything within reach.

Sherry, Delmonico, Hotel Astor, The Knickerbocker, The Plaza, The Waldorf-Astoria, The Belmont, and all the other strictly first-class establishments in New York City now serve oranges exclusively in this way.—Fruit and Produce News.

WARS OF THE INSECT WORLD.

So far, from personal observation, I have found that the grasshopers are by far the most irritable class of insects among themselves. They seem to enjoy fighting better than eating, and frequently fight until each has lost one or more limbs, and sometimes even until one succeeds in killing the other. So great is their interest in these deadly battles that they will allow themselves to be picked up and carried about, continuing the conflict in one's hand in the most unconcerned manner imaginable!

The katydids constitute the less quarrelsome members of the grasshopper family. Their fights are far and few between, but extremely violent when once started. I remember vividly a battle between two of these insects which I witnessed several years ago. It happened close to the edge of a small patch of woodland where several trees had been cut and the stumps left standing from two to three feet above the ground. To the top of one of these stumps a large katydid and his mate had crawled, perhaps to enjoy their honeymoon. As I stopped to watch their actions for a minute, a third katydid, seeing the happy couple, and feeling somewhat jealous, shrieked an insult to them from a near-by stump. The offended insect never uttered a sound, but, leaving its mate, flew directly to the other stump, where a fierce conflict ensued, ending only when the insulting one had been torn to pieces by his more powerful rival, much to the satisfaction of the female katydid!—Paul Griswold Howes, in Harper's Weekly.

GUAVA.

Dr. Franceschi of Santa Barbara writes as follows regarding the old favorite, the guava:

"Psidium Cattleyanum, ordinary "strawberry guava," well known to everybody in California, once supposed to be a native of China, because from there introduced to England, but afterwards recognized to hail from South or Central America, like all other kinds of guavas, is now planted in Southern California probably more widely than in any other country. It grows so freely, it is not affected by any disease, it bears so profusely, that it is no wonder that one sees it everywhere, in extensive ranches and in small city lots. Everybody likes the fruit, and more so the jelly which is made of it in immense quantities. The 'yellow strawberry guava,' Psidium Lucidum, introduced by the writer some years ago, looks very much like the first-named, but its fruits are yellow and generally of finer flavor. Psidium Araca has larger and thicker leaves, also larger fruits than the two preceding, of yellow color and of superior taste. Several other kinds of guavas are now on trial in the grounds of the Southern California Acclimatizing Association at Montarioso, Santa Barbara. The so-called 'lemon guava,' Psidium Guajava, very like the first kind ever introduced to California, is very seldom met at present, its fruit not being much liked, and possibly also for the reason that it happens to be severely attacked by "black scale," from which the above-named kinds are completely immune."

WHITE FLY INVESTIGATIONS IN FLORIDA.

Prof. R. S. Woglum, of the United States Bureau of Plant Industry, who has for some time past been conducting experiments in fumigation at Whittier, Cal., is now in Ceylon for the purpose of consulting with E. Ernest Green, one of the world's authorities on the group of "Aleyrodes Citri," the white fly. Prof. Woglum will next proceed to India, which is supposed to be the original home of the white fly, to study conditions, and if possible to find a parasite or active enemy to this pest to the end that it may be introduced in Florida.

Dr. Black, of the Government "Whitefly Station" at Orlando, Fla., is at present on a trip to Mexico and Cuba, searching for possible natural enemies.

In a recent letter from the Department of Agriculture, it is claimed that good results have been reached in the suppression of the whitefly by experimental and demonstrational spraying during the past season. Florida growers are warned not to be too much encouraged over the prospects of securing natural enemies of the pest. There is a possibility that either Prof. Woglum or Dr. Black may succeed, but the probabilities are against it. The Department agrees that the work for the final destruction of the fly is worth while, and is preparing to continue the search.—Florida Fruit and Produce News.

CITRUS CONVENTION REPORT.

The Proceedings of the Thirty-Seventh Fruit Growers' Convention, the Pomona citrus growers meeting, which was held under the auspices of the state horticultural commission in September, has been issued from the office of the commission and gives all the addresses and practically the entire discussion at that great convention. We say "great convention" because both in numbers and in accomplishment we believe it was one of the most important conventions ever held in the state. Over 600 people were in the hall at the time the gavel fell and at other sessions nearly 800 were in attendance. At the meeting committees were appointed to take up the matter of securing experts from the Department of Agriculture at Washington to investigate the decadence of citrus trees. The report may be had by addressing J. W. Jeffrey, State Horticultural Commissioner, Sacramento, Cal.

ORANGES AS FOOD.

Oranges are better than drugs for certain ailments. They act on the liver and bowels and nourish the body as well as furnish organic salts. It is said that one can live on an exclusive orange diet for months, for the fruit is rich in values. It has 11.57 caloric power to the ounce; 70 organic salts; 11.54 sugar and starch; 20 oil and acid and 82 protein.

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A RECORD-BREAKING OUTPUT.

With a twenty-million-dollar crop of oranges and lemons marketed and to be marketed, California has reason to be proud of its greatest fresh fruit industry, which has sprung into existence within the last third of a century. In 1891-2 the state only shipped 4,016 cars. Up to 1896-7 it only reached 7,350 cars, but the next year, 1897-8, doubled that output. By 1900-1 this was increased to 24,100. From that time on to this year the increase has not been regular, but in 1908-9 the output reached 37,091. This is from the entire state, and is constituted of 150 cars from the Sacramento-Placer county section, 400 cars from Butte county, and 2,380 cars from Tulare county. The balance, 34,450 cars of oranges and 6,800 of lemons, is from Southern California. The total output of the different districts will be as follows:

Locality.	Carloads.
Riverside district	4,650
Redlands district	4,600
Pomona district	4,000
Ontario-Cucamonga	3,650
Azusa-Glendora	3,500
Highland district	2,000
Covina	1,650
Fullerton-Placentia	1,300
Orange	1,200
Rialto	1,100
Alhambra-San Gabriel	1,000
Corona	950
Duarte-Monrovia	800
Whittier	650
San Fernando	550
Tustin-Santa Ana	500
Colton	450
Ventura county	450
Glendale	270
Anaheim	270
San Diego county	250
Moreno	175
Bloomington	175
Hemet	70
Other localities in So. California	240
Total	34,450
Tulare county	2,380
Butte county	400
Sacramento-Placer	150
Total north of Tehachapi	2,930
Grand total for state	37,380

The estimate of Mr. B. A. Woodford, general manager of the California Fruit Growers' Exchange, is given in the Riverside Press as follows:

From information as we gather it from all sections, the citrus fruit crop this year is much larger than that of last season and somewhat larger than that of two years ago.

From the best information that we can get, the crop of the entire state will aggregate this year around 45,000 cars, of which 6,500 will be lemons. Should the season be favorable, with no losses from wind or frost, and sizes run medium to large, we think shipments will be in excess of 45,000 cars. Should the reverse condition be true, and the loss of fruit in carloads shipped be considerable through damage and through small sizes, shipments will likely be considerably less than 45,000 cars.

Never in the history of the business have the navel oranges been as mature and of as good eating quality at this time of the year as is the case now. The reports from jobbers and consumers alike throughout the East are all favorable to the California navel orange, which has the preference at the present time in practically all markets over any other orange.

The loss in the navel orange crop through splitting is, in our judgment, not considerable in the aggregate, and would not average more than two or three per cent, although some sections report as high as fifteen.

My reply has been based on conditions in all sections, and therefore I can only answer this question in a general way.

Holiday shipments began two weeks earlier than usual in Tulare county and the north, and the quantity going forward before December 10 will be much greater than in any recent year. By December 15 there will be practically no navel oranges left upon the trees in Tulare county and other northern sections.

The quality of the fruit is the very best; in fact, some have felt that it was superior to the fruit of any prior year at the same date. However, fear is expressed that this early ripening and sweetening will mean early deterioration. Already a few puffs have appeared. Cooler weather with rain will probably have a beneficial effect, and if the rain comes we may yet hope to market all the output to the best advantage. Because of the early ripening, and the immense output, the Exchange, and, in fact, all shippers, have been pressing shipments to the limit, and, with fingers on the pulse of the market, the management is crowding forward every car which it is thought the market will take at a fair price. This policy will be continued, and with favorable weather conditions the greatest financial returns California has ever received from citrus fruits will be given.

AIR HELPS PLANT GROWTH.

The value of proper soil preparation to allow aeration in the growing leguminous plants and the forming of the bacterial nodules on the roots is shown in some recent experiments by the department of agriculture.

A light, sandy soil, moderately limed, was used, and the plant selected was the garden pea. Six aerated plants were started in ordinary porous pots and the earth was frequently stirred, corresponding to ordinary garden cultivation. Six nonaerated plants were started in glazed pots with the bottoms plugged with paraffin cotton and the top covered with paraffin paper. After a month's growth the roots of the plants showed eighty-seven nodules on the aerated specimens and only three on the nonaerated ones, while the aerated plants had made double the growth of the others.—American Cultivator.

DEPTH OF CULTIVATION.

It is always well to prepare the ground well before the trees are planted. The earth should be well stirred and free from roots and stumps. During the first years of the life of the young grove the ground may be plowed, if deemed advisable, provided also the plow is not run deep close to the trees. The tree rows should be cultivated comparatively shallow. This treatment will have a tendency to send the roots deeper into the soil as they spread out from the tree. If plowing is resorted to, the depth should be varied from year to year, so that the soil may not become hard and compact at a certain fixed depth, as is likely to be the case if the plow is always run at the same distance from the surface.—Hume's Citrus Fruits and Their Culture.

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EL DORADO COUNTY STANDARDS.

The following system of standardization is established by the El Dorado County Standardized Fruit Alliance and is practically the same as other counties of the Sacramento valley. In general it was decided to recommend that all fruit destined for interstate shipment from this county be free from worms, scabs, scale or other defect, and, further, that the following specifications be adopted in the packing of the different varieties, respectively, to-wit:

Bartlett Pears.

Must be free from worms, scab, scale and other defects. Wrapped and packed with neatness and uniformity. Of a size not under 2¼ inches in diameter for five tier; or not under 2½ inches in diameter for four tier; and to weigh in either case not less than our former standard.

Six-tier Bartletts will be allowable after the bulk of a grower's crop of Bartletts have been moved; sizes 2 to 2¼ inches in diameter.

Peaches.

To be graded as follows: 90 and larger, 80 and larger and 70 and larger, to the standard box of two layers, for all varieties except Imperials and St. John, which standard shall be 108 and larger.

That three-tier yellow peaches of good color and sound condition of any variety shall be allowable when packed uniformly and of a size not under 1⅞ inches in diameter.

That all packages of peaches shall be marked by the grower as follows, according to the contents, to-wit: "48-70," "70-80," "80-90," "90-108," and "Three-tier," the "90-108" for Imperial and St. John.

That the individual packs shall be practically uniform in size of fruit used and present an even appearance; to be tight lengthwise and sidewise of the box.

Plums and Prunes.

To be free from all disease or defect; to be packed in regular four-basket single crates, three tier to the basket. Of a size not smaller than 5x5, and of approximately uniform size in each tier throughout the crate.

Germans and Splendors shall be allowed solid packed and faced or four-tier.

Two-tier and four-tier plums and prunes of other varieties to be packed under some regulations to be hereafter established.

Grapes.

To be fully matured, carefully picked, and wilted at least 12 hours before packing. To be properly trimmed of all "shot" grapes, mildewed, decayed or injured berries.

That they shall be packed in regular four-basket single crates 4¼ inches in depth, with an eleven-sixteenth cleat under the cover.

That corners of the baskets be properly filled, and the edges of the pack be full and free of straggling berries. That the covers bow slightly, but not over three-eights of an inch.

Cherries.

To be in perfect condition, the right degree of ripeness and color, neatly packed, double faced, with corners of boxes reinforced or well supported so that the box will be full and the surface unbroken, no stems showing at the top or bottom.

Cherries packed all through the box, in even rows, or what is sometimes called four-tier, shall be designated as "Solid Pack."

Other markings to be "8 row," "9 row," "10 row," "11 row," "12 row," as the case may be.

Apples.

A standard pack of apples shall be as follows, to-wit:

That they shall be free from worms, scab, scale and other defects and be approximately uniform in shape in keeping with the variety.

That they shall be wrapped unless otherwise arranged at time of disposal.

That all packs shall be arranged with the stem and blossom ends lengthwise of the box, or diagonal in the so-called half packs.

That all apples not under 2¼ inches and up to 2⅝ inches shall be packed 4½ tiers, the arrangement being 3x2, the same as a peach pack.

That all apples not under 2⅝ and up to 3 inches shall be packed 4 tiers, the arrangement being a square solid pack.

That all apples not under 3 inches shall be packed 3½ tiers, the arrangement being 2x2 the same as peach pack.

This standard does not refer to Lady Apples.

SOIL CONSERVATION.

How to restore and maintain the productivity of the soil is the most important phase of the conservation problem. We are no longer a new nation. We have deluded ourselves with the idea that we have unbounded resources in land, in forests, in mineral wealth. We have been prodigal in the utilization of these resources. We must now pay the penalty of this prodigality. In many of our older communities soil fertility has been reduced below the point of profitable production. Nation-wide effort at the present time, through federal and state agency, is directed toward the restoration of fertility in these localities. On the prairies of the West fertility is beginning to wane. In order that our heritage in the prairie country may not follow the descent of the East and the South, it is necessary that intelligent and vigorous effort be made to farm correctly. We must cease abusing the soil. The renting of land on short leases for the purposes of growing grain for market is one of the surest means of reducing the productive power of the soil. The domestic animal, with well-managed pastures and rational systems of crop rotation, is pre-eminently adapted to the development of permanent systems of profitable farming. Landowners must realize this and must take steps to improve renting methods by stocking farms with a full complement of domestic animals, where the renter is not able to do this for himself, and by giving longer leases, whereby the renter may reap the reward of intelligent management.

The Solution of the Problem.

In the first place, we must increase the number of domestic animals on our farms. Where land is farmed by renters the leases must be made for longer terms, and where the renter has not the capital to provide for the

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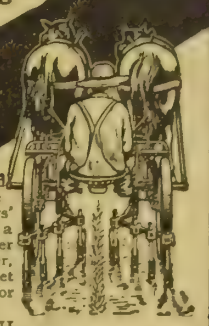

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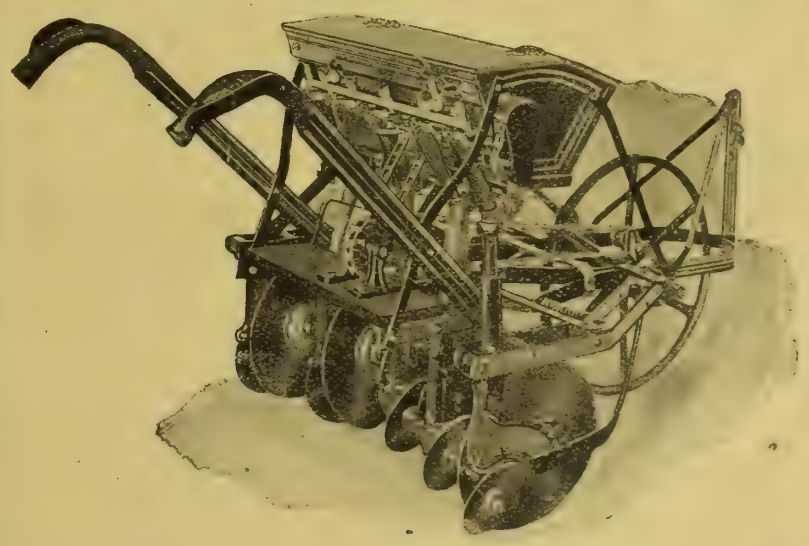

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proper number of domestic animals these must be supplied by the landowner. We must give more attention to the condition of our pastures. In some parts of this country pastures have been overgrazed until they are nearly worthless. This is especially true in some regions where dairy farming is prominent. Cows are turned on to pastures too early, and the grass is given no chance to make the necessary growth to maintain vitality. Pastures which formerly supported one animal on two acres now support only one on ten acres. This is not universally true, but it is true in large areas. The ranges of the West have been depleted by overpasturing, and in addition are now being settled by farmers, so that the range area is decreasing. There is a serious shortage of livestock in that section, and this shortage must be met by raising more young stock on the farms of the East.

Effect of Live Stock on Soil Fertility.

The effect of live stock on the fertility of the soil needs no demonstration. It is well known to every intelligent farmer. Up to the present time, at least, no system of agriculture has been permanently profitable without the use of domestic animals as a means of maintaining the productiveness of the soil. Whether such systems are possible remains to be seen. It may be that the use of the legumes and other crops producing humus, combined with the judicious use of commercial fertilizers, may serve to maintain high yields, but the supply of commercial fertilizers is not unlimited, and ultimately these soil amendments will have to be dispensed with.

Effect of Legumes.

In addition to increasing the number of domestic animals on American farms, our farmers must pay more attention to leguminous crops and to other crops which provide a supply of humus for the soil. Legumes, such as clover, peas, alfalfa, etc., are especially important because of the fact that with the aid of certain soil bacteria they are able to draw their supply of nitrogen from the air. Having thus an unlimited supply of this valuable plant food constituent, they become very rich in nitrogen. The stubble and roots of a leguminous crop frequently leave in the soil sufficient nitrogen for the needs of the crop that follows. Recent investigations by this department in Kansas and Nebraska show that the average increase in the yield of corn grown after alfalfa, compared with corn grown after nonleguminuous crops, is 70 per cent. A good crop of clover has a similar effect on the yield of crops which follow it. Instances are known where the practice of sowing burr clover in cotton fields in the fall of the year and turning it under in spring in time for another crop of cotton has, in three years, doubled the yield of cotton. Crimson clover sown in a similar manner betwen crops of corn has, in a few years, increased the yield of corn 50 per cent or more.

The reason these leguminous crops have such a marked effect on fertility in many case on depleted soils, lies in the fact that nitrogen is not a constituent of the soil proper, but only of the decaying plant and animal matter in the soil. When soils are farmed for many years without any attention to their fertility, this organic matter is rotted out and the nitrogen disappears. Hence nitrogen is nearly always the first plant-food constituent to become deficient in the soil.

The fact has already been referred to that we export a large proportion of our cottonseed meal, oil meal and other rich nitrogenous feeding stuffs. In 1908 we exported linseed-oil meal to the amount of 696 million pounds, cottonseed meal 929 million pounds, and corn-oil cake 66 million pounds. These materials are all exceedingly rich in nitrogen. They should be kept at home, fed to live stock and the manure returned to the land.—W. J. Spillman in Farmers' Bulletin 406.

NO SURPLUS OF GOOD FRUIT.

It is an interesting fact that the great extension of fruit growing, in all parts of the country, has been attended, not by a decline in prices but by a very considerable advance. The question whether or not the multiplication of orchards and berry patches will have the effect of producing a glut, so as to render profitless the labor and expenditures of the fruit grower, seems, then, very likely to meet a negative reply.

In the first place the demand for all the fruits of North America is world-wide. The world's appetite for them is insatiable; and as the facilities for distributing them are better systematized through intelligent cooperative arrangements between growers and transportation agencies, and selling agencies in the cities, it seems as though the problem is to be, not how to get rid of surpluses, but how to get enough of any kind of good fruit.

In years of great abundance in American apple orchards, good apples have sold in Mexico at 15 cents apiece. In London they have retailed at 25 cents apiece. Other fruits, capable of bearing transportation for long distances, have commanded proportionately high prices. Of course, these prices have been for choice fruit. In New York and Boston even 10 and 15 cents apiece has been readily obtainable for choice apples.

Such exceptional figures as those above quoted are not, however, necessary as a basis for profitable fruit growing. The moderate prices paid by the mass of American consumers are sufficiently high for that; as in thousands of houses our people are learning to prefer fruit, at such moderate prices, to many another article of food which they have heretofore demanded.

The improvement of canning processes and the cheapening of apparatus has also its effect in insuring a market for fruits. Fruit farmers are not now depending on "canneries." Recent inventions enable them to do the canning themselves.

It would seem, then, that the grower need only see to it that his fruit is of good quality, attractively put up and intelligently marketed to be certain of a reasonable reward. But the day when neglected orchards and bushes could be depended on to produce salable crops has passed. The grower of today must be equipped by study for battling with insect pests; must be insistent in cultivation and in the use of the sprayer and must, in short, give as close attention to his trees as the stockman does to his cattle, the doctor to his patients, or the merchant to keeping his stock of goods fresh and in salable condition. —Market Grower.

Irrigators near Hemet and San Jacinto, Riverside county, are intensely interested over reports of a big dam and power plant in the San Jacinto mountains, for which the government has already granted a franchise.

Home Grounds Beautiful

THIS MONTH.

Hardy annual seeds may be planted this month and even late planting of sweet peas is in order. Peas already up need attention and if this dry weather continues heavy irrigation to fill the subsoil will be necessary. The long drouth makes a condition of soil hard to handle. Long continued irrigation is required. A bit of high-grade sulphur scattered about the pea vines will aid in preventing mildew.

Gladiolus may be planted for early spring blooming.

Lawn making is in order. In fact, it's an excellent time to start a lawn. Bermuda is slow to start at this season of the year, so blue grass and white clover get well established before it manifests itself.

The old lawn should be given a good dressing of well-rotted stable manure or if preferred, commercial fertilizer.

Prune all deciduous shrubs and shade trees before the sap starts, also set deciduous plants at this time.

A heavy dressing of stable manure on beds for later planting may be spaded in and irrigated. It is the best of preparation for the soil.

SHRUBS AND VINES.

Whether a shrub exists as a specimen or is forming a part of some useful foliage mass, its chief charm lies in the grace and beauty of its form. It is the flowing line of its natural contour that delights us. So this characteristic of untrammeled nature should be our careful guide in all that pertains to pruning. All the accruing benefits of pruning are never sufficient to warrant any considerable sacrifice of the graces in the line of natural growth. If these are to be violated through ignorance of what is right or through careless workmanship, it is much better to refrain from pruning, and, whenever there is any doubt as to what it is best to do or as to whether the laborer is sufficiently skilled, it is well to forego the attempt. For when once the harm is done the loss is usually irreparable. On the other hand the benefits derived from pruning are often very slight, and never are they comparable to the advantages enjoyed by the fruit trees and bush fruits. In the ornamental we do not desire primarily unusual vigor of plant nor extra size of fruit, but the normal, healthy development of all the various features. The failure to distinguish between the functions of the fruits and the functions of the ornamental shrubs has led to a general demand for pruning, an indiscriminate practice of it, and a great loss in real beauty.

BEAUTIFY THE HOME.

The home is the resting place, the place where we are supposed to spend our leisure hours and enjoy the fruits of our labors; consequently the house should be comfortable, sanitary and attractive. The surroundings should also have constant care; the lawn, flower beds, walks and shrubbery should have regular attention. There are none of us but have some time to spare for the enjoyment of a lovely home. Why should we live our lives out and spend our days in a "ram-shackle" old house, surrounded by an unkept yard and broken-down fences? Some say that they will do so when they get a little money ahead. Well, that may never happen, and when it does this money usually goes for something else and the home remains unattractive and neglected. It does not require much money to make your home attractive, and if more of the men would take an interest in this beautifying and cleaning up they would find that a goodly amount of pleasure can be gotten out of it and that the money used is not only well spent, but would not be missed. In fact, if everything is kept in repair and attention given to things when needed, it would be a saving of money instead of an expenditure. Neat and well-kept premises are an indication of thrift and every farmer should have pride enough about him to make his home the most attractive and well-kept one in his neighborhood or his county.

SOME NEW GLADIOLI.

At a recent meeting of the Royal Horticultural society in London, the public was astonished to see a magnificent display of hybrid gladioli from Germany. The exhibitor, Wilhelm Pfitzer, of 74 Militar Strasse, Stuttgart, simply took the place by storm. The collection was remarkable not only for the size of the individual blossoms, but also for the vigor and freedom of the upright spikes. The variation in color was also remarkable, and nearly all shades except blue were to be seen. English gladioli growers are content to stick to a few colors. Not so Wilhelm Pfitzer. He has mixed the gandavensis, branchleyensis nanceianus and Lemoinei hybrids up so beautifully that it has now become almost impossible to distinguish "t'other from which" in the progeny. Botanists will simply tear their hair in despair if gardeners are going to continue to cross hybridize plants in greater quantity in the future than they have in the past.—Gardening.

The China asters are amongst the best of all the annual garden flowers. They are of the easiest culture, most free of bloom, and comprise a multitude of forms and colors. They are therefore admirably adapted to profuse and generous effects in schemes of planting. They are also worthy of wide attention because they are adapted to many of the purposes for which chrysanthemums are grown, and they can be raised to perfection wholly without the use of glass. They attain their best in the decline of the season, from late August till frost, at a time when many of the annuals and the greater part of the perennials are spent and gone. No garden flowers carry such a profusion of bloom and color down to the very closing in of winter. The aster border still had blooms when the snows fell in November, and when even the wild golden-rods had waned and died.

Keep potted plants well watered. Many persons will pour a little water on a plant, enough to soak in an inch or two, and wonder that the plants do not grow. The trouble is that the growing part of the plant receives no nourishment. Plants should be watered every day, and in such a way that the roots get plenty of moisture. The soil should be rich.

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Ornamental

Our almost endless variety of stock for ornamenting small gardens, extensive grounds and parks; for street planting and interior decoration, will appeal to every plant lover. Space will not permit us to more than briefly mention a few varieties in this column.

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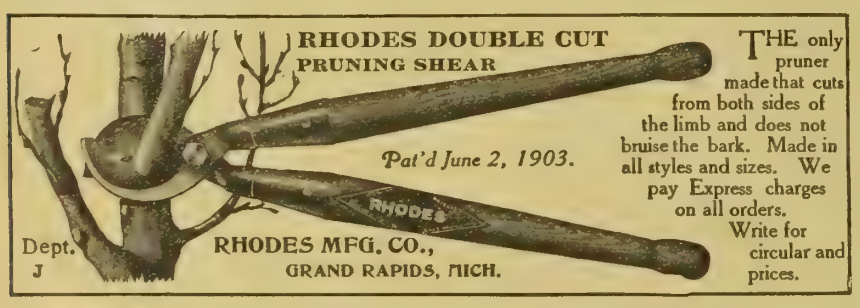

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FRANK J. IRONMONGER

Garden and Field Crops

THIS MONTH.

Plant almost everything of the hardier nature—cabbage, carrots, cauliflower, beets, lettuce, parsnips, radishes, salsify, etc. Reset rhubarb, horseradish, asparagus. In the most sheltered places, where frost is practically unknown, plant potatoes. Tomatoes, peppers, cucumbers and egg plant may be sown in hot beds for planting in favored locations later.

Clear all rubbish from garden, and burn or compost for use in orchard or on alfalfa later. Clean, well-rotted manure may profitably be scattered and plowed or spaded under. If well rotted, no danger need be anticipated from weed seed. Commercial fertilizer is good, but not to be compared to stable manure for the garden. A supply of nitrate of soda on hand to stimulate quick growing plants is desirable, because the cold soil may be deficient in available nitrogen.

Plant strawberries and all other small fruits this month.

Don't wait for a big garden, but, if only a rod square, grow something for the table. It's worth the effort, and a square rod will yield wonderfully under intensive culture.

THE STORAGE OF SWEET POTATOES.

The keeping of sweet potatoes in storage is one of the most important problems the grower has to deal with. All the growers know that if the crop can be successfully kept until the holiday season or a little later, a much more remunerative price can be secured for the potatoes. It is the purpose of this bulletin to give some of the methods of storage in use today on the farm. There are a few things that should be kept in mind when handling the crop and when storing:

1st.—Dig the potatoes carefully and dry thoroughly in the sun.

2nd.—Sort out the sound ones and handle them carefully; for a bruised potato does not keep well.

3rd.—Keep the potatoes from getting chilled.

4th.—Place the potatoes where they will be dry and warm. A temperature of from 50 to 65 degrees has been found to be about right for keeping sweet potatoes.

Storing in banks. Make a circular bed about six feet in diameter, in some sheltered location, by throwing up the dirt from the sides. Put on top of this a few inches of straw or hay. Place on end in the center of this ventilator flue about six inches square and four to five feet long. The flue should be bored full of holes up and down the side, to afford abundant ventilation. The potatoes are then piled around the flue in a conical heap. The amount of potatoes to put in each bank is from 1000 to 2000 pounds. The tubers are then covered with hay or straw or other material to a depth of three or four inches. On top of this is put two or three inches of dirt, and this amount should be increased as the weather grows colder. The heap should not be covered too deep with dirt at first, as the potatoes most always go through a sweat and loss is likely to occur if covered too deeply. The heap ought to be examined in a week or ten days after putting up, and if too much moisture is present, uncover the pile and let dry as they stand for a few hours, and then cover again.

Storing in sand. The tubers may be taken to a dry warm room and then stored in sand. A tight room in an adobe building will answer the purposes well, if some ventilation is provided for. The method of procedure is as follows: put on the floor a layer of sand two or three inches deep, and on this place the potatoes side by side until the sand is covered. Then pour dry sand over them until covered, and then place on more potatoes and cover as before. A good many layers may thus be put on top of each other, until several feet in height has been reached. When doing this it may be necessary to place some boards on the sides and in front to keep the sand in place. This method of storage has been used at the Station with very satisfactory results. A number of the Mexican farmers use this method every year to keep their potatoes. From information obtained it has been a very successful method with them.

Storing in straw. Storing sweet potatoes in straw or hay offers a very easy means to the consumer and grower of keeping a small amount for home use. In a warm room or stable, place the potatoes in thick layers of straw, where they will not be disturbed or tramped upon by those entering the room or barn. As the weather grows colder the thickness of the straw should be increased.

When storing sweet potatoes it will be found profitable to pay close attention to details. The potatoes should be kept dry and warm, and be properly ventilated.—J. E. Mundell, New Mexico, Col. of Agr.

SELECTING SEED POTATOES.

A good deal has been said about getting proper potato seed, as well as seed of other field plants. Most growers are generally well up to date on the growing of grains and breeding of stock. There is more than one phase in the growing of seed potatoes in the North, and if the average potato grower would only take a little trouble in selecting his seed from his own stock, instead of letting it run out by a careless or a haphazard way he never would be obliged to pay outrageous prices for seed potatoes.

A potato is different from an ear of corn or an onion, as the individual is not the whole family as far as the seed proposition goes, but an individual potato is only one out of a setting and when it is the only desirable one in the hill you can rest assured it is a full brother to all the little ones in the same hill. The idea is to see the entire setting in a hill of potatoes. If there are six to ten good-sized ones and the balance of them fair-size they are the ones for seed, and by following up this proposition of selecting by family instead of individuals every year growers will never be in want of good seed of their own growing. The same principle applies to tomatoes or any other similar plant that grows a family of fruit perennially.—New York Packer.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

WHOSE LOSS?

By Mrs. M. E. Sherman.

The question in regard to who should stand the financial loss when cows are condemned under the tuberculin test is assuming great prominence in the minds of dairymen. The ordinances of many towns require the cows to be tested before the dairy is given a permit to sell milk in the town. Some men have tested their herds and continued their business, while others have legally tested the ordinance and found it was faulty. The natural feeling of the dairymen is that if the cows react, the condemned ones should be paid for by the authorities ordering the test, or by the state. This question is discussed in a heated manner, and much ill feeling is manifested against those who do not agree that the cows should be paid for by anyone but the owner.

Protection.

Until matters are better regulated, the man with a tested herd has to meet the careless ways of his neighborhood. The man on the adjoining farm, so long as he feeds the diseased cows' milk only to his own family, cannot be forced to destroy the animal. These cows may be staked along the fence lines, or even break through the fences and mingle with the herd that has been carefully tested. The dairyman that has a clean herd has no protection against this occurrence. These straying animals may appear, and one may be diseased, and, coming into contact with healthy cows, start the trouble again.

Reforms.

Every reform has its martyrs, and the dairyman today feels that he is one of them. The fact is, the man with a healthy herd has no encouragement, except in the commercial saving of further loss of cows, to make the tests. At the present time the man who regularly tests his herd is viewed with suspicion, as one having the disease, rather than as one maintaining a clean herd. One man put the usual view of the case when he said: "If you have not the disease, why do you wish to test?" It seems hard to make it understood that one diseased cow in the herd is constantly infecting the others. It is also hard to make it understood that a cow may look, eat and seem well, and yet have the disease. When the cow becomes seriously ill with tuberculosis, anyone can discover it, and at the same time she is worthless as a milker.

Recompense.

The cows that do not show any troubles to physical examination, and yet react to the tuberculin test, should be paid for, I think, if any class of payments for business losses can be construed as proper to be met by the public funds. The plea is made for the poor man whose whole possessions are his cows, and when to destroy them is to confiscate his living. Yet many dairymen have lost their herds slowly by tuberculosis and by contagious abortion, while others have met their Waterloos in Texas fever. Nothing has ever been thought about helping them, even if they were poor men. I could an equally tragic tale unfold of the losses of raisin growers after they had done all their work and made a good and perfect raisin, only to find the market destroyed. Phylloxera and California vine disease have ravaged many a vineyard, yet the state has not been asked to help the owners. These people were as innocent as the dairymen in doing anything to make them responsible for these terrible losses. Then take the cases of the colony schemes that have placed new arrivals on land impossible of successful cultivation. In one case the land was not even owned by the man selling it. When his option expired, the land reverted to the former owner, with all the colonists' improvements. Another case was where people were settled to grow fruit on land that had a frost every month in the year. It was only said that people must be more shrewd. The dairyman that is wise must be shrewd enough to test his herd every six months, and keep the trouble out of the herd.

In the present high prices of wheat, have we forgotten the losses of the wheat men? Only a few years ago, I had a good neighbor, a man of helpful spirit, kindly in every way, yet he went under in the losses of a few crops. His mule teams were the county's pride; the thousand big sleek fellows that trailed the gang plows and moved the harvesters over the forty thousand acres of level valley land, all were lost. Prices were bad, and dry years came, notes fell due, and land and mules were swallowed up. The wheat was wholesome and not condemned as food, yet poverty came to the owner, and the state gave him no redress. The loss by tuberculosis in the dairy herd must be considered in fairness as a loss incident to the business, and the cleaning up may well be enforced by the state as a protection to the innocent consumers. The prices of milk and butter may be higher when the cows are destroyed, and the remaining product bring in as much money as now received. So, while cows are scarcer, the net profits may not be as much reduced as the dairyman now fears.

In a moral sense, the dairyman has a rare chance to show an enlightened public spirit that will make him clean his herd from tuberculosis, no matter what the personal cost. Affection keeps one from correct judgment at times, and the loss of a cow is often more than her money value, for to one that loves them, the personal matter comes in like losing an old friend. On the other hand, if the expense were saddled on the state for all the cows condemned, it would not be greatly felt by the taxpayers, as the proportion each would pay would not be very great. The testing and removing of diseased cows is certain to come within a short time. The babies must be protected against diseased milk. If all the milk used cannot be had from cows that have passed the tuberculin test, then, at least, the poor man should receive a bounty that will pay for certified milk for the baby in his family.—M. E. Sherman.

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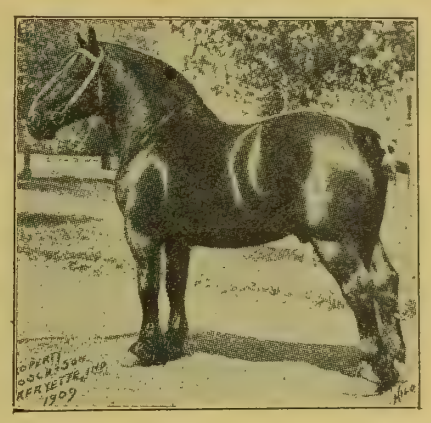

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The Cultivator reaches its 24th birthday with this issue; nevertheless it is still glad to get new subscribers at $1 per year.

HISTORY AND PECULIARITIES OF THE MULE-FOOT HOG.

W. J. Spillman, U. S. Dept. of Agriculture in American Breeders' Magazine.

The principal peculiarity of this breed lies in the fact that the hoof is solid, like that of the horse or the mule, instead of being cloven, as in ordinary swine. In other characteristics they do not differ noticeably from common breeds. In color they run the whole gamut of swine colors, though most breeders are endeavoring to establish solid black as a breed characteristic.

Distribution in the United States.

The idea is prevalent in this country that these hogs originated in Arkansas and the Indian Territory, or what is now the State of Oklahoma; but from what follows it will be seen that this is doubtful, though they have been common in that section for more than half a century. Mr. C. E. Quinn, who was formerly connected with the Department of Agriculture and who was interested in this breed of hogs, secured addresses of breeders of mule-foots as follows: Indiana, 145; Missouri, 16; Illinois, 13; Iowa, 12; Ohio, 9; Minnesota, 8; Arkansas, South Dakota and Wisconsin, each 4; Kansas, Kentucky, Nebraska and South Carolina, 3 each; California and Texas, 2 each; and 1 in each of the states Alabama, Georgia, Louisiana, North Carolina, Oklahoma, Pennsylvania and Tennessee; a total of 235 breedrs in twenty-two states. This shows that the breed is rather widely distributed. Two breeding associations have been formed for the registration of mule-foots, one at Mammoth Springs, Ark., organized in 1904, D. D. Gilson, president; the other organized in 1908 at Indianapolis, Ind., W. H. Morris, secretary.

History.

In the short time I have had to prepare this paper I have been unable to verify the statements which follow concerning the history of these hogs. One breeder in the state of Oklahoma says: "These hogs some sixty years ago were originally brought from the South Sea Islands and turned loose in the Kimish and Little River Mountains in the Choctaw Nation for the use of the Indians, and have lived there up to the present time." He further states that he has a considerable trade in these hogs with zoological parks. He does not give his authority for the statement concerning the shipment from the South Sea Islands.

Other breeders in their catalogues, make the claim that the mule-foots originated from a cross between the peccary and the hog. This claim is evidently based upon the supposition that the peccary has a solid hoof, which, however, is not the case. The peccary does lack one toe on the hind foot, but it is one of the small hanging toes, so that the peccary has a split foot like that of the ordinary hog.

Another breeder states that the mule-foots were brought to Delaware from Sweden in the year 1637. This statement is of some interest in connection with a statement of Mr. Q. I. Simpson, of Palmer, Ill., that an old writer speaks of a solid-hoofed breed in Sweden in the vicinity of Udall. Mr. Simpson is also authority for the statement that one of his neighbors, Mr. Madison Curvey, on a trip to Texas some sixty years ago, saw these hogs in the Choctaw Nation, and states that the tradition of peccary ancestry was then held by the squaw men. Mr. Simpson further states that Darwin, in 1859, mentioned the appearance of these hogs in Scotland. Mr. Madison Curvey, above referred to, also states that he saw mule-foot hogs at Nauvoo, Ill., in 1844. Mr. Simpson further states that Aristotle, in writings entitled "Researches about Animals," about 370 B. C., tells of solid-hoofed swine in Greece.

While I have not had an opportunity to verify the evidence here presented, it suggests that solid-hoofed hogs have come down from ancient times, and it is not improbable that this characteristic has been found in certain strains of hogs since these animals were first domesticated.

Relation to Cholera.

Not the least important fact concerning this breed is that breeders are selling mule-foot hogs with the guarantee that they are immune to cholera. The writer has seen numerous statements from farmers who claim that they have exposed mlue-foot hogs to cholera and that none of the hogs took the disease. He has seen one or two statements from farmers contradicting this. Recent tests at some of the experiment stations indicate that the claim of immunity to cholera is not well founded. Mule-foots exposed to cholera died as promptly as other breeds. The Indiana State Experiment Station has made such a test, and reports as follows in Bulletin No. 140 (1910):

Four pure-bred mule-foot hogs and four hogs of mixed breeding, averaging about 40 pounds in weight, were used in making the test. The hogs were exposed in the natural way, by turning them into an infected pen in which hogs having acute hog cholera had died. All of the mule-foot hogs contracted the disease, three developing the acute, and one the chronic form. Three became fatally ill and the fourth recovered after several weeks. Three of the hogs of mixed breeding sickened and died or were killed, and the fourth showed no symptoms of disease.

It is interesting to note that in crosses between mule-foot hogs and ordinary breeds the mule-foot character seems to be dominant. Some hogs of mixed breeding have hoofs that are solid at birth but in wnich the toes split apart usually at about nine months of age. In some individuals the rear toes split apart in this manner, while the front toes remain solid through life. An anatomical study of a series of bones of these mixed breed hogs would probably reveal facts of considerable interest in connection with the inheritance of the mule-foot character.

FEEDS AND FEEDING.

"Feeds and Feeding," a hand-book for the student and stockman, is just issued in the tenth edition, and has been revised and entirely rewritten by W. A. Henry, emeritus professor of agriculture, formerly dean of the College of Agriculture and director of the Agricultural Experiment Station, University of Wisconsin.

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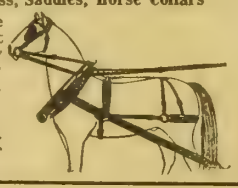

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CROSS BREEDING OF SWINE.

Many farmers have discovered by experience that the crossing of breeds of swine usually results in more vigorous stock. Just why this is, it is not easy to understand. The only reasonable theory that we have been able to formulate is that by cross breeding you entirely avoid close line breeding.

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It is very difficult to secure well-bred sires of any of the popular families without very close line breeding. The farmer may not know it, may not in fact even suspect it, and can not by any means discover it unless he goes to the trouble of securing an extended pedigree of the sire that he expects to purchase. In any of the fashionable strains he will usually find that it runs back quite a number of times to the same noted sire that gave the strain its reputation. Hence cross breeding avoids line breeding; and it has always seemed to us that this was the main reason for the acknowledged superior vitality of cross-bred hogs.

The farmer, seeing such good results, concludes that he has developed a new breed, and proceeds to use them as breeders. Then he discovers his mistake. The first cross may be superb, but in the next cross he will naturally discover the traits of all the different ancestors that gave character to the sire he has used. This is what is meant by atavism, or harking back to remote ancestors; and if he wishes to see the full development of atavism, let him use one of these cross-breeds on the rest of the herd, thus insuring more or less of the same blood and giving every opportunity to throw back.

There is great advantage in crossing, in that we can often secure superior milking qualities in the dams and superiority of form in the sires. For example, breeding a Berkshire on Poland China sows will secure the (usually) better milking qualities of the Berkshire, and thus insure well-nourished pigs, and secure at the same time the fine fattening qualities of the Poland China. It is therefore frequently desirable to cross breed, but never unless you intend to put the whole progeny in the fattening pen. Any other course of action would be ruinous.

The general rule is to keep the breeds entirely separate, using always pure-bred sires, whatever the dams may be. The exception is when you have brood sows enough for another year, in which case you can safely cross breed, if you like.—Wallace's Farmer.

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The experiments at the New Jersey Experiment Station showed that each cow voided in manure and urine seventy pounds a day. The production for the year then would be twelve and three-quarter tons. The urine is worth more than the solid manure. It has been estimated that the urine of a 1000-pound cow was worth $13 a year and that of a horse $18 a year. How correct this is we cannot say.

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The more a farmer studies this proposition of keeping up the fertility of his land, the more important does the preservation and measures he takes to preserve the manure become. This means true economy. Passing a farm the other day we saw a farmer hauling out manure that had lain in the barnyard a year. It had lost fully half of its original value. But that was not all of the foolish things he was doing. He was dropping it in heaps on the land instead of spreading at once as fast as hauled, when the work could be done at the least expense of labor. Very likely those heaps will remain unspread for a month or two. We have seen them remain till spring. Now, had that farmer a clear sense of economy of labor and the right idea of getting the full value of his manure? We think not.

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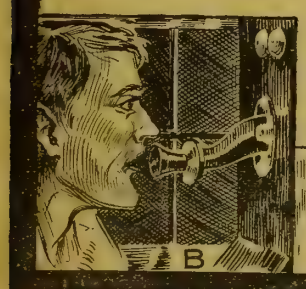

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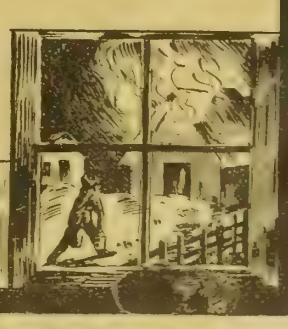

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The California Cultivator

A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,600 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, January 5, 1911

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A VALUABLE PUBLICATION.

The Pomona College Journal of Entomology, now in its second year, has been largely devoted to the more scientific discussion of entomological questions. In the December number it takes up the more practical or economical side of entomology. It has a long discussion by Horticultural Commissioner Essig of Ventura county on the citrus mealy bug and its distribution in California. Engravings show its work on the tree and the fruit of the lemon. Mr. Crawford discusses the Mexican orange maggot; Mr. Coolidge, the California orange dog. Other scientific considerations of entomological subjects are given by Messrs. Distant, Crawford, Chamberlin and Grinnell.

The Journal is edited by Prof. C. F. Baker of Pomona College, the work of getting it up and contributions are gratuitous, and the cost of production is borne by several orange growers of Southern California. It is hardly probable that such a magazine will ever be self-supporting, but growers should give it all the encouragement possible.

RESPONSIBLE NURSERYMEN.

Eastern horticultural papers are warning against nurserymen who contract to sell and plant fruit trees, maintaining them for a period for a consideration. It is possible some such nurserymen are responsible; it is more probable that many of them are irresponsible, at least if we may judge from the past years. From Denver and the Northwest especially has come complaint of swindling operations of these nurserymen. An agent appears and contracts, for instance, to set out seventy apple trees per acre and care for and prune and replace all trees dying within a period of three years, for $35 per acre, or 50 cents per tree. One grower reports that he signed such a contract, and that his trees were planted, but a great number of them died. He complained to the company by mail, but his loss has not been made good. Meantime a "settlement" has been effected with him, by which he paid far more in cash than good, thrifty trees could have been purchased and planted for.

The best way is to deal with responsible nurserymen of our own state.

FIRE DAY.

California may be burdened with legal holidays, but we note the observance of one in Nebraska which we believe would be a valuable addition. It is called "Fire Day," and is observed by the public schools of the state. Its observance has been brought about by the suggestion of the state fire warden, and the object is to make the day one of instruction on fire prevention and extinguishing. Pamphlets of instruction are issued, and it is urged that parents supplement the work of the schools by emphasizing the lessons of the day. This effort is more particularly in the interests of the thickly populated sections, where fire is a great menace. Judging from the statistics of fire losses in the United States, such a movement is dictated by wisdom. The annual losses from this cause the country over aggregate $250,000,000. This is a loss of over $2.50 for every man, woman and child in the United States. The average annual fire loss in continental Europe is only 33 cents per capita. The great loss in this country compared with that in Europe is no doubt due in part to our lighter construction of buildings. European cities are more generally built of stone and cement. This condition will to a certain extent be corrected as our country grows and fireproof buildings are constructed, but these lessons should be impressed upon our young people.

In California, and, in fact, in all the arid West, a still greater lesson of fire loss may be taught with regard to our watersheds and lumber interests. The losses of the past year have mounted to such magnitude that closest attention must be given to prevention of similar occurrences. The Superintendent of Public Instruction of California has shown himself alive to topics of the day. We suggest for his consideration, and that of other educators, a fire day in this state, in which the duties of campers, hunters, careless smokers and others who enter the forests may be made emphatic.

RAIN.

We hope before these words are read that a little rain at least may have been given to the state, but up to this time the promise of an exceedingly dry season seems to be all that we have. Moralizing or even complaining does not help the situation in any way, or even reference to past years' totals to show that other seasons have been similar, is but little comfort. It is a common saying that no two summers are different and no two winters alike in California, so that precedent has no assurance for us. But we know there is nothing gained by the complaining spirit. The only gain is through conservation of every drop of water by the use of enlightened methods of winter irrigation. Saving of moisture through cultivation is also a factor, but we hope the "change of the moon" which is promised to bring us rain a week or two later will make good.

SOUTHERN CALIFORNIA POULTRY BREEDERS ASSOCIATION.

The Southern California Poultry Breeders Association gives its sixth annual exhibition at Luna Park, Los Angeles, January 5-11. The San Diego Show also begins this week, so that Southern California fanciers are offered opportunity to see some exceptionally fine birds.

The Florida Fruit Exchange has been so successful with citrus fruits during its first year that one of the sub-exchanges has notified its members that it will handle, in addition to citrus fruits, tomatoes and celery. This is announced that other sub-exchanges may fit themselves to handle garden truck, so that the big organization promises to benefit the market conditions of Florida along all lines. We hope this will be successful, for one big organization handling this produce will be more satisfactory than many smaller ones. But the California Exchange has been so successful, and has stuck so closely to its one line of citrus fruits, that we cannot help but wish that the Florida Exchange would perfect itself along one line before branching out. We wish it all kinds of success, however.

The specialization movement has again been shown in Colorado, where a call has been issued for a convention to meet at Greeley, January 6th. This call was issued by the Weld County Farmers' Club to all farmers and commercial organizations in Colorado to attend a "State Convention for considering ways and means to remove the grasshoppers as a factor working against Colorado's prosperity." In that state the grasshoppers are spreading with the increased growing of alfalfa, and it is feared their ravages may become permanent unless methods of general control are adopted.

As an illustration of how the by-products of a manufacturing process may become of great importance it is announced in the Kansas Farmer that the ginners of the Texas cotton fields are advertising to gin the farmers' cotton free and pay them a bonus of from $7 to $8 per bale in addition provided they are allowed to keep the seed. It has not been long since these same ginners were charging for their work of ginning the cotton and were keeping the seed as well. The seed is now worth practically as much as the fiber.

Several states are considering the advisability of giving compensation to the owners of animals destroyed to prevent spread of contagious diseases. At the present animals which are liable to spread germs of tuberculosis may be ordered destroyed by state authorities, and the entire loss falls upon the owner. This is certainly most unjust and almost disastrous. For the well-to-do stock owner who has large numbers of animals which may be infected with the same disease it is possible the benefit may more than make up for the loss, but as a rule the action of the authorities is for the general good, and, such being the case, it seems only fair that the entire state should bear the loss, instead of forcing it upon the unfortunate owner of the infected animal. Municipalities are taking steps in this matter, and are insisting upon the testing of all animals which supply milk. This is not in the interests of the dairymen, but in the interests of the community. We believe our stock owners should take action at the coming session of the legislature to secure more just action in the matter.

We notice in a Middle West paper reference to a trip of several hundred miles through Kansas on which the writer had seen many alfalfa mills standing idle. No explanation is given, so we cannot utter any warning other than that if this matter is being overdone in the Middle West it might be well to observe caution in the establishing of more of these mills in our state. They certainly have produced a profitable feed and many stock owners are using alfalfa meal continuously, but if Easterners are finding overproduction along this line, let us Westerners use care.

The oldest bee man in the state has just been reappointed bee inspector of Orange county. Many of our readers know him, and will appreciate the action of the Republican board of supervisors in appointing a Democrat to this position. The man is Mr. J. E. Pleasants, and his candidacy was endorsed by practically all bee keepers of Orange county.

"I do the very best I know how—the very best I can and I mean to keep doing so until the end. If the end brings me out all right what is said against me won't amount to anything, if the end brings me out wrong ten angels swearing I was right would make no difference."—Abraham Lincoln.

A German colony is being established near Live Oak, Sutter county.

Agricultural News Notes of the Pacific Coast

Northern California

English walnuts are being planted extensively near Live Oak, Sutter county.

Fruit growers of Paradise, Butte county, will build a large packing house.

With hops hopping from 14 to 20 cents a pound, those who have held their last crop are jubilant.

Yuba City, Sutter county, produced raspberries, watermelons and tomatoes for Christmas dinners.

The Schmeiser Manufacturing Company, at Davis, is making extensive improvements on its factory.

Butte county stock men report grass on the ranges growing better than they feared from the rain shortage.

As a missionary box to the poor children of San Francisco, Oroville Sunday schools shipped a supply of Butte county oranges.

Montague, Siskiyou county, has offered forty acres and $1,000 in cash to the university for the establishment of a demonstration farm.

The Sutter County Farmer reports extensive planting of orchard trees about Yuba City. English walnuts especially will be planted.

The horticultural commissioner of Placer county finds some orchards infested with brown apricot scale, and is recommending spraying.

The Oroville Register maintains that orange-producing lands of Butte county are held at altogether too low prices, considering their profitableness.

The State Horticultural Commission will make an extensive exhibit of beneficial insects at the Citrus Fair to be held in Sacramento beginning January 13.

The Horst Hop Company, with large holdings near Wheatland, is reducing its acreage to the extent of a hundred acres. Dairying will take the place of hop growing.

Orange growers of the Butte County Citrus Association are receiving their first dividend of $1 per box on the first pool of fruit for the season. This distribution amounts to about $10,000.

While spraying the brooder with coil oil to eradicate mites, a poultryman at Petaluma caused an expensive brooder to be burned to the ground because of not extinguishing fire in the stove.

One poultryman near Haywards, Alameda county, made big money this year in fattening geese after the style that is carried on in France and Germany. The San Francisco market took them at long prices.

The officers elected to control the Farmers' Union of Chico, Butte county, for the coming year are as follows: George O. Miller, president; Edmund Gale, vice president; W. J. Van Arsdale, secretary and treasurer.

A small fruit grower at Chico, Butte county, has a variety of raspberries which are bearing heavily at this season. The bushes are yet loaded with green fruit, and he hopes he has a very valuable addition to small fruits.

Central California

Many sections of the valley show activity in plowing, notwithstanding the dry weather.

Another quarter of a cent has been added to the market price of seedless raisins, the price now ranging near 3½ cents.

One turkey grower of Tulare whose flock consisted of two fowls has a net profit of $107 from the year's product of the two.

Lindsay, Tulare county, shipped during the past twelve months 53 cars seedlings, 128 cars Valencias, 1,141 cars navels.

It is estimated that the orange growers of the Lindsay district were paid between January 1, 1910, and January 1, 1911, $739,840.

The officers of the apple annual at Watsonville are planning for a rousing meeting of all the stockholders to be held January 9.

A grain warehouse at Lois, Tulare county, has been sold to fruit men, and will be transformed into an orange packing house.

A grapevine was exhibited at the Tulare county citrus fair which showed on one graft placed last spring an aggregate growth of 500 feet.

Arthur E. Miot of the Tulare County Board of Trade, is delivering daily illustrated lectures in the Chamber of Commerce rooms, Los Angeles.

The Department of Agriculture of the Hanford Union High school is planning for the setting of many trees and shrubs on the high school grounds.

Irrigators near Turlock are watching the watershed of the Tuolumne river, lest power or irrigation companies deprive them of some of their rights.

Claim jumpers have been busy with land which the Southern Pacific has claimed for years. This is because of the news of the government suit against the company.

Monterey hopes to interest the San Joaquin Valley in its effort for a state appropriation to aid in the construction of a breakwater and to improve the shipping facilities of that harbor.

A second car of Turkish tobacco has just been shipped from Exeter to New York. It is understood that this will be made up into genuine "imported" Turkish cigarettes in New York City.

The Peoples Ditch Company which irrigates much land in Kings county, is strengthening and improving the old weir. About 340 feet of a new weir has also been practically completed.

A mass meeting recently held at Fresno endorsed a plan by which a $100,000 corporation was formed for handling and selling next season's raisins, but it is reported that the promotion is not yet past the talking point, or at least not to the point of the paying in of coin.

Great interest is being taken by property owners on the west side of the San Joaquin Valley in the agitation for an irrigation district. The scheme is immense, covering over 3,000,000 acres.

Southern California

The cotton gin at Imperial is running full time on first-class staple.

Upland, San Bernardino county, has an orange 23 inches in circumference.

One rancher in Imperial county reports two bales of cotton to the acre.

Bostonia, San Diego county, is proving an excellent lemon producing section.

The beet planting in the section of Simi, Ventura county, has been completed.

The California Eucalyptus Company is contemplating construction of a hardwood factory at Oxnard.

The Orange County Dried Fruit Association reports about nine carloads of last season's fruit yet unsold.

Dehesa in the El Cajon Valley, San Diego county, has shipped out some remarkably fine apples this season.

A large tract of land in San Bernardino county in the so-called desert section is to be reclaimed and subdivided.

The Hemet Canning Company has strong commendation for its large output of canned fruits put up this last season.

Poultrymen of El Cajon Valley, San Diego county, are planning a poultry exhibit during the last of this month or first of next.

The canning factory at Anaheim, Orange county, is planning for extensive improvements and the biggest run ever next season.

B. A. Woodford of the Southern California Fruit Growers' Exchange, addressed the Farmers Club at Covina last week on methods of marketing.

The directors of the San Diego World's Fair are planning for a great celebration the coming spring at the time of breaking ground for the 1915 fair.

The work of the Ventura county Lima Bean Growers Association in advertising its products in the East has materially aided in securing better prices.

The highway commission of Orange county has recommended the calling of an election on the question of issuing $1,400,000 worth of bonds for good roads.

The Whittier Walnut Growers Association has disbursed over $300,000 to its members for its 101 cars of nuts shipped. The price received was 15 cents a pound.

Several land owners of the Imperial Valley not having water stock in the irrigation company are entering suit to force the granting of water for irrigation of their lands.

One of the biggest water filings in the section was made last week in Massacre Canyon in the San Jacinto mountains. It was for 25,000 inches. The water will be used in the watering of lands in San Jacinto, Moreno and Alessandro.

Supervisors and good roads admirers from several counties recently made inspection of one of Los Angeles county's good roads through San Fernando and to the Newhall tunnel. It was declared to be an exceptionally fine piece of roadway.

The Coast

Fresh ranch eggs are selling at Portland, Oregon, at 42½ cents.

Christmas turkeys sold in the Portland market for 25 and 26 cents.

Spokane has been shipping extensively of apples to the New York market.

Tillamook, Washington, is planning for its first county fair to be held next August.

Coos county, Oregon, is shipping apples to San Francisco and receiving good returns.

Some hop buyers of Washington have oversold and are now scurrying to buy sufficient stock to cover.

A delegation of Northern Montana interests is urging endorsement of Milk River reclamation projects.

The annual meeting of the Puyallup and Sumner Fruit Growers Association will be held at Puyallup next Saturday.

Four carloads of Fresno scrapers have been shipped to Lower California to be used in levee building along the Colorado.

Seventy thousand bushels of wheat changed hands at Lewiston, Idaho, recently at prices ranging from 67 to 69½ cents.

An Ashland, Oregon, fruit grower has made an excellent sale of apples in London, England. The average per box was $1.54.

A huge concrete warehouse is being built at Cashmere, Washington. It is to have storage capacity of 100,000 boxes of apples.

Eighteen thousand acres will be watered by the electric transmission line of the Pacific Power & Light Co. at Walla Walla, Washington.

Farmers of Burns, Oregon, are asking the state legislature to pass a bill granting bounty for jackrabbits, which are becoming a serious pest.

Farmers near Nelson, British Columbia, are petitioning for privilege of issuing debentures for the purpose of establishing a local irrigation system.

The orders for nursery stock, especially apple trees, about Spokane, Washington, in fact, all of the Inland Empire, are heavier than any preecding year.

An irrigation scheme which will cover 10,000 acres of fruit land in Okanoogan county, Washington, is promised by a power company at Loomis.

Warehousemen at Nez Perce, Idaho, are busy because the cold weather has put the roads in the best condition and farmers are delivering great quantities of grain.

The Farmers Union at Walla Walla, Washington, has rejected all grain bag bids, the lowest being $5.80. The price paid last year was $5.47½. The farmers realize that jute is higher than last year but insist not to that extent.

A new cattle-feeding grain has been developed at the Wyoming Experiment Farm which is a cross between Russian spelt and American wheat. It is called ommer. It is declared to be drouth-resisting, and yields ninety to a hundred bushels per acre.

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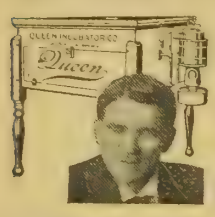

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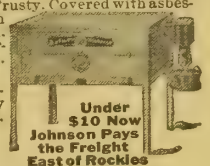

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Practical Poultry Culture

THE HOUDAN—THE PRIDE OF FRANCE.

The Houdan is the pride of France, and well may the French poultrymen feel proud of it. It is one of the few breeds that is both useful and ornamental. There are other French breeds—and they are good ones, too—but of the entire class there is not one that seems to be so well adapted to the changeable climate of America.

In the minds of many, there is but one objectionable feature, and that has been the cause of its not being at the head of the imported practical breeds—the presence of a crest. This crest lops over the eyes to a certain extent, making them, as chicks, easy prey to hawks, and as fowls, susceptible to colds when caught out in heavy rainstorms.

Otherwise, the Houdans are hardy, and besides are excellent layers, giving a large white egg. As table poultry—well, they have few, if any, superiors. The writer has bred this variety for a number of years, and can testify from experience to their fine practical qualities.

As we have stated, the Houdan is held in high esteem in its native country, being classed by the Frenchmen second only to one other breed, the Creve Coeur, which, however, for some reason or other, does not stand our climate so well.

"The Dorkings of France" is a title given to the Houdans, owing to their large, heavy, short legs, their five toes on each foot, and the small, light bone and a remarkable absence of offal.

As chicks, the Houdans mature rapidly, feather early and are strong and vigorous.

Crossed with older breeds, the Houdan imparts its good qualities to a high degree. The writer, some years ago, made a cross of a Houdan cockerel on Partridge Cochin hens, and also a Houdan cockerel on Light Brahma hens. The former cross proved to be best for quick growing and plump body, making an ideal broiler, as well as a very attractive roasting fowl.

Mr. Tegetmeier, England's famous authority, says the Houdan fowl has a very bulky appearance, its plumage being black and white spangled; a crest of the same color; comb triple, the outside opening like two leaves of a book, and the center having the appearance of an ill-shaped, long strawberry. With the cock the comb is very large. The legs are strong and of a lead color, with five claws, the two hind ones one above the other. Strongly developed whiskers and beards, both in cocks and hens.

Mr. Tegetmeier continues: "This is one of the finest races of fowls, but its qualities surpass even its beauty. Besides the smallness of their bones, and the fineness of their flesh, they are of an extraordinary precocity and fecundity; they lay large and white eggs, and the chickens are fit for the table at four months old. The weight of adults is from seven to eight pounds, in which the bones figure for one-eighth. The chickens when four months old weigh, without the intestines, about four and a half pounds."

Lewis Wright, another English authority, says he believes the Houdan was created, to a certain extent, by Dorking blood crossed with the Mottled Ancona. They have the size, deep compact body, short legs, and fifth toe of the Dorking, which in form they closely resemble, but with much less offal and smaller bones.

Wright also hints that as some hens, with age, become nearly white, the precaution to avoid this was in crossing with the Creve Coeur. Occasional specimens of Houdans get very large, as heavy as ten pounds for a hen has been attained, but, of course, that is an exceptional case.

Wright then gives this testimony: "Better table fowls are none; the laying powers are great, the chickens fledge and grow faster than almost any breed, and the eggs are invariably prolific—indeed, the ardent Houdan cock requires more hens than almost any other."—American Poultry Adv.

GOOD PROFIT IN RAISING BROILERS.

There is hardly any period of the year when it may be said that poultry needs less attention than at other times, but it's certainly the case that there is a time when the most profit may be made from the poultry yard and that time is winter. It is not necessary to remind anyone that 30 to 45 cents a dozen is a high price for eggs, and that there is a good profit in them at that price. Fewer people, however, realize that there is a big profit in broilers and that broilers can be raised as successfully in winter with the proper preparations and care as they can be in spring, and better than they can in midsummer.

The greatest enemy of old as well as young chickens in winter is not the cold but the wet. We seldom have weather below Maryland that will hurt chickens if it is unaccompanied by rain, and then if the fowls are properly sheltered and protected no damage need result. Birds must be kept in and protected during bad weather, but with the right kind of chicken houses, such as any farmer may build for himself, tight and cold and waterproof on all sides except the southern, chickens will not suffer.

To raise broilers in winter hens must be set in sheltered places and shut up to prevent their leaving the nest for too long at a time. Food and water must of course be kept within reach. After the chicks are taken off they must remain under shelter and be protected from cold winds as well as wet until they are well feathered and able to take care of themselves. It is much better that they be kept under shelter until they are eight or ten weeks old, when they will be ready to market for handsome prices if they are the proper kind of stock and have been cared for properly. Of course if they are kept longer they will grow larger and bring more, but the larger they grow the more feed it takes to make an ounce of meat. Of equal importance with proper shelter is the proper feed for both old chickens and the chicks. If hens are to be expected to lay during the winter months, when eggs are highest, they must be given the kind of food that will make them lay. If they have no pasturage some substitute for it must be provided, for green stuff is one of the first essentials. Sprouted oats are excel-

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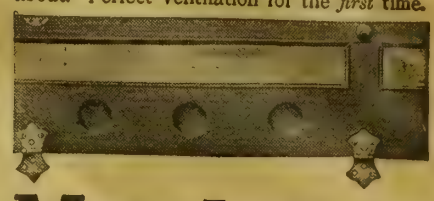
Here's his new Incubator door all are talking about. Perfect ventilation for the *first* time.



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supply life-giving oxygen freely to the eggs and just as naturally draw off the poisonous gases. The most important step ever taken in incubator ventilation—neither above nor below, but *right at the eggs*—the correct principle, for the new Mandy Lee is making better hatches of *stronger* chicks than any other incubator in the world.

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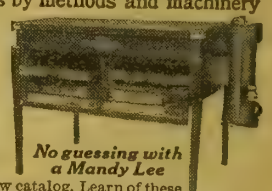

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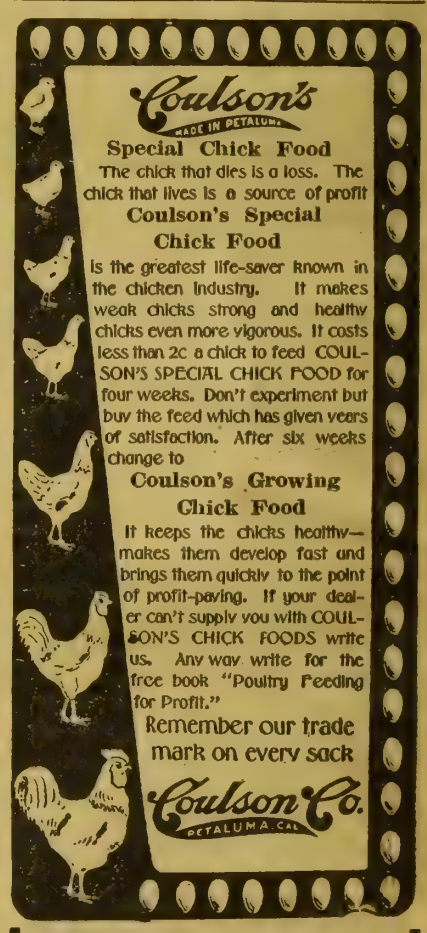
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lent. Ground or shredded alfalfa is a good substitute when the real succulent green stuff is not to be had. Beef scrap has been regarded as the only substitute for the worms, bugs, etc., that form an important part of the bird's food when on range in the spring and summer months. I find, however, that cottonseed meal contains even more protein than the beef and that it is much cheaper and more agreeable to handle. It is entirely too rich to be fed by itself and I feed it one part to two and three of bran and cornmeal mixed, in both wet mash, which I feed in the morning, and a dry mash that I keep before my chickens all the time. I find that the most convenient way to feed my chickens is to feed a wet mash, sometimes varied with grain, swelled oats, etc., in the morning and a feed of grain at night, with the dry mash within reach all the time.

A good feed for chicks is bread baked thick from a mixture of two parts cornmeal, one part bran and one part cottonseed meal. Dry bran may be kept before them practically all the time.—Inland Farmer.

DOCTORING SICK FOWLS.

If there is any one thing upon which poultrymen generally agree it is to at once remove from the flock all fowls which show signs of any form of illness. Get them out at once, before you wait to learn the nature of the disease. There can be nothing gained by leaving the sick birds among those which are well, and it is possible to threaten the entire flock.

Another thing: If you want to try to doctor sick fowls, all well and good, but don't conclude that you have effected a cure and then put the convalescent fowls back with those which are healthy. Keep them separated, and it will be found that it is inadvisable to put the birds together at all.

The safest plan is to keep the birds separated all the time, from the moment you discover any signs of illness. If this is done, a lot of trouble will be avoided.—The Fruit Grower.

SUNFLOWER SEED.

Sunflower seed is highly recommended by some people as a ration for poultry on account of the kernel containing oil that is said to be highly beneficial in improving the quality of color and gloss on the plumage of the fowls, as well as being an aid to poultry during the moulting process.

The facts are that sunflower seed is more than 90 per cent waste matter, the hulls being difficult to digest and of little or no feeding value. A few sunflower seed may be of some benefit to poultry, but fed in large quantities they would be a detriment rather than a benefit—Pacific Homestead.

DUCKS.

Ducks grow faster when they have no pond or water to swim in. However, they must always have a plentiful supply in troughs. Have their troughs set up on platforms, so they cannot puddle up the soil alongside. Ducks do not continue as profitable breeders much beyond the third year. Very old geese cannot be made palatable for dressed poultry, but ducks can be quickly fattened into palatable food at almost any age. If taken when quite thin in flesh and fed on rich, fattening foods, they will fill out with juicy, palatable meat in a few weeks, and make fairly good market fowls. If the ducks are kept in the farmyard with other fowls, put their grain food

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the leaders. Principle, Construction, and Results compel the admission that there is none to equal them. There is a difference between chicks just hatched and those "well hatched."

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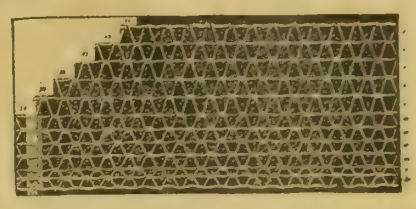

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and create the perfect Seed Bed in one operation. Fits any riding plow. Saves all the labor of harrowing, and locks in the moisture for the plant.

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in a pan or other suitable vessel, and pour water on the grain until it is covered an inch deep. By such arrangement the hens cannot rob the ducks, while the latter eat with greater ease by having their food under water. But each fowl will thrive better, however, if kept to itself. The duck generally lays at night. It thrives best on soft, succulent food. Strong, vigorous birds can be successfully bred at four years of age. Properly fed, at eight weeks of age green ducks will weigh nine pounds to the pair; at ten weeks they should weigh ten to eleven pounds to the pair. The market term "green duck" is a late innovation. The cognomen is applied for the reason that the birds have not yet matured. Pekin ducks are great layers, but are of no account as mothers; consequently, if they cease laying and remain on the nest, shut them up, feed them well for a few days, and when they are turned loose they will soon begin to lay again.—Indiana Fowl Fanciers' Journal.

Teach the young chickens to scratch as early as possible by scattering small grain among the litter.

CORRECTING DEFECTS.

The subject of mating is one of much importance and one that is understood by few. The men who have achieved the highest honors are the few who have studied carefully and constantly the matter of points and have had their specialties. The successful breeders of one variety (and few have achieved greatness with more than one breed) begin to study their matings the preceding summer and fall, and watch the development of the chicks, that they may not only get the feather, but vigor and size. It would be useless for us to attempt here anything more than some general pointers, as we have neither the space nor time to direct the mating of all varieties. First study the Standard (it is not infallible, but it is the best we have), and get the ideal shape and color fixed in your mind. Find in what section your birds are most deficient, and try to remedy that by mating to the other extreme. This can usually be done through the male. Solid colored birds are much more easily mated than others, yet must receive care. If the combs of the strain you now have are too large, use a male with a small, low comb. If their legs are too dark or too long, tails droop, backs too long, wattles too short, wrinkled, or uneven; ear-lobes, if white is required, are streaked or edged with red; if red is required, the much despised white blotch appears. These defects can be effaced, perhaps not in one year or two years, but persistence and study will do it. The breeding of high-grade stock requires care, study and vigilance. It requires, also, association and comparison with others, and interchange of ideas and knowledge. One may learn something by visiting with other breeders and exchanging ideas.—Wolverine Poultry Journal.

TO INCREASE PROFITS.

It is a very bad policy to feed the hens nothing but corn; but it is being done by many. Feed a variety, feed grain in litter, making them work for all they get, and do not forget green food. It may be a little extra work, but is cheaper and more profitable.

Fresh turned earth has great powers of absorption of filth and the cultivating of the poultry runs is advisable. Even if your space is small for runs, by frequent turning of the soil you are assured of sanitary conditions if you do it.

Gather the eggs often, this assures fresh eggs, has a tendency to keep hens from broodiness. If they are allowed to remain in the nests until six to ten have accumulated the hens soil them more. It is better to gather eggs two or three times a day the year around.

Cleanliness should now, in particular, at this season of the year, be the paramount issue or duty with every poultryman. Do not let filth and droppings remain in the poultry house, dirty scratching litter and nesting material. A little neglect now will give you poorer results later on and a big crop of lice.

You can spade or plow in oats in the poultry runs with a profit. Considerable grain will be scratched out, some will be eaten just as it sprouts and other grains will shoot forth a stalk and it will all be devoured by the hens, with a fancy profit. The stirring of the ground will keep the place more healthful, the hens busy.

Do not neglect to clean the poultry house often. Filth is a breeder of disease. Filth is the profit-eating germ of the poultry business. If you want to make money from your poultry attend to this little duty of keeping everything clean and in a sanitary condition around the poultry houses and yards.

It does not matter what your aim is in the poultry business, even if it is only a few for the house, you can not afford to raise mongrels. Get some eggs from a reliable breeder, start right, and raise good poultry, even if it is only a few. It looks better, sells better, tastes better, and will cost you no more to raise them.—Poultry Pointers.

ADVERTISING SUGGESTIONS.

It is impossible to make hard and fast rules regarding advertising. Probably some advertisers have found that the following suggestions do not always produce results; yet experience gives strong testimony. One advertiser complains he is not getting results. Inspection of his "ad" reveals that it is simply headed "Stop!" By reading the fine print which follows, you can learn what varieties he offers, and other details. But ten chances to one the man who wants Rhode Island Reds is looking for and will read those "ads" in which that breed stands out as the most prminent thing. In advertising merchandise, a peculiar or unusual heading is regarded as desirable to attract the reader's attention, probably upon the supposition that the reader is not looking primarily for the articles mentioned in the "ad," and yet the dealer wants to reach that reader and tell his story so well the reader will buy. Generally this is not true of poultry advertising. The reader wants a particular breed or variety; he has not time to go through several hundred "ads." He simply glances over each page, and whenever his breed appears in type heavy enough to be noticeable, he reads that "ad" to see if the advertiser has the exact thing he is looking for. It seems wise for an advertiser in a poultry journal to restrict the wording, and use enough space to enable the printer to put the name of the breed in large, bold type. Freak advertising or headlines not pertaining to poultry do not apear to be profitable in this line. Remember these statements when writing "ads," and you will be less likely to have reason to feel that advertising does not pay.—Profitable Poultry.

Study the effects of care and feeding with your poultry, and try to work out some poultry problems for yourself.

White Leghorns

A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Booklet descriptive of our stock and farm, containing recipe for mixing the best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels. On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

MODEL POULTRY FARM

Irvington, Alameda County, California

Chickens For Profit

The present status of the POULTRY MARKET means a big return on a poultry investment. Whether you have a large place or a small one you can profitably employ a portion of it for poultry.

Last month eggs retailed at SIXTY CENTS A DOZEN. Even at that price there were thousands of dozen imported from the east.

California consumes more poultry and eggs than she produces, but not more than she can produce. The state is ideal for poultry. Mild climate, good soil, large range and big demand.

Poultry raising is easy, pleasant and profitable. Your son or daughter can take care of the chickens, make his own spending money, bring you a good return on the investment, besides furnising the table with fresh eggs and tender, tasty meat.

We supply everything for proftable poultry raising, including Poultry Foods, Incubators, Brooders, Poultry Remedies and supplies of all kinds.

Write for catalogue and special instructions to fit your particular case.

Coulson Poultry and Stock Food Co.

PETALUMA, CAL.

Irrigation and Forestry

THE WORK OF THE GOVERNMENT IN FOREST PRODUCTS.

The United States is now facing the problem of forest conservation which must be solved by every county some time during its history. The original American forests were unexcelled anywhere in the world. Not only did they cover a vast area, but they were characterized by trees of great age and size, and by an unusual variety of valuable species. Heretofore we have drawn chiefly upon the original supply of timber, and the bulk of the lumber used in this country today is still from trees over 150 years of age. In spite of the rapid rate of cutting and the destruction of forests by fire, ample supplies have been made available by the opening of new regions through the extension of railroads and through the development of logging engineering. The process, however, cannot be continued indefinitely. Already the end of the virgin supply of timber is clearly in sight, and all thoughtful men who are familiar with the conditions appreciate that there is before us a problem which very profoundly affects the welfare of the country.

The problem of forest conservation must be worked out from two standpoints; first, by securing the greatest possible economy in the utilization of forest products, and, second, by producing new supplies through forest growth.

At present, there is a great loss in the utilization of forest products, and the production of new supplies is entirely inadequate to meet the requirements of the people in the future. Within recent years great progress has been made in the protection of forests from fire. The loss from that source has been greatly reduced, although there is still an enormous amount of destruction of young growth by fire, and in some sections fire has almost entirely prevented forest reproduction. One of the most important aims of the forestry movement has been to bring about not only the protection of standing timber from fire and other agencies, but also the replacement of forests as they are cut and the establishment of denuded lands.

Forestry, however, does not stop with the growth of trees. It concerns itself equally with the disposal and utilization of the products. The two branches of forestry, forest utilization and forest production, are inseparably related. The market for products is one of the factors most controlling the selection of species to be grown and the methods of handling woodlands for forest growth. The study of forest products is, therefore, one of the most important lines of work of the Forest Service.

The fundamental purposes of the work of the Service in products are, first, to bring into use the greatest possible amount of the products of the forests with the least possible waste, and, second, to place these products to their best use. In other words, the Service aims to aid in making the material which can be obtained from the forest meet in the highest degree the real requirements of the people. This broad principle is the foundation of the work which will be done at and in connection with this laboratory.

In its work in products, the Forest Service keeps in view two objects: first, direct aid to the various wood-using industries, and second, forest conservation in its broadest sense.

The interest, co-operation, and support given to the Service by practical men engaged in different industries is proof of the apreciation of the work in products which has been done and is projected.

The science of forestry in this country is at its very beginning. While the American species of trees are well known botanically, the study of their life-history, their behavior in the forest, and their possibilities of production has only recently made much progress. It is equally true that our knowledge of the products of the various species is still very inadequate.

The first necessity is to determine the fundamental properties of the various woods. This information is essential as a foundation for the study of the suitability of the different species for specific uses. At the present time there are many species which are little used or not used at all because of ignorance of their properties or prejudice against them. Many of the common commercial species are for the same reason confined to only a few of the possible uses. It is the aim of the Forest Service to show the possibilities of all the species and to demonstrate the uses to which each is best adapted.

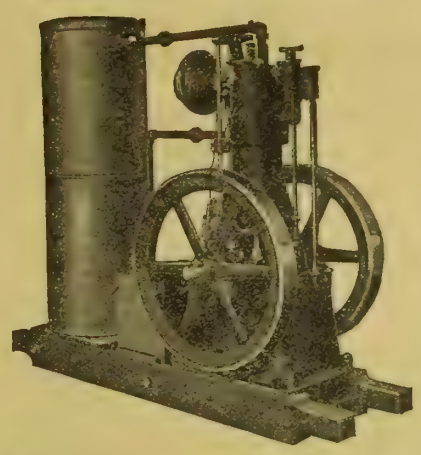
The demonstrations at the laboratory today have illustrated many of the special lines of work and the methods of conducting the investigations. You have seen the methods of studying the fundamental physical, mechanical and chemical properties of wood.

A further aim of the work at the laboratory is to study the methods of handling wood products so as best to adapt them to certain purposes. Studies will be carried on at the laboratory to show the behavior of the various woods under different conditions. One of the important problems is to determine the influence of different conditions of moisture on the strength, durability and other characteristics of wood. This work will form the foundation for the investigation of the best methods of seasoning wood in order to bring the products into the market in the most suitable condition for their various uses.

The next problem is the study of how to treat wood products so as to improve their natural qualities. One

THIS AD WILL BE READ BY EVERYONE INTERESTED IN A GOOD GAS ENGINE

WE HAVE THE **ALAMO** MADE ESPECIALLY FOR



THE FARMER'S MANY NEEDS

ALL SIZES IN STOCK

BAILIE & BRANDT CO., Inc., Sole Agents

943-945 NORTH MAIN ST. A 1263 PHONES Main 8794 LOS ANGELES

Why Not Do It Right--"Let the Hart-Parr Do Your Work"

Experience teaches that the proper way to prepare land to get best results, is to plow deep, tear up the clods and reduce the surface as fine and level as possible, so as to prevent evaporation of moisture.

Proper preparation of the seed bed is one of the things which goes a long way to assure at least a fair return, even in the driest year.

So, why not do it right?

"It is up to us to tell you why ours is the best,
But it is up to you to put it to your test."

THE "MODERN FARM HORSE" will furnish the power. The plows can be sunk just as deeply as desired and the heavy traction pulverizers will leave the land level and in shape to take in and hold every drop of moisture which falls on it.

Some sections which cannot be properly farmed by the use of horses will return good crops when handled with a tractor, because in that way the land will be treated as it should be.

DO IT RIGHT—

Buy a Modern Farm Horse Now.

Let us tell you more about this "Modern Farm Horse," and its advantages on your farm. Mail us a postal card—we will do the rest. Two sizes, 30 H.P. and 45 H.P.

ZIMMERMAN & JONES
LOS ANGELES

New Address- -877 Stephenson Avenue.
Take a Hollenbeck Park car on East Third St.

ORANGES

Washington Navel
Valencia Late
Thompson's Improved

LEMONS

Eureka
Libson
Villa Franca

POMELOS

Marsh Seedless
Triumph

Our trees cannot be excelled. Write us today about your requirements and get prices.

Nurseries at Whittier and Exeter.

ROEDING & WOOD NURSERY COMPANY

EXETER, TULARE COUNTY, CALIFORNIA

of the most important lines of work at the laboratory will be the study of the treatment of wood to prolong its life. There is required in the first place a thorough study of the various preservatives. Then follows the investigation of the methods of treating the different species with reference to their peculiar specific characteristics.

There are a multitude of problems of wood utilization, but among the most important are the investigations of the possibilities of the different species for the manufacture of paper, and the study of the by-products which can be obtained by various processes. The laboratory is especially equipped to make these investigations.

I have given special emphasis to the fundamental and scientific character of the work to be done at the laboratory. Every investigation, however, is directed to the solution of some practical problem. Many experiments are conducted at the laboratory on a commercial scale, or commercial tests are made in co-operation with private concerns. In many cases, the work at the laboratory is supplemented by extensive field experiments. Through co-operation with private companies and trade associations, the investigations will not only be brought into the most practical lines, but the results will be given an immediate application.

The branch of forest products has been established at Madison. The laboratory is the center of its work. It concerns itself, however, with the whole field of forest utilization. There are special branches of its work in the various districts of the national forests of the West, and there are two subsidiary laboratories, one in the state of Washington, and one in Colorado. It is the design to bring the work into the closest relation with all the wood-using industries. The determination of the fundamental facts and principles of wood-utilization is the first step. To secure the practical application of those principles requires the assistance and co-operation of all those interested in them in a practical way.

There has been a most gratifying co-operation with the Forest Service by the different railroads, lumber companies, paper companies, woodworking concerns, and trade associations. I wish to take this occasion to express the appreciation of the Forest Service for this co-operation and assistance.

From the standpoint of conservation, the work of the government in forest products is of great importance. When one examines the losses in the utilization of wood products, one finds that these begin in the woods. Many species are not cut at all; often the trees left uncut deteriorate rapidly, or blow over, or are injured in logging; frequently long tops containing a large amount of low-grade lumber are left in the woods; and many logs only partially defective remain on the ground. The cause of this seeming waste is the condition of the market. The lumberman seeks to take out only what he can dispose of at a profit. It is to his own interest to take out of the woods just as much as he can possibly utilize, because every increase in amount of marketable material removed reduces the cost of production and increases profits. The amount of waste in the woods is therefore definitely governed by market conditions. In exactly the same way it is the condition of the market which causes a great loss in the manufacture of lumber. Close utilization follows good markets.

It is the market, also, which most powerfully influences the problem of forest production. The better the market, the greater is the value of the timber; an improved market means a correspondingly increased inducement to protect the forests from fire; there is an increased value of immature and young growth; and a correspondingly greater justification for investments in holding and protecting cut-over lands for the production of new stands of timber.

The work of the Forest Service in products will have a direct influence in the long run on market conditions. The development of new uses of wood will bring into the market species and grades not before merchantable. The uses of wood for by-products will reduce waste and enable the lumberman to use material now frequently left in the woods or wasted at the mill. The extension of the use of treated timber will enable the marketing of the less valuable species for uses now requiring the most valuable. There will thus be a constant tendency to extend the market and to decrease the loss in utilization all along the line from the stump to the manufactured product.

There are, however, other factors influencing the market which will not be directly touched by the investigations at the laboratory. These factors must not be overlooked in the consideration of the relation of the market for forest products to conservation. Problems connected with the methods of logging and manufacture of lumber, grades and sizes of lumber, rates for low-grade lumber, the car-stake question, etc., concern conservation. In some of these problems, the Forest Service can be of assistance through its work of products.

One of the most serious problems, however, in the whole realm of forest conservation is that of over-production of lumber. In some sections of the country more lumber is being manufactured than is needed. There is, in consequence, a poor market for the

(Continued on Page 31.)

The Most Successful Plowing Outfit Built

An Avery Double Undermounted Engine and a Cockshutt-Avery Engine Gang Plow

Avery Steam Plow Outfit in Operation

MANY farmers have already found out that their Avery Plow Outfit is one of the best money-making investments they have ever made in the way of farming machinery. Besides those who have bought Avery Plow Outfits for their own use, a large number of threshermen and others are buying them and making plowing a business in addition to their threshing, sawing, shelling and other work, thus adding a large amount to their profits.

The construction of the Avery Outfit is such as to give it a record of wonderful success in all parts of the world.

Power That You Can Depend Upon

The Avery Undermounted Engine is a steam engine. It can be depended upon to do the work right along. You can increase the power when it comes to a hard pull, and decrease it when the plows pull lighter.

The construction of a steam engine is simple. Anyone can operate it. There are very few parts to break or get out of order, and it does not take an expert to keep it going or keep it in repair.

The Avery Engine Is Undermounted—Patented—A Design Much Superior For Plowing Purposes

In the first place it lasts longer than others because all the machinery is mounted on an independent frame work, and the boiler is relieved from all pulling strains.

You have no loose brackets, leaky bolts, or other such troubles with this engine.

In the second place an Avery Undermounted Engine has two cylinders, which is the only correct construction of an engine for heavy work such as plowing. Besides this the pull of the cylinders through the gearing and back to the load is in a straight line on this engine, while with other styles it is down from the top of the boiler at an angle.

In the third place the Avery Undermounted Engine is much more convenient to handle because of the fact that all of the machinery can be reached while standing on the ground, without having to climb around over a hot boiler.

For all-around work, plowing, hauling or belt work of any kind, there is no engine built today that can compare with the Avery Undermounted Engine. The only engine of its kind on the market. This engine is built in five sizes—18, 20, 22, 30 and 40 H. P. and will burn wood, coal, straw or crude oil as fuel.

The Avery Steam Plow Outfit

The Cockshutt-Avery Engine Gang Does First Class Plowing

It has had a wonderful success. Each plow is independent and is thus free to follow the variations of the ground without interference from any other plow. Each plow will turn a uniform furrow at a uniform depth either deep or shallow.

Built To Stand Up Under Hard Work

Has an extra strong steel frame, double beams and a heavy cast shank. Many of those now using Cockshutt-Avery Gangs have tried out other makes but have found that they would not stand up under the work. This plow will not only do good work in stubble ground, but also in tough breaking, hard dry plowing and in stony ground. It is built in five sizes—5, 6, 8, 10 and 12 gang, with either stubble or breaker bottoms.

You Should Find Out All About the Avery Steam Plow Outfit

About the engine that is built Undermounted. The only one that is like a Railroad Locomotive. An engine that will *last longer*, *pull harder* and *handle easier* than any other. You should find out all about the kind of work which the Cockshutt-Avery Gang Plow can do for you. Write for special circulars showing Avery Steam Plow Outfits at work in the field. You can see from these pictures just what kind of work this outfit will do.

Send your name on a postal or letter for our special steam plowing circular, and if you are figuring on buying, say about what size outfit you would be interested in.

AVERY COMPANY, 921 Iowa Street, Peoria, Ill.

Also Makers of Grain Separators and Corn-Growing Machinery—Send for Catalogs—Avery Machinery is Backed Up By the Strongest Warranties Ever Given By Any Manufacturer.

Southern California, Nevada and Arizona Agents for Avery Farm Tractor Described Above.

BAILIE & BRANDT CO. (Inc.)

943-945 NORTH MAIN ST. LOS ANGELES

A 1263 PHONES MAIN 8794

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Balanced Ration for Cow.

Kindly tell me if the following proportions make a balanced ration that will produce the most milk. I am feeding my cows each morning and evening: Bran, 1½ pounds; middlings, 1¼ pounds; Calfalfa meal, 1½ pounds; cocoanut meal, 1½ pounds; as a mash, quite wet, with all the red oat hay that they will eat three times a day. Not having a silo or green pasture, am compelled to feed mill feeds.—B. A., San Jose.

The following table may help you to estimate the feed now given to the cows. The only criticism I should make is that the number of different feeds mixed in mush make it necessary to buy in small quantities, and this is more expensive than buying in larger quantities. Bran and alfalfa meal are nearly alike in composition, and one or the other could be left out. The available nutriments in the feeds given are as follows to the hundred pounds:

	Protein.	Carbohydrates.
Wheat bran	12.2	39.2
Middlings	12.8	53
Oat hay	4.3	46.4
Cocoanut meal	15.6	38.3
Alfalfa hay	11.9	39.9

By moving the decimal point two figures to the left of these numbers they are reduced to one pound, and from that the ration can be figured accurately. It is well to remember that different cows need their food in varying proportions, and that the fixed rule does not always work perfectly on that account. Alfalfa meal varies more from the analysis than any of the others. The bran is usually the more expensive feed, and is used more as an appetizer. If alfalfa meal is cheaper, it will take its place. Chopped alfalfa hay, say two pounds a day, added, will take the place very nicely of the bran, and if soaked with the cocoanut meal over night, adds succulency to the feed. The amount to feed depends on the amount of milk the cow gives, and is figured out about as follows:

	—Lbs. Daily.— Protein.	Carbohydrates.
Cows yielding 11 lbs. of milk daily	1.6	10
Cows yielding 16.5 lbs. of milk daily	2.0	11
Cows yielding 22 lbs. of milk daily	2.5	13
Cows yielding 27.5 lbs. of milk daily	3.3	13

Eight to ten pounds of a cow's rations should be given in the form of long hay to aid her in raising the cud to rechew the feed.

Canning Peaches.

Which clingstone peach is in most demand and brings the highest price at the canneries? Also, which freestone? I want to set out several acres on the Chino ranch.—F. A. R., Chino.

This was referred to Mr. George H. Waters, of the Pomona Cannery, who is as well qualified as anyone in the state to answer the question. He writes:

"I think I am pretty well posted on what the canners are wanting in the peach line. They have settled on two varieties, the Phillips cling and the Lovell freestone. These are the finest varieties we have in this country, beyond any question whatever, for all purposes. Both varieties have very small pit and are prolific bearers. The peach men can make no mistake on these two kinds."

Fencing Against Gophers.

I noticed a question from a subscriber at Santa Barbara on the subject of fencing out gophers by a buried fence. A good many years ago I helped build a buried gopher fence four feet deep. It was a failure. Since that time I have known them to go under a cement storm ditch about seven feet deep. This is no guess, as I ran water into the hole, and it came out farther down the ditch on the other side. They regularly go under the North Fork canal here in Highland, which is about four feet deep and nearly as wide.—D. J. Aplin, Highland.

Book on Goats.

In response to an inquiry in a former Cultivator as to a book on goats, Miss B. A. R. Stocker of San Luis Obispo sends in the following: Bulletin No. 68, Bureau of Animal Industry, U. S. Department Agriculture; Information Concerning Milch Goats; Price 15 cents. Address Superintendent of Documents, Government Printing Office, Washington, D. C. This is exceedingly interesting and valuable. There are also two English books by H. S. Holmes Pegler, "The Book of the Goat" and "Goat Keeping for Amateurs," which can probably be obtained from Chas. Scribner's Sons, New York.

Squab Turkeys.

How old should turkeys be to be marketed as "squab turkeys," and do you know any attractive ways to prepare them for the table, besides broiling them?—"Amateur."

During our experience of over twenty-five years in connection with poultry affairs, we never heard of squab turkeys, and doubt if such have ever been of commercial significance. There are, however, turkey broilers, which are birds having attained a weight of from three to four pounds. In so far as preparation is concerned, the same practice as is followed in the case of broiler chickens would hold good.

Age of Ducks.

How can one tell old ducks from young ones, and what to feed them?—Mrs. M. Chatt.

Our correspondent evidently means birds that have reached maturity, when, of course, the general appearance of both old and young is much alike. Indeed, the distinction is purely relative. Bone and frame become firmly fixed in the older birds, beak becomes hardened, the web tougher, veins under wing more pronounced, etc.

Water Power.

How many gallons of water per minute does a miner's inch amount to? How much electrical power can be developed from a 30-inch stream with vertical fall, also 40-foot stream?—L. B. Ventura.

An inch of water is practically nine gallons per minute. Thirty inches would equal 270 gallons, which at the approximate figure of eight pounds per gallon would equal 2,160 pounds. With a 20-foot fall, this would equal in weight a column of water 20 feet

AVERY THIRTY H. P. UNDERMOUNTED

OIL-BURNING STEAM TRACTION ENGINE

☞ FOR SALE CHEAP

This Engine is equipped with all approved time and labor-saving devices. It has been slightly used for experimental work only and is warranted to be in first-class condition.

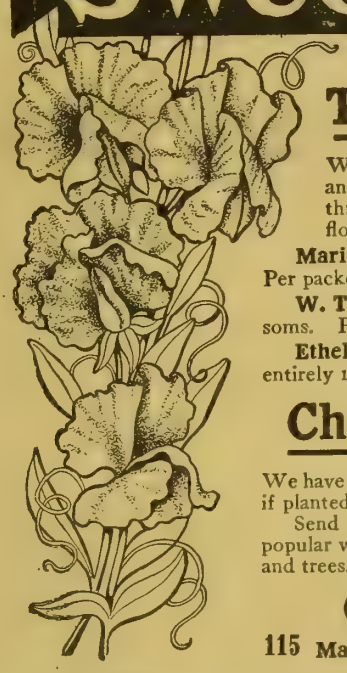
AVERY COCKSHUTT PLOW—ten 14-inch steel bases, especially for this engine—will be sold cheap. It is brand new—has never been used. The Cockshutt Plow has won first prize at all international plowing contests for the last three years.

Both Engine and Plow will be sold below factory cost, and we will be glad to mail you description and prices. This is a real opportunity to buy a first-class outfit at big saving over the cost of inferior goods.

Newell Mathews Company

200 North Los Angeles St. LOS ANGELES, CAL.

Sweet Peas



Three Giant Spencers

We are the largest growers of Sweet Peas in the world and ship our seeds everywhere. For 1911 we have three new varieties, all are of enormous size, bear four flowers to a stem, and blossom most freely.

Marie Corelli: a wonderful rose crimson Sweet Pea. Per packet, 15c.

W. T. Hutchins: very large cream and faint pink blossoms. Per packet, 15c.

Ethel Roosevelt: lemon and straw with blush flakes; entirely new. Per packet, 25c.

Christmas Sweet Peas

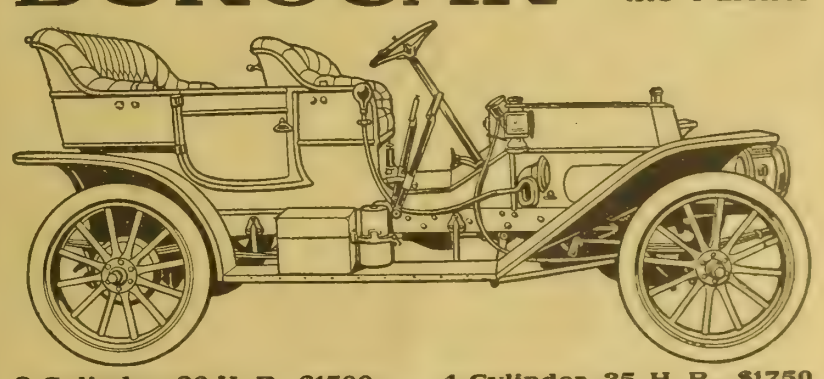
We have several varieties which will blossom at Christmas time if planted now. Per packet, assorted Christmas varieties, **10c.**

Send for our complete catalog illustrating all the new popular varieties of sweet peas, as well as all our seeds, plants and trees. Mailed free to any address.

C. C. Morse & Co.

115 Market Street San Francisco

DUROCAR The Car for the Farmer



2-Cylinder, 26 H. P., $1500 4-Cylinder, 35 H. P., $1750

Made in Los Angeles and factory open to your inspection. Come and see us.

Both Phones Durocar Mfg. Co., 935 S. Los Angeles St. Los Angeles, Cal.

STRAWBERRY PLANTS

My plants are grown in Tropico and on land never before used for Strawberry Culture. Plants are selected by myself for breeding and the blossoms always picked, therefore the strength grows into the new plants. This is why my stock will produce by far the greatest amount of berries. If you are going to set out 100 or 5000,000 be sure and write to

E. H. LEARNED R. F. D. No. 5, Los Angeles

Grower of Strawberry Plants only, and only the best.

When writing advertisers, mention Cultivator.

HURST SPRAYERS

On Free Trial NO MONEY IN ADVANCE. No bank deposit. Shipped to you at dealers' wholesale prices. We pay freight and guarantee Sprayers five years.

The Hurst Potato and Orchard Sprayer

doubles your crop. IT SPRAYS ANYTHING—trees, potatoes, vineyards, truck, etc. High pressure. Easy to operate. Cheap in price, light, strong, and durable. BRASS valves, plunger, strainer, etc. HURST HORSE-POWER SPRAYER for orchards, vineyards, potatoes, etc. "No tree too high, no field too big for this king of sprayers." All HURST sprayers sold on same liberal No-money-in-advance plan. Write to-day for our FREE Spraying Guide, Catalogue and SPECIAL FREE OFFER to FIRST BUYER in each locality.

Braun Chemical Co., LosAngeles.So.Cal. Agts

EUCALYPTUS

Large, well rooted plants; best varieties; some with balled roots for distant shipment. Price moderate.

Large lots grown by contract. Circular Free.

HENRY SHAW

Riverside Nursery,

320 River St., Santa Cruz, Cal.

Deep Well Pumping For Irrigation.

The past season has demonstrated more than ever the practicability and superiority of the Pomona Deep Well Pumps. It is fully proven that it is possible to lift large quantities of water from very deep wells with a surprisingly small amount of power. It has usually been considered that a plunger pump is only good for a 35-inch stream on a lift of say 200 feet, but the Pomona Manufacturing Company have demonstrated that it is no longer necessary to use a centrifugal pump, with its wasteful usage of power, to get a large quantity of water out of the ground, as this company is manufacturing extra large size cylinders including 12, 13, 14 and 16 inches in diameter, and capable of lifting from 50 to 100 miner's inches of water. Not only that, but they are prepared to go down after it to depths of 300 and 400 feet if necessary.

They have one plant at Claremont where the water stands 390 feet below the surface and the pump has a total lift of 450 feet, delivering 45 miner's inches of water with 60 H. P. on the motor, and doing it easily. There is another plant in Ontario lifting 60 miner's inches 300 feet with a 60 H. P. engine.

The parts below the surface have been so perfected that they are perfectly reliable and are giving as little trouble as it is possible for a machine to do. Other pump makers, noting the wonderful success of the Pomona Pumps, are trying to imitate them, promising something just as good, but they are only imitators and have not the knowledge or ability to make their claims good.

The Pomona Manufacturing Company has a large plant at Pomona, the only one in Southern California, devoted almost exclusively to manufacturing Plunger Pumps. They are a reliable establishment and are here to stay, to make good their guarantees and to supply your wants in the way of extras or assistance. Their machines and apparatus have been tried out and their value fully demonstrated.

Anyone needing pumping machinery should send to them for catalogs, or visit them in person.

high, or a total of 43,200. This divided by 33,000 pounds, number of pounds per second-foot which will create one horsepower, gives 1.3, the theoretical horsepower of the one inch with the 20-foot fall. The 40-foot fall would simply double this amount, giving a horsepower of 2.6. This, as noted, is theoretically correct, but no motor has 100 per cent of efficiency. Sixty per cent is the most common, and 90 per cent is the limit of practically perfect machinery. It is safest to figure on a 60 per cent basis. This would yield .8 horsepower from the 20-foot fall and 1.6 from the 40-foot.

We may remark that the new standard inch adopted some years ago is 1½ cubic feet per minute. This would equal 11.2 gallons per minute, but the former figure given is for the inch of common usage in California.

White Holland Turkeys.

Where may I secure a setting of White Holland turkey eggs?—Subscriber, Surrey.

We have no White Holland people advertising in the Cultivator at the present time, and will ask our subscribers who know of breeders of this stock to inform us. (Two ne wads this week. See liner page.)

Salt Bush.

I am sending a plant which I would like to have named. On my ranch is a large patch of Bermuda. I withdrew water from this, hoping to kill it, but it persists in living. I have observed, however, a bush of this weed which I send growing without irrigation, and whenever it comes up in the Bermuda it spreads, hugging close to the ground and killing out the Bermuda underneath. The plant seems to be an annual growing from a single root, with branches extending in all directions. It is easily eradicated, so that I do not fear it, but wish to know whether, in addition to its Bermuda-killing capacity, it has other good qualities, especially as a green manure.—B. L. Y., El Centro.

This plant is atriplex microcarpa, one of the common California salt bushes. It is of some value as a stock food, and would, of course, add humus to the soil if plowed under, but it does not have the nitrogen-gathering properties of the legumes.

Sore Mouth.

Have a cow that carries a mouthful of partially chewed alfalfa hay, occasionally ejecting the same, only to repeat the process. Kindly advise as to cause and treatment.—Subscriber.

I should suspect sore mouth or a bad tooth to be the cause of this trouble. Examine and treat the same carefully. Feed soft feed until the trouble passes away.—M. E. S.

Alfalfa Tea for Calves.

What additional feed can be given to young calves as a substitute for skim milk, of which we have about one gallon per day for each calf?—Subscriber.

Alfalfa tea has been often recommended by Mrs. Sherman for this purpose. Full directions for its preparation will be found on page 549 of the Cultivator of December 1, 1910.

Alligator Pears.

What kinds of soil and what general conditions are favorable to alligator pears? Would they do well here in Exeter, Tulare county?—Subscriber, Exeter.

The avocado or alligator pear will usually do well in all situations where oranges or lemons thrive, at least so far as it has been tried. Some have questioned as to whether the more arid and warmer valleys of the interior could grow this fruit successfully. So far as we know the trees which have done best are within a few miles of the ocean where there is no excessively warm weather. In addition we have heard of trees planted in warm valleys which did well under lath house but died when lath house was removed from them. From these reports we would advise experimenting before extensive planting.

Sycamores.

Can the American and European sycamores be grown from cuttings?—Subscriber, Corona.

They can. On the place of the writer is an American plane tree grown from a cutting broken from a large tree in the Arroyo Seco three summers ago, which is now between fifteen and twenty feet high.

Influence of Bud.

If a seedling of midsummer variety of peach is budded from a late variety such as the Bilyeu, will the fruit be hybridized or affected by this stock?—R. E. H., Lakeside.

The fruit on the graft or bud should be exactly the same as that on the parent tree from which it was taken. In other words, the stock has no influence on the variety.

Fertilizer for Berries.

What is the best fertilizer for Mammoth Blacks and how much per vine is necessary? Vines make strong growth but the berries are small. Should the new sprouts be cut off during the crop season?—L. C. N., Redlands.

The best fertilizer for these berries is stable manure applied heavily around the plants and cultivated and worked in during the season. If preferred to use commercial fertilizer, we would use the ordinary or complete fertilizer well scattered about a large growing bush. It is well to keep down the sprouts which are continually coming up during the fruiting season. The small size of berries may possibly result from shortage of water supply.

Substitute for Milk.

What can I use as substitute for curds for young turkeys?—Subscriber, Ballard.

Cotton seed meal has been recommended, but owing to its toxic properties, especially when fed to hogs, it has been deemed a questionable food. Cocoanut oil meal is safer and probably would prove satisfactory. Be sure it is fresh, for if rancid it will prove dengerous. Blood meal is also good, in fact a most excellent food.

Dynamometer.

Is there an instrument made which may be attached to plow or wagon to which team may be hitched and which will indicate the amount of power required to pull the implement? If so, where may such instrument be obtained?—Subscriber.

Such an instrument is made. A full description of it may be seen in King's Agricultural Physics. It is in line with the implements carried by farm implement companies, but we assume it would not be in stock with most implement houses. We understand that some training is necessary to understand its use.

Bermuda.

I have a few patches of Bermuda grass six feet in diameter in peach orchard. Will a five-gallon can of gasolene to each of these patches kill the grass, and will it kill the peach trees where the grass surrounds them? Is it best to use gasolene, kerosene or distillate for this purpose?—Subscriber, Fresno.

The best way to eradicate small patches of Bermuda like these is with cultivator and mattock. The use of distillate sprayed on the grass during exceptionally hot weather is sometimes helpful but we would fear effect

Eucalyptus Seeds

In large or small quantities, 33 kinds to select from. Write for free pamphlet "Eucalyptus Culture." It gives full directions for sowing the seed, raising the plants and planting out into the field, together with descriptions of all the leading species, giving their uses and the localities to which they are adapted. Sample packets 15c each, 2 for 25c, 4 for 50c, 9 for $1.00. Choice Flower, Garden, Tree, and Palm Seeds, Roses, Flowering Plants, etc. Catalogue mailed free upon application.

Theodore Payne

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10 in. long, 7 in. wide	$ 9.50
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TREES

A fine stock of French and Imperial prunes, apples, Bartlett pears, cherries, plums, peaches, and general fruit tree stocks; also palms, roses, and other ornamental plants.

Send for price list.

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Orange Trees

First-Class Navel and Valencia one and two years old.

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Placentia Perfection Walnuts

Grafted on California Black

Eucalyptus Trees and Seed

Sunset Nurseries, Tropico, Cal

on trees, as indicated above. Distillate is preferable to either gasolene or kerosene as it is vastly cheaper and has fully as good killing qualities, perhaps better than either. Eradication the fumigation is to be favored as there is no doubt of benefit to the orchard.

...ed Scale.

I send leaf which shows some disease affecting my orange and lemon trees. What is it and what will cure it?—Subscriber, Los Angeles.

The leaf sent was badly infested with red scale which can be successfully handled by fumigation. See issue of the Cultivator of November 3rd, which will give general outline of the work.

Ceratostophaga to Improve Adriatics.

I have White Adriatic fig trees which do not produce first-class fruit. Will it be best to graft over trees?—C. K. H., Pasadena.

We do not believe the fertilization of White Adriatic figs with pollen from the caprifig by means of the ceratophaga or fig wasp would materially benefit your fruit. It is worth a trial, however. We presume one way of improving the value of your fruit is to graft over to the Smyrna variety.

Pushing Buds Up.

Some budders slip the buds up, claiming that the sap flows up the center of the heart and down between the bark and wood. Others slip the bud down, claiming the sap flows up between the bark and the wood and that a cross cut diverts the sap and the bud starves.—J. M. C., Alhambra.

Probably ninety-nine hundredths of the budding of citrus trees is by pushing the bud down. However, the statement of those who push the bud **up,** that is, that the flow of sap is from the root to the leaf in the heart of the tree and the elaborated plant food flows down between the outer bark and the cambium layer, is correct. So the theory of those who push up has the preference, but in practice there is no appreciable difference and the pushing down will doubtless generally continue.

Spray for Lemons.

I have orchard infested with black scale and am about to spray it with five per cent mixture of distillate. I have tried this in a small way with hand pump, and it kills the young scale, but I have silver mite and red spider. Will this distillate be effective against them?—C. H. H., Pasadena.

You will certainly run a great risk in putting the ordinary low-grade distillate mixture on your lemon trees in strength of five per cent. Two or three per cent of the higher grade 28 degree tree distillate is all that is perfectly safe on the growing lemon. Of course, at this season of the year where the trees are entirely dormant, the stronger mixture may be pormissible. The safer spray would be the distillate or kerosene emulsion given in the Cultivator of November 3rd. These are numbered 13 and 14 in the list of formulas.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Tuberculin Test.

My cow has a cough which aroused my suspicion, and I had her tested for tuberculosis. The temperatures were as follows: 2 p. m., 101.8 degrees; 6 p. m., 100.4; tuberculin injected; 6 a. m. (second day), 100.4; 8 a. m., 100.2; 10 a. m., 100.6; 12 m., 103.4. Does this rise of temperature indicate tuberculosis?—Inquirer.

A rise of less than two degrees over the highest temperature of the day before injection, and that rise appearing eighteen hours after injection, does not constitute a typical reaction.—F. G. M.

Cough.

A mare, in good flesh, has a cough. A remedy would be thankfully received.—Subscriber, Lodi.

Purchase from druggist twelve ounces of Fowler's solution and give the mare a half ounce twice daily in the feed. Also have prepared sixteen powders, each containing a half drachm of potassium iodide, one drachm gentian and one drachm nux vomica—one powder to be given twice daily with the solution.—F. G. M.

Chronic Scours.

A horse, age ten years, has scours, the discharge beginning in the first half-mile drive, and increasing to such an extent that the animal is almost exhausted at the end of a five-mile journey.—Subscriber.

Ask your druggist to obtain four ounces of gallogen and divide it into twelve equal powders. Give one powder in the feed three times a day. Repeat after one week if not completely cured.—F. G. M.

Warbles.

A heifer has lumps the size of a marble along the backbone. The hair stands erect over each lump. What is the cause, and how to remove it?—Subscriber, Fresno.

In each of these lumps is the grub or larva of the gad fly of cattle. By pressing on each side of the lump with the thumbs the grub may be forced out. These grubs mature and emerge late in the spring or in early summer, hence if it is not possible to expel them now the effort may be deferred till springtime. Destroy the grubs—they mature into gad flies, which pester cattle.—F. G. M.

"Blind Teeth" in Pigs.

What is the cause of blind teeth in pigs and how may they be treated? Do they cause sores to appear on the outside of the head and face? Where can I get a book on the hog?—Subscriber, Grub Gulch.

Hogs are subject to dental troubles but I have no knowledge of a disease known as "Blind teeth." Abscess formations at the root of decaying teeth sometimes break and discharge from the surface of the face, but I know of no disease of the teeth which is the cause of ulcers or sores on the skin of the head. Books on the diseases of swine may be had from Orange Judd Co., or may be secured from The Cultivator.—F. G. M.

G. Harold Powell is now in charge of the work of the Citrus League.

SQUIRRELS BRING DEATH.

(Continued from Page 3.)

benefits to be gained by destroying the pests.

The Federal government, in aid of the state health board, has made a liberal appropriation, and will render further assistance by the detail of experienced medical officers whose time will be given wholly to the work; it is realized that the problem cannot be solved in a year, or at any fixed time; therefore, plans have been made to place the eradicative procedures on a permanent basis. With this object in view, a thoroughly equipped camp will be established in the squirrel infested region, where practical instruction will be given in field methods. Although designed primarily for the training of our own employes, this camp may be utilized by farmers and others who may desire such instruction. The expense of the camp will be charged against the Federal fund.

THE CHRYSANTHEMUM.

If you have none of the most beautiful and most popular of all potted plants, the chrysanthemum, which is in full and glorious bloom during late fall and early winter, you have missed something extraordinary in the flower line. The chrysanthemum has become a general favorite because the plants are so hardy, the blossoms so pure and large, and because it comes into full bloom late in the fall and early winter when blossoms of any kind are most welcome.

The chrysanthemum with ordinary handling will come into blossom about Thanksgiving time, and it serves admirably for decorating the feast table for the occasion. The blossoms as cut flowers will last a full month in a vase in a cool room if the ends of the stems are clipped and fresh water supplied frequently.

The way to secure the cuttings is to allow the plants to blossom and fade, then cut off the old stems about an inch above the soil. New shoots at the base of the old stems will soon come out, and these when about four inches high are cut for rooting. Root them in a box of moist sand, potting in two-inch pots when roots have formed, and set the young plants in the open garden in summer for growth.

The chrysanthemum is a gross feeder, hence the soil in which it grows must be very rich. Supply abundance of manure. When potted for fall blooming, use rich soil and bonemeal to stimulate large growth and blossoms. Supply plenty of moisture, with good drainage. Train to a single stem or many branches, as desired.

Imperial county cotton pickers received one cent per pound.

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"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gang-plow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

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5000 Eureka Lemon trees
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5000 Navel Orange trees
3000 Grafted Walnut trees
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People who intend to plant lemon or grafted walnut trees this season will have to secure them from some source early as they are now very scarce.

A. R. RIDEOUT

Magnolia Nursery Whittier, California

When writing to advertisers mention the Cultivator

Timely Ranch Suggestions

A SYSTEM OF SOIL CULTURE.

By A. M. Ten Eyck, Superintendent Fort Hays Branch Experiment Station, Kansas.

So far as cultivation is concerned, there are three principal steps in the conservation of soil moisture:

1. The soil must be loosened to a considerable depth in order to prepare a reservoir to receive the rain and to carry the water downward into the soil. This is accomplished by deep plowing or by discing unplowed lands.

2. The water which is carried downward into the subsoil must be brought back again into the surface soil where the seed is germinating and the roots are growing, and, to accomplish this, a good connection must be made between the furrow-slice and the subsoil, and this is the purpose in the use of the sub-surface packer.

3. Finally, in order that the water which is drawn up toward the surface by capillary action may not reach the air and be wasted by evaporation, the upper two to four inches of soil must be kept mellow, in the form of a soil mulch, which is accomplished by frequent cultivation, and this is applicable not only to corn and other intertilled crops, but also to wheat and other small-grain crops.

Systematic Tillage.

Discing the land before plowing puts the soil of the furrow-slice into better condition to reunite with the subsoil when the furrow is turned over. The smooth, hard furrow bottom, as left by the ordinary plow, is unfavorable to the proper union of the furrow-slice with the subsoil. In order to cause a more complete union of the furrow-slice with subsoil, the bottom of the furrow may be loosened by means of a shallow subsoiling attachment to the plow.

Such a system of culture is intended to favor the conservation of soil moisture, and is thus especially adapted to regions where a limited or irregular rainfall makes the most careful methods of soil culture necessary in order to store and conserve the water in the soil and get the most use from it in the production of crops.

Tillage and Fertility.

The principles stated above have been known and practiced more or less for a long time, and are mostly included in the Campbell system of culture. H. W. Campbell was among the early apostles of dry land farming in the West, and has perhaps done more to call the attention of Western farmers to the necessity and advantages of thorough cultivation of the soil than any other investigator. The method of culture advocated by Mr. Campbell is, in fact, simply good tillage and thorough cultivation of the soil at the right time, in the right way, and in a systematic manner.

Good farming pays, everywhere. The writer believes in the practicability of thorough tillage and good cultivation on every farm, and the increase in crops by such farming will more than pay for the extra labor, and in a series of years should leave our farms in a better state of fertility and more capable of producing crops than may result from the careless and shiftless methods of farming which are yet too commonly practiced by many farmers throughout the West. The greatest problem in Western agriculture today is not how to get larger crops out of the soil for a few years, but rather how to produce paying crops every year and at the same time maintain the fertility and productiveness of the land.

Implements and Methods.

It is not necessary to have extra machinery in order to successfully practice the system of culture outlined above. The only implement required or recommended which is not in general use on every well-equipped farm is a sub-surface packer.

The use of the packer is most essential on late spring plowing when the purpose is to plant at once after plowing. It is not so necessary to use the subsurface packer on fall plowing which is not intended to be planted until the following spring, but for sowing fall wheat, if the plowing preceded the sowing by a very short interval, the subsurface packer may be used very advantageously.

When land is allowed to lie for a considerable period after plowing before the crop is planted, the settling of the soil, together with the cementing due to rain, usually causes the soil to repack and firm up to a sufficient extent to make a good seed-bed.

The subsurface packer is a hard-running machine, and it costs much more to use it than it does to use the common harrow, or even the disc harrow. Thus, at the Kansas Experiment Station we have adopted the practice of early plowing whenever it can be done, in preference to subsurface packing, using the harrow or the disc immediately after plowing. However, the principle involved in the use of the subsurface packer is correct, and the lighter the soil and the greater its tendency to remain loose and mellow, the more necessary becomes the use of the subsurface packer or similar implement, in order to prepare a proper seed-bed.

In plowing under trash or manure, subsurface packing, by pulverizing the bottom of the furrow-slice, sifts the soil through the coarse trash and causes a better union with the subsoil below, so that the capillary water may be drawn up into the surface soil, whereas, if a heavy coat of stubble or manure plowed under in this way is left without packing or pulverizing, the furrow-slice is apt to dry out, and the crop that is growing on the land may be injured by a short interval of dry weather. By setting the discs rather straight and weighting the harrow, a disc-harrow may be used as a substitute for the subsurface packer, resulting in a pulverizing and firming effect at the bottom of the furrow-slice. Very often, however, good plowing, with the proper use of the common harrow, may largely accomplish the results required in preparing a proper seed-bed. It is usually advisable to weight or ride the common straight-tooth harrow in order to cause it to stir and pulverize the soil deeper and prevent the "slicking" effect which is apt to result from light harrowing.

Deep Plowing.

Some types of soil can be plowed deeper than others, and the writer believes in deep plowing, at least every few years. The deeper loosening of the soil not only makes a larger reservoir to catch the rain, but it gives more

room in which the soil bacteria may ha[ve]lop and prepare the plant food.

It is known that certain bacteria in the soil have much to do with the preparation of the food for plants, and experiments have shown that these bacteria are found largely in the surface six to nine inches of the soil, or in that part of the soil which is turned with the plow and stirred with the cultivator; thus deep plowing favors the development of the bacteria and the preparation of more available plant food than is the result from shallow plowing. The depth and frequency of plowing will vary according to the nature of the soil, a light or sandy soil requiring less depth of plowing and less frequent plowing than a heavy, compact, clayey or "gumbo" soil.

A New Method.

A new method for preparing the seed-bed for wheat is now coming into general practice in Western Kansas. The plan is to list the ground with the ordinary corn lister as soon after harrowing as possible. The lister furrows are run about three to three and a half feet apart, very much the same as when the lister is used for planting corn. Later, when the weeds have started, the soil is worked back into the lister furrows by means of a disc harrow or disc sled or disc cultivator.

The disc sled has just recently come into use, and is considered a preferable implement to the disc harrow. This sled is constructed with extra large discs, especially for this purpose, but the sled may also be used for cultivating corn. The sleds are made to cultivate either one or two rows.

Several cultivations are usually required by the disc harrow in order to bring the field into good seed-bed condition. Once over with the disc sled is usually considered sufficient, the further work necessary to prepare the seed-bed being given with the common harrow or other cultivating implement.

In a dry climate this method of preparing the seed-bed has these advantages: The cultivation of the land soon after harvest tends to conserve the moisture already stored in the soil. The furrowed land is in good condition to catch and store the rain, and the later cultivation clears the land of weeds and leaves a mellow soil mulch to conserve the moisture which has been stored in the subsoil. The early and continued cultivation of the soil favors the action of the bacteria and the development of available plant food.

By practicing this method of farming the farmer may cultivate a larger area early in the season when the soil is in good condition to cultivate, whereas if it had been necessary to plow the whole area, some of the land might have become too dry to plow well. Likewise the later plowing leaves the soil too loose and not in good seed-bed condition.

By several cultivations with the common harrow, after the ridges have been worked down with the disc sled, the soil may be well pulverized and firmed and put into good seed-bed condition. In fact, as will be observed, the larger part of the seed-bed area has not been loosened deeply, and even with little or no rain to firm the seed-bed, the subsurface soil remains firm and the seed-bed is in ideal condition to start the wheat.

The Soil Mulch.

In the ideal system of culture the purpose is to keep a mellow soil mulch on the surface of the land all of the time, not only during the growth of the crop, but also in the interval between harvest and seeding time. Thus, after the crop is planted, the land is kept cultivated with the weeder or harrow in order to break the surface crust and conserve the soil moisture, and following out the same principle, the harrowing or work with the weeder is continued after the grain or corn is up, and during the growing period frequent cultivation is required for inter-tilled crops.

Discing After Harvesting.

After the crop is harvested the cultivation is not discontinued, but the surface of the soil is loosened as soon as possible after the crop is removed, by the use of the disc harrow, and thus the soil is kept continually in a condition to not only prevent the loss of water already stored in the soil, but also this same condition and mellow surface favors the absorption of rain and largely prevents the loss of water by surface drainage.

The smooth, finely-pulverized surface left by continuous light harrowing really defeats the purpose of the cultivation, since soil in such condition will shed heavy rains, causing a waste of water which should have been stored in the soil, and the surface often becomes too fine and compact, preventing the proper aeration of the soil and producing an unfavorable seed-bed condition. Thus, during the interval between crops, it is sometimes advisable to use the Acme or the disc harrow in order to keep the surface of the soil open and mellow.

Harrowing Wheat.

The weed harrow or weeder is probably better adapted for harrowing wheat or other small grain than the common straight-tooth or slanting-tooth harrow. The weeder is somewhat objectionable on account of the wheels. When the ground is reasonably firm the common harrow may be used without injury to the wheat.

The writer questions whether it is necessary to continue the harrowing after the wheat covers the ground well, unless heavy rains firm and puddle the soil, destroying the mulch of mellow soil. Usually this will not occur.

In a single trial, wheat was harrowed when it stood five or six inches high and had stooled so as to nearly cover the ground, and the mulch thus produced was still in evidence at harvest time. In this experiment the ground was harrowed twice on the same day. The yield of wheat on the harrowed plot was, on the average, three bushels per acre above that from the field adjacent, not harrowed. This experiment, with others, was carried on at the North Dakota Experiment Station with spring wheat, and it was observed that wheat harrowed before it had stooled much was injured in stand and gave a lower yield of grain than wheat not harrowed.—Dry Farming Bulletin.

Offerings for turkeys all over the valley are not so satisfactory as the Thanksgiving prices.

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Fistula, Poll Evil, Quittor and all running sores cured permanently by a recent discovery of medical science. Write for particulars. Dr. Fred G. Matthews, Veterinary Bacteriologist, 1232 Central Ave., Los Angeles.

Angora Goats—of the famous Philo Ogden strain—at half prices account lack of pasture. C. H. Teeter, Sunland, Cal. Free Los Angeles phone, call Sunland 34.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, 448A Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

A Young, honest, industrious American, thorough High School education, willing worker, trusted anywhere, wants position on some large cattle or dairy ranch. Best of references. Address Box P, Cultivator.

Experienced Poultryman Desires Employment. Understands thoroughbred poultry and garden. Very handy with tools. Have some carpenter and other tools. Reasonable wages. No bad habits. F. Halbert, 653 Towne Ave., Los Angeles, Cal.

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Wanted—One-year-old Loganberry and Mammoth Blackberry plants. State quantity you can supply, also price. Address Fancher Creek Nurseries, Fresno, Cal.

TREES.

Removal Prices—Make an offer. Black Walnut selected trees, one and two years old, 2 to 8 feet high. Also seedling peach trees, good stock, and Maliner Kren Horseradish sets. A. P. Henning, Clements, San Joaquin, Cal.

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

For Sale—250,000 first-class rooted vines, Zinfandel, Tokays, Muscats, Black Morocco, Black Ferrara, Cornichons, and Emperors in 1,000 lots at $11.00, smaller lots $1.50 per 100. Geo. McArthur, Acampo, Cal.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Ballou's Nursery, 728 East Orange Grove Ave., Pasadena, Cal.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal

NURSERY STOCK.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

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Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J. A. Powell, R. D. 1, Box 1, Ripon, Cal.

Improved Superlative Red Raspberry Plants—Largest raspberry in cultivation. 100 plants, $5.00. Send for description. William Richard, 438 River St., Santa Cruz, Cal.

FARM LANDS FOR SALE.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars call or address Paxton, 612 Lankershim Bldg., Los Angeles.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale—815 acres in San Luis Obispo County. A typical dairy ranch. Plenty of wood, water, irrigable land, buildings, fenced and cross fenced. Orchards, vineyards, oranges, lemons and walnuts do exceedingly well here. Forty acres of land suitable for these. Price $21 per acre. For further particulars apply to Mrs. F. A. Clink, Pozo, Cal.

For Sale—The Fresno Meadows Colony is now opened for settlement in lots of 40 acres or more with water at $50 per acre. This is an opening price and is made to induce settlement. Arrangements can be made so that the first payment will carry the deal indefinitely. Call or write at once. Green & Webb, Gen. Sales Agents, 406 Laughlin Bldg., Los Angeles. Phone A8284.

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TURKEYS.

White Holland Turkeys—Gobblers $7 and $10; young hens, $5. Booking orders now for eggs and poults. Mrs. B. Hocking, Guasti, Cal.

For Sale—Thoroughbred Mammoth Bronze turkey toms, spring hatch. Only a few left, all fine, large, well marked birds. Have two female Scotch Collie pups left, pedigreed stock. Mrs. A. C. Wisegarver, San Fernando, Cal.

For Sale—Young Mammoth White Holland Turkey Toms. Fine large birds of the celebrated J. C. Fischel Strain. None better as thoroughbreds, also excellent to cross with the Bronze for the market. Price $8.00 to $10.00 each. Foreman Bros., Box 213, Corning, Cal.

Special Sale—In order to make room for my breeding stock I am offering the remainder of my thoroughbred Mammoth Bronze Turkey Toms for $6 each. My turkeys are of the best in the state, spring hatch and weigh 20 to 24 lbs., and reach a large size at maturity, as those to whom I have sold stock previously can testify. Mrs. Nellie Hart, Holtville, Cal.

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Farms Wanted—Don't pay commissions. We find you direct buyer. Write, describing property, making lowest price. We help buyers locate desirable properties free. American Investment Association, 12 Palace, Minneapolis, Minn.

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Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Coolers, Bottles, Caps, brushes, Buhl milk cans, Sharples separators, Babcock testers, veterinary instruments, wood soled boots and shoes, and our celebrated "Prosperity" washing powder. Guy F. Kelsey 108 E. 8th St., Los Angeles, Cal.

INCUBATORS.

For Sale—Three 240-egg size, two 120-egg size. Machines all in good order. For particulars and price address X-Ray Ranch, Santa Rosa, Cal.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Eggs from Select Trapnested Stock—No culls. Black Minorcas, Northrup strain; White Wyandottes, great winter layers; Barred and White Rocks; Buff Orpingtons; Rhode Island Reds; all $2.50 per 36 eggs, $6.00 per 100. White Minorcas, beauties, fine layers of the largest white eggs, $3.00 per 36, $7.00 per 100. White and Brown Leghorns, heavy laying strains, $2.25 per 36, $4.50 per 100. Pullets and cockerels for sale. Enclose stamp for reply. W. D. Rose, R. D. 6, Santa Ana, Cal.

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California's
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Pedigreed, trapnested, scientifically bred
Free circular. DAVID J. LOVELL, 5720 So Park Ave., Los Angeles, Cal.

Day-old Chicks from my pure bred and carefully selected stock of S. C. White Leghorns from January 15 to February 15, $10 per 100; after February 15th, $9 per 100. Spring orders taken now. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Very Fine Strain Barred Plymouth Rock cockerels and eggs for hatching. Also thoroughbred S. C. Black and White Minorcas and R. I. Reds, cockerels and eggs, S. C. White Leghorn. R. B. Sherman, Newcastle, Cal.

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Barred Rocks a Specialty—Eggs for hatching from the well-known Hawkins Strain of Barred Plymouth Rocks, best matings $2.50 per 15. Utility stock, $1.50 per 15. Enoch Crews, Fairmount Ave., Santa Cruz, Cal.

For Sale—Baby chicks. White Rocks, Barred Rocks and Rhode Island Reds. Am now booking orders. J. W. Lyon, Gardena, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
Eggs for hatching after Jan. 15th. C. C. Bonnell, State Vice-President American Black Minorca Club, 2919 Brighton Ave., Los Angeles.

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Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, R. I. Reds and Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

We are now booking orders for day-old chicks, White and Buff Orpingtons and R. I. Reds from thoroughbred stock. Very best winter layers. Vallejo Poultry Yards, 208 Frisbie St., Vallejo, Cal.

R. I. Red Eggs for hatching from scientifically tested layers. The Luedkes, Anaheim, R. D. 1.

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S. C. Brown Leghorn Cockerels For Sale—$3.50, $5, $7, $10, and $15 each. Bright strain. Mrs. C. H. Vary, Pomona, Cal.

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Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

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Baby Chicks and Eggs for Hatching—Orders now taken for January and later delivery of R. I. Reds (Tompkins Strain), White Minorcas and S. C. Black Minorcas (Northrup Strain). C. U. Chamberlin, Los Gatos, Cal.

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For Sale—Second-hand windmills, tanks, gine, farm machinery that will do as work as new at half price. 8 ft. steel s motor, tower, 3000 gal, Redwood tank, 10 stand, galvanized pipe, pump and rods co plete, $69 on cars; 10 ft. steel aermot steel tower, 5000 gal, tank, fine 16 ft. sta galvanized pipe, pump complete. Tanks, sizes and kinds. Finest and largest st of second-hand tanks we have ever Special sale; two 8000-gallon, practica new, with rod, hoops, at $55, cost n $92.40. Round stock tanks 2x8 ft. wide, $ Carload of 1000 and 2000 gal. tanks at prices.

Look!

4 H. P. engine and No. 2 centrifugal pu for $98; 12 H. P. Lambert, fine shape, $1 also many others. Second-hand farm m chinery, all kinds. Anything a ranch wants we can supply. Call and see. De mitt Co., up stairs, 120 N. Main St., L Angeles.

For Sale—A good portable drilling rig, go for 800 ft., complete string of tools. Abo half its value, at $750.00. Address M. Magle, 1242 Harvard Blvd., Los Angel Cal.

For Sale—9 H. P. portable gas engine a steel trucks. First-class rig for farm practically new but much cheaper. Baill Brandt Co., 943-945 N. Main St., Lo geles.

For Sale—20 H. P. Fairbanks-Morse gas gine, just traded in at right figures. in excellent shape. Can sell very chea cash. Machinery Exchange, Main & Sts., Los Angeles.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los A geles St., Los Angeles, Cal., makes a cialty of Horticultural Printing and graving. Cuts and illustrations of all st ard, economic and ornamental plan hand and subject to the use of patrons out cost. Samples and estimates cheer furnished. Remember, we design, write grave, bind and print; in brief, do "whole thing," at no additional exper the customer. Correspondence a pleas

AN UP-TO-DATE SEED CATALO

Aggeler & Musser's 144 page, 1911 Seed Catalog Has Just Been Received.

The Lithograph cover is a work of art. And the 144 pages are full of information valuable to the RANCHER or GARDENER, particularly to the beginner. If you have not received their Catalog be sure and send for it at once. It is also interesting to the Poultry Fancier. Twenty pages are devoted to the description of Petaluma Incubators and Brooders, and everything pertaining to successful Poultry Raising. Write for it

AGGELER & MUSSER SEED CO.
113-15 No. Main St., Los Angeles, Cal.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks —White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S WHITE FOWL FARM, Moorpark, Cal

THE PERCHERON SOCIETY OF AMERICA

Has just increased its capital stock to $100,000. 10,000 shares of $10 each. 3,000 shareholders, Nov. 28, 1910. 100 breeders have taken memberships since December 1st. Ninety-five per cent of the Percheron breeders of America record with the Percheron Society. Information pertaining Percherons furnished. Address Wayne Dinsmore, Secretary, Union Stock Yards, Chicago, Ill.

DIVIDEND NOTICE.

Savings Union Bank of San Francisco (Member of the Associated Savings Banks of San Francisco), northwest corner California and Montgomery streets. After January 3, 1911, Market street at Grant avenue and O'Farrell street. For the half year ending December 31, 1910, a dividend has been declared at the rate of four (4) per cent per annum on savings deposits, free of taxes, payable on and after Tuesday, January 3, 1911. A dividend not drawn will be added to the deposit account, become a part thereof, and earn dividend from January 1, 1911. Money deposited on or before January 10, 1911, will earn interest from January 1. R. M. Welch, Cashier.

DIVIDEND NOTICE.

The German Savings and Loan Society. The German Bank. (Member of the Associated Savings Banks of San Francisco.) 526 California street. Mission Branch, 2572 Mission street, near Twenty-second. Richmond District Branch, 432 Clement street, between Fifth and Sixth avenues.

For the half year ending December 31, 1910, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, free of taxes, payable on and after Tuesday, January 3, 1911. Dividends not called for are added to the deposit account and earn dividends from January 1, 1911. George Tourny, Manager.

Entomology and Bees

LEGISLATION.

At the next annual convention of ne State Beekeepers' Association it s expected that the committee ap-ointed at the last meeting, having in harge the drafting of a bill relative o apiary inspection, will have com-leted its labors, and make a report. And it is hoped that that report will e made before the full house, and not n committee. For if the draft goes p to Sacramento, it will carry the mpression of embodying the desires f at least a majority of the beekeep- of the state, and that impression ould be no illusion. The committee ould state just what its bill is for, A neral, and paragraph by para-raph, in particular, and everybody hould be given the floor who wants it, it for or against the measure, or ts of it. The text of the bill whose ge was attempted two years ago, ugh it was claimed for it that "the keepers of the state" wanted it, known only to a few, a very few en. And it is, indeed, difficult to understand how any practical beekeep- could have been guilty of endors-ng some of its provisions, particular-y those dealing with requeening work.

In general, in this matter of law-getting, whatever we do, let's go slow, and let us steer clear of state social-ism; of endorsing the creation of offi-ces and the appointment of officials "in charge of apiculture," beekeepers and all. The leaning of the former bill was that way. True, since one beekeeper's carelessness or incompe-tency may injure his neighbor by having diseases spread abroad from his apiary, some legislative easement seems good. But it is probably just as well not to expect much from any-thing coming from Sacramento. We have had bee disease legislation in this state for over a quarter of a cen-tury, yet only season before last thousands upon thousands of colo-nies of bees went to ruin from dis-eased brood in the San Joaquin alone. It is highly questionable if the more stringent rules of the former bill, if applied, would bring any noticeable relief into that stricken valley, or into any like situation.

In fact, the truth of the matter—i. e., the failure of our twenty-seven years of legislation to eliminate bacil-lus alvei from the domain of apicul-ture—seems to be that we are yet wanting in a truly scientific method of procedure in the case. For, certainly, nobody will contend that burning hive, bees, comb and all is anything but the work of despair, just as burning a house to get rid of bedbugs would be.

It cannot have escaped the most or-dinary of observers that certain places or localities are entirely free, even immune, from foul brood; some have it sometimes, but it goes or cures easily, and some seem simply inca-pable of getting rid of it entirely, no matter haw energetically fought. The hills and mountains and dry, gravely mesas of the interior have no disease, at least hardly ever. But along the coast, the low, moist valleys and bot-toms of the interior, there is always trouble. There are no statistics on that matter, and nobody can tell for certain what makes the difference. But the difference is a fact, and to know its causation would probably also in-dicate the means of cleansing our bees.

In Germany, the land of taking pains, they also have the foul brood just as they have it on the shores of the Po, notwithstanding the prevailing notion that Italian bees are immune. Several years ago the government of the former country was petitioned to enact some protective measures, so beekeeping wouldn't go to ruin. Well, it has not done so yet. Not because it ignored the matter; far from it. The value of the honey bee in any scheme of successful agriculture is too well known for that. It started work on the petition at once—not, in-deed, in making laws, but in finding out all about the subject. The bio-logical section of the Imperial Health Office was instructed to begin experi-ments, to gather data, to ascertain everything bearing on the subject, and then to report. About three months ago the government informed the offi-cers of the central beekeepers' society that it stood ready to co-operate with them in formulating a bill that would afford protection.

Eventually we, too, will have to gather knowledge before we shall ob-tain success. With our inspecting system already in running order, we can do that easily. And if Berkeley is willing to co-operate, we shall need very little help from Sacramento.

In the way of a tentative proposi-tion, the following is here offered. Let inspectors be furnished with blank question sheets, one for every apiary visited, which they shall be obliged to fill out to the best of their knowledge. The sheets should bear a date, the name of the place and of the owner, then the size of the apiary, race of bees, their state of health and the general appearance of the apiary. In addition, the topographical condi-tion of the location, the water and nectar sources, and all like matters. After signing his name to it, the in-spector should return the papers to the county office, and the latter should be obliged to mail them to the uni-versity, where the forms should have been designed in the first place. At the university the information thus gathered should be entered onto curve sheets, systematically. A com-parison of them, finally, will yield sure net results. Five years of that work will make us masters of the situation. —Henry E. Horn.

The queen takes no care of the eggs that she lays, nor of the young bees. She leaves all that to her daughters, the workers. She does not even feed herself.

When queens come from a distance through the mails in a jaded condi-tion, it would be a great advantage if they could at once be released upon the combs, but this very jaded condition is against her acceptance.

At this time of the year, do not give any syrup thinner than two and one-half parts of sugar to one of water, boiling hot; and it should be well stirred.—Gleanings.

The queen is all-important to a col-ony. If your queen is good you are sure of a crop if the other conditions are right.

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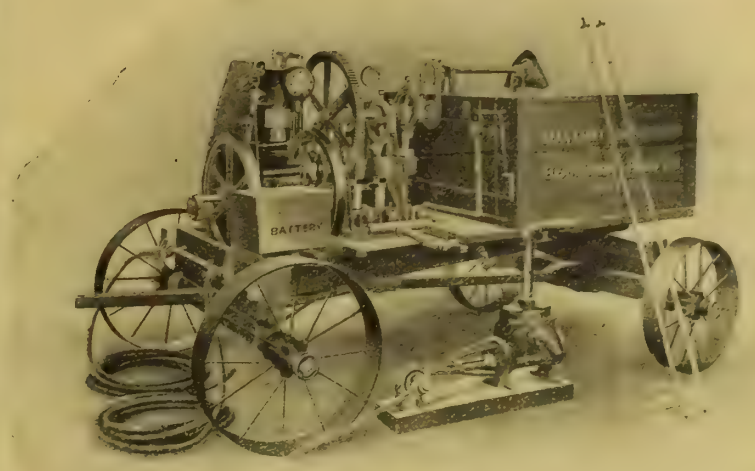

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General Household Notes

THE MAN WHO WINS.

The man who wins is the man who works—
The man who toils while the next man shirks;
The man who stands in his deep distress
With his head held high in the deadly press—
Yes, he is the man who wins.

The man who wins is the man who knows
The value of pain and the worth of woes—
Who a lesson learns from the man who fails,
And a moral finds in his mournful wails—
Yes, he is the man who wins.

The man who wins is the man who stays
In the unsought paths and the rocky ways,
And, perhaps, who lingers, now and then,
To help some failure to rise again—
Ah, he is the man who wins.

—Anonymous.

WHEN GORDON ACTED ON IMPULSE.

By S. E. Kiser.

Gordon turned the matter over several times in his mind, and each time he did so he became stronger in the conviction that he had arrived at a proper solution of it. His idea was that people too often neglected to act upon impulse. This was the line of his reasoning:

"What we call impulse is in reality instinct. Our instincts are generally good. The things we do by instinct seldom get us into trouble. More often they get us out of difficulties and bring us happiness. I am going to start out today with the intention of obeying my impulses. If I happen to have an impulse I am going to follow it up. People who stop to dissect their feelings or their impulses before they act seldom do anything. When the cold light of reason is turned upon an impulse the impulse withers and dies. Consequently there is inaction. The happiness that comes of inaction can only be negative in its character. The happiness that is the outgrowth of action is positive. For one day at least I am going to act upon my impulses."

Having arrived at this philosophical conclusion, Roscoe Conkling Gordon crawled out of bed and put on his clothes. As he was fastening his tie he had an impulse. It directed him to remove his clothes and take a cool, refreshing bath. By obeying this impulse he was 20 minutes late getting down to breakfast. Still, he reflected, this was not the fault of the impulse. The bath was a good thing and made him feel much more like doing a day's work than he would have felt without it. The fault was his own in not having had the impulse when he ought to have had it. A new girl came to wait on him when he had seated himself at the table. She was a very pretty girl. It was evident that she had not been long in the waiting business. Her hands were white and small, and she looked as if she might have just started out to earn her own way.

"Perhaps," Gordon thought, "misfortune has overtaken her family, making it necessary for her to do this after having lived all her life in luxury. I'll speak kindly to her." She may need cheer and sympathy."

When she came in from the kitchen to ask whether he would have ham and or a chop he obeyed his impulse by saying:

"This is a fine morning, isn't it?"

"Yes, rather," she replied.

"Are you going to wait on this table right along?"

"I don't know."

"I hope you may."

"Why?"

"Because—you're so pretty."

She blushed and hurried away.

"There," he thought, "I've made her happy. If I had not obeyed my impulse I wouldn't have spoken to her, and she might have brooded all day."

On his way to the city he had another impulse. He sat by an open window in the "L" car, and was busy reading his paper when a good-looking woman got aboard and took a seat directly in front of him. After he had admired the contour of her face he noticed that her filmy waist was not buttoned in the back. She had fastened two or three of the upper buttons and one or two down at her waist, but she had not been able to reach the middle ones. Along came an impulse, which established its headquarters within R. C. Gordon. Leaning forward he deftly caught the soft flaps of the lady's waist and began to button them together.

"I beg your pardon," he said as the lady turned suddenly and fiercely; "I saw that you had not been able to button your waist, and I thought there would be nothing out of the way if I—"

But he was not permitted to finish his explanation. The lady rushed forward to the platform, and seven strong men who had witnessed the outrage began to close in upon Mr. Gordon.

He got off at the next station to wait for another train. When he arrived at the office he was considerably disheveled and 30 minutes late.

Also he was the possessor of a determination to never act on impulse again.—Chicago Record-Herald.

TEXTURE AND FLAVOR OF MEAT.

Although meats vary greatly in the amount of fat which they contain, and to a much less degree in their protein content, the chief difference to be noted between the cheaper and more expensive cuts is not so much in their nutritive value as in their texture and flavor. All muscle consists of tiny fibers which under the microscope are seen to have the form of tubes. These fibers are tender in young animals and in those parts of older animals in which there has been little muscular strain. Under the backbone in the hind quarter is the place from which the tenderest meat comes. This is usually called the tenderloin. Sometimes in beef, and also in pork, it is taken out whole, and sometimes it is left to be cut up with the rest of the loin. In old animals, and in those parts of the body where there has been muscular action, the neck and the legs for example, the muscle fibers are tough and hard. But there is another point which is of even greater importance than this. The fibers of all muscle are bound together in bundles and in groups of bundles

TENTS

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LANGDON'S TOMATOES

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J. M. Myer, Gridley, Cal., writes Nov. 28, 1910: "I tried one-half ounce of your strain of Earliana last year, and alongside of two other crack strains of Earliana yours were ripe a full week first and 25 per cent finer in every way—the finest thing in the line of early tomatoes I ever saw, and I have been at it for thirty years."

By seven years' selection we have produced the Earliest, Hardest, and Smoothest Tomato ever grown. Our location near the Canadian line tends to breed in earliness and vigor, for we have no blight. All our seed is home-grown, is extra large and plump, starting strong, vigorous plants. Send for our circular and get more inside facts.

If you want to be first on your market with perfect Tomatoes that will bring a premium over top-notch prices, plant Langdon's Northern Adirondack Strain of Earliana Tomatoes.

Price: ½ oz. 40c; 1 oz. 60c; 2 oz. $1.25; 4 oz. $2.00; 8 oz. $3.50; 1 lb. $6.00
F. & H. P. Langdon, Maple Ridge Farm. Constable, N. Y.

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The Deming "Perfect Success" Bucket Sprayer—splendid for small gardens and orchards, town or country. Made of brass.

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by a thin membrane which is known as connective tissue. This membrane, if heated in water or steam, is converted into gelatin. The process goes on quickly if the meat is young and tender; more slowly if it is tough. Connective tissue is also soluble in acetic acid, that acid to which the sourness of vinegar is due. For this reason it is possible to make meat more tender by soaking it in vinegar, or in vinegar and water, the proportions of the two depending on the strength of the vinegar. Sour beef or "sauer fleisch," as it is known to Germans, is a palatable dish of this sort. Since vinegar is a preservative, this suggests a method by which a surplus of beef may be kept for several days and then converted into a palatable dish.

Flavor in meat depends mainly on certain nitrogenous substances which are called extractives because they can be dissolved out or "extracted" by soaking the meat in cold water. The quality of the extractives and the resulting flavor of the meat vary with the condition of the animal and in different parts of its body. They are usually considered better developed in older than in very young animals. Many persons suppose extractives or the flavor they cause are best in the most expensive cuts of meat; in reality, cuts on the side of beef are often of better flavor than tender cuts, but owing to the difficulty of mastication this fact is frequently not detected. The extractives have little or no nutritive value in themselves, but they are of great importance in causing the secretion of digestive juices at the proper time, in the right amount, and of the right chemical character. The digestive tract may be likened to a piece of machinery which is beautifully built and adjusted and is ready to run and turn out its product as soon as a lever is moved which sets it in motion. The flavoring bodies of food, and especially those contained in meat, can be likened to the lever which sets the machinery in motion. Excitants to normal digestion are supplied by other foods as well, but meats, so physiologists believe, are especially important for the purpose. It is this quality which justifies the taking of soup at the beginning of a meal and the giving of broths, meat extracts and similar preparations to invalids and weak persons. These foods have little nutritive material in themselves, but they are great aids to the digestion of other foods.

The amount of the extractives which will be brought out into the water when meat is boiled depends upon the size of the pieces into which the meat is cut and on the length of time they are soaked in cold water before being heated. A good way to hinder the escape of the flavoring matter is to sear the surface of the meat quickly by heating it in fat, or the same end may be attained by plunging it into boiling water. Such facts are known to all cooks, and have recently been studied systematically at the Illinois Experiment Station in relation to the amounts removed and the losses which may be involved in different methods of cookery. Such solubility is taken advantage of in making beef tea at home and in the manufacture of meat extract, the extracted material being finely concentrated by evaporating the water.—Economical Use of Meat in the Home.

The fletcherizing of food has long been practiced by the cow, and the mud bath is nothing new to the hog.

FOOD AND NUTRITION CHARTS.

The recent wide-spread discussion of the high cost of living has aroused great interest in all phases of domestic science, and has greatly increased the demand for the publications of the Department of Agriculture on all subjects relating to food and nutrition.

The department has recently issued a set of fifteen charts on the composition of food materials. These charts are printed from photo-lithographs in six colors, and show in the case of each material the protein, fat, carbohydrate, ash and water contents, and the fuel value expressed in calories. The percentage, composition and fuel values are given in figures, and the relative proportion of each constituent is represented graphically. For example, in the case of whole milk a glass of milk is shown; 87 per cent of the figure is colored green to represent the water content, 3.3 per cent red to represent the protein, 4 per cent yellow to represent the fat, 5 per cent blue to represent the carbohydrates, and 0.7 per cent drab to represent the ash content. The fuel value of 310 calories per pound is represented by printing in solid black nearly one-third of a square one inch on each edge, since one square inch represents 1,000 calories. The figures given for the percentage composition of the various materials are average figures, based upon as many analyses as are available in each case.

The food materials shown in these charts are as follows: 1, whole milk, skim milk, buttermilk, and cream; 2, whole egg, egg (white and yolk), cream cheese, and cottage cheese; 3, lamb chop, pork chop, smoked ham, beefsteak and dried beef; 4, cod (lean fish), salt cod, oyster, smoked herring and mackerel (fat fish); 5, olive oil, bacon, beef suet, butter and lard; 6, corn, wheat, buckwheat, oat, rye and rice; 7, white bread, whole wheat bread, oat breakfast food (cooked), toasted bread, corn bread and macaroni; 8, sugar, molasses, stick candy, maple sugar and honey; 9, parsnip, onion, potato and celery; 10, shelled bean (fresh), navy bean (dry), string bean (green) and corn (green); 11, apple, dried fig, strawberry and banana; 12, grapes (edible portion), raisins (edible portion), grape juice (unfermented), canned fruit and fruit jelly; 13, walnut, chestnut, peanut, peanut butter and cocoanut. Chart 14 gives the functions and uses of food, under the headings "Constituents of Food" and "Uses of Food in the Body." Chart 15 shows the dietary standard for a man in full vigor at moderate muscular work, and the estimated amount of mineral matter required per man per day.

These charts are printed on sheets 21 by 27 inches, of a good quality of paper, and are for sale by the Superintendent of Documents, Government Printing Office, Washington, at $1 per set. The charts will be found especially useful to instructors and students in classes in physiology, domestic science and other branches in which the food and nutrition of man are studied, either in schools or colleges, or in clubs or similar organizations.

PRECAUTION.

Both boys had been rude to their mother. She put them to bed earlier than usual, and then complained to their father about them. So he started up the stairway, and they heard him coming.

"Here comes Papa," said Maurice; "I'm going to make believe I am asleep."

"I'm not," said Harry. "I'm going to get up and put something on."—Canadian Courier.

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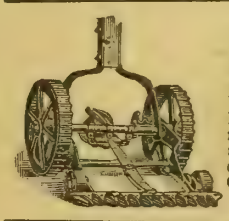

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Jan. 4, 1911.

Butter.

Butter starts the year with old-year quotations and a featureless market.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	.35
Firsts	.32½
Cooking	.25

Cheese.

Local	.18
Northern, fresh	.18@18½
Oregon Daisy	.18@18½
Imported Swiss	.32
Domestic Swiss	.21@24

Eggs and Poultry.

A 2-cent decline on case counts and local ranch is noted. Market not strong, and receipts are increasing.

Paying price f. o. b. Los Angeles is:

Local ranch candled	.36
Case count buying price	.32
Northern and Imperial	.30@34
Eastern fresh	.32
Eastern storage	.30
Seconds	.28

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	.15@17
Roosters	.9
Spring	.17@21
Turkeys	.20@22
Ducks	.17
Geese	.12
Squabs, per doz	.1.75

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	.8¼
Prime steers	.6
Heifers	.5
Calves, per lb	.6½
Sheep, ewes, per head, shorn	.5.00
Lambs, per head	.3.75@4.25
Wethers, shorn	.5.00

Potatoes.

Wholesale prices are:

Highlands	.1.75@1.90
Salinas	.2.10@2.25
Lompoc	.2.10@2.25
Oregon	.1.90@2.00
Oregon, Early Rose	.2.00
Nevada	.2.00
Idaho, Rurals	.1.75@1.85
White Rose, local	.1.85@2.00
Early Rose Northern	.2.00
New potatoes	.4.00@5.00
Sweets, yellow, per ctl	.2.50@2.75

Onions.

Wholesale quotations:

Oregons	.1.85
Australian browns	.1.75
Nevadas	.2.25
Garlic	.8

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	.1.25
Beets, sack	.90
Beans, Lima	.10@12
Beans, green	.10@12
Beans, wax	.10@12
Brussels sprouts	.8@10
Bell peppers, lb	.8@10
Green chilis	.3@4
Cucumbers, box	.1.00@1.75
Cabbage, sack	.60@70
Celery, crate	.2.25@2.75
Cauliflower, crate	.1.25
Carrots, per sack	.90
Egg plant, lb	.8@10
Horseradish	.12½
Onions, green, doz. bunches	.20@25
Leeks, per doz	.40
Lettuce, crate	.75@90
Oyster plant, doz	.40
Okra, lb	.10
Peas, lb	.8@10
Parsley, doz bunches	.20@30
Parsnips, doz. bunches	.40
Pumpkins, lb	.1@2
Radishes, doz. bunches	.20@25
Rhubarb, Crim. Winter, box	.1.00@1.25
Spearmint, doz. bunches	.30@35
Spinach, doz	.20@25
Hubbard squash, lb	.1½
Tomatoes, crate	.75@90
Turnips, sack	.90
Watercress	.20@25

Citrus Fruits.

Navels	.1.75@2.25
Grapefruit	.2.00@3.00
Lemons	.1.50@2.50
Tangerines	.1.75@2.00

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	.4.00@5.00
Apples, Belleflower	.1.00@1.25
Spitzenbergs	.1.75@2.50
Jonathans	.2.00@2.50
Greenings	.1.10@1.25
Pearmains	.1.10@1.50
Pippins	.1.20@1.35
Pineapples	.7½@8½
Casabas, doz	.2.00@2.25
Grapes, lug box	.2.00
Mangoes, lb	.10@15
Persimmons, lb	.5@6
Pomegranates, lug	.1.00
Guavas, basket	.6@7
Pears, lb	.5
Bartletts, lb	.8@10
Winter Nelis	.2.50
Strawberries	.10@15
Blackberries	.8@10
Raspberries	.12@15
Christmas melons	.2.50

Dried Fruits.

Wholesale prices are:

Apricots	.13
Evap. Apples, fancy, lb	.11½@12½
Figs, box	.1.75
Peaches	.7@8½
Nectarines	.10
Pears	.11@12½
Prunes	.7@12
Plums	.10

Beans, Dried.

Wholesale quotations:

Limas	.5.45@5.50
Black eyes	.5.50
Pinks	.6.00
Lady Washington	.4.25
Small white	.4.00@4.50
Garvanzas	.4.50
Lentils	.7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	.15@16
No. 1 hard shell walnuts	.14
No. 2, all kinds	.11
Chestnuts	.10@12
Filberts	.15
Almonds, IXL, lb., new	.16@17
Pecans, polished	.15@17
Peanuts, Eastern	.7@7½
Peanuts, California	.6

Honey.

Wholesale quotations:

Extracted water white	.9½
Extracted light amber	.8
Comb water white	.18@19
Light amber	.15
Beeswax	.30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	.13.00@14.00
Wheat hay	.14.00@15.00
Tame oat	.14.00@16.00
Alfalfa	.13.00@14.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, ctl	.1.80@1.85
Corn	.1.60
Popcorn	.3.50@4.00
Egyptian corn	.1.75
White oats	.1.80
Rye seed	.2.00
Seed barley	.1.25

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	.1.10
Cracked corn	.1.65
Cracked wheat	.1.95
Shorts	.1.80
Bran	.1.55
Oil cake meal	.2.50
Feed Meal	.1.70
Rolled barley	.1.20

San Francisco Market

SAN FRANCISCO, Jan. 3, 1911.

Butter.

A 3-cent decline in extras is caused by heavy receipts on Saturday. Market easy.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	.32
California firsts	.30
Storage	.29

Cheese.

California flats, new	.13@18
Cal. Y. America, fy., new	.16@17
Oregon, fancy	.16

Eggs and Poultry.

Eggs advanced slightly after last quotations, then during the last of the week heavy receipts caused a strong decline, and on Saturday the present quotations were made.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	.36½
Firsts	.35
Seconds	.33
Storage	.30

Hens, doz	.4.00@10.00
Fryers, doz	.4.50@5.50
Ducks	.6.00@10.00
Broilers	.3.00@4.50
Roosters, doz	.4.00@7.50
Turkeys	.22@25
Geese	.2.00@3.00
Pigeons	.1.50@2.00
Squabs	.3.00@3.50

Live Stock.

San Francisco prices, gross weight:

Steers	.4¼@5¾
Cows and heifers	.3½@4¾
Calves, lb	.4½@6¼
Hogs	.5@8
Milk lambs, unshorn	.5¾@6
Wethers, No. 1	.4¾@5
Ewes, No. 1	.4¼@4½

Potatoes.

Wholesale market quotations:

River White, cwt	.1.40@1.50
Salinas Burbanks, cwt	.1.75@1.90
Oregon Burbanks, cwt	.1.50@1.60
Lompocs	.1.85@1.90
Sweets, ctl	.2.80@3.00

Onions.

Onions, California, sack	.1.40@1.50

Vegetables.

Wholesale quotations:

Artichokes	.25@40
Beans, string, lb	.12½@20
Beans, Lima	.8@10
Cabbage, cwt	.65
Carrots	.75
Cucumbers, hothouse, box	.2.00@2.25
Celery, crate	.75@2.00
Chili peppers, lb	.4@6
Egg plant, lb	.8@10
Mushrooms	.50@1.50
Okra, box	.40@60
Peas, lb	.5@8
Summer squash, box	.1.25@1.50
Rhubarb, box	.75@1.25
Tomatoes	.90@1.10
Turnips	.65
Garlic, lb	.2½@3

Citrus Fruits.

Navels, new	.1.50@3.50
Grapefruit	.2.00@3.00
Lemons	.1.50@3.50
Limes	.4.00@4.50
Seedlings	.1.50@2.00
Tangerines	.50@1.50

Fresh Fruits.

Apples, box	.50@85
Apples, Belleflowers	.75@1.00
Newtowns	.75@1.25
Spitzenberg	.1.75@2.25
Bananas, Hawaiian	.1.00@1.50
Huckleberries, lb	.7@10
Pears, Bartletts	.1.50@2.00
Winter varieties	.1.00@1.25
Persimmons, box	.50@75
Pineapples, Hawaiian	.2.00@3.50
Pomegranates	.50@1.50
Strawberries, chst	.5.00@6.00

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.: Apples, 8½@9¾c; apricots, 10¾@13c; do, Moorparks, 14c; peaches, 5¾@7¼c; with a premium of ⅛@¼c on Muirs; prunes, bulk basis, Santa Claras, 6½@7c, with ¼c premium on 60s to 90s; outsides, 6@6¼c; figs, 6¼@7c for white, and 5@5½c for black; pears, 9¾@13c.

RAISINS—1910 crop: London layers, in 20-lb. boxes—6-crown clusters, $2.50; do, 5-crown, $1.75@2; 4-crown, $1.30@1.40; 3-crown layers, $1@1.10; do, 2-crown, 95½c@$1. Seeded, per pkg.—Fancy, No. 16, 5¼c; choice, No. 16, 4¾@5c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 4½c; do, 3-crown, 4c; do, 2-crown, 3½c. Dried grapes, 3c. Seedless—Muscatels, 3½c; Sultanas, 4½c; Thompson's, 4¾@5c.

Nuts.

Walnuts, No. 1 soft shell	.15
Walnuts, No. 1 hard shell	.14½
Almonds, '10 N P U	.13
Almonds, '10 Nonp	.15
Almonds, '10 I X L	.14
Almonds, Peerless	.12
Pecans	.14@17
Chestnuts, California	.9@12½

Beans, Dried.

Limas	.5.00
Pink	.5.40
Black eyes	.5.50@5.65
Small white	.3.50
Large white	.3.45
Kidneys	.5.75
Garvanzas	.3.00
Bayo	.5.25
Horse beans	.2.50
Red Mexicans	.5.50
Cranberry	.4.50@4.75

Hops.

Hops, coast, 1910	.17@19
Hops, 1909	.11@14
Hops, Oregon	.12@15

Honey.

Water white comb, '10	.15
Amber comb	.10@11
Extracted white	.8
Extracted amber	.5½@6½
Beeswax, lb	.24@30

Scott, Magner & Miller say:

During the week ending today we have received on the San Francisco market a total of 2,650 tons of hay. It is usual for the month of December to be a little quiet in the hay trade in San Francisco, and this year has been no exception to this rule; in fact, it has been much quieter during this entire month than usual.

With the exception of something strictly "gilt-edged," either of straight wheat in light-weight bales, or of red oat, which can be sold at our topmost quotations, all other grades of hay move off slowly and with no satisfaction to the selling interests.

There has been demand for alfalfa hay, but not in quantities. Arrivals of this article have been remarkably light, and the feeling is somewhat firm, and inquiry is developing from interior points where alfalfa is required at this time.

There has been very little straw shipped into the market recently, but fully enough to more than meet the current demand.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	.12.50@13.50
No. 1 wheat or wh and oat	.10.50@11.50
No. 2 wheat or wh and oat	.9.00@10.00
Choice tame oat	.11.50@12.00
Other tame oat	.8.00@10.50
Wild oat	.8.00@10.00
Stock hay	.6.00@7.00
Alfalfa, ton	.9.00@11.50
Straw	.40@50

Grain.

Wheat, No. 1	.1.42½@1.50
Barley, fancy	.1.10@1.12½
Barley, good to choice	.1.06¼@1.08¾
Barley, poor to fair	.1.00@1.05
Oats, white	.1.45@1.55
Rye, new crop	.1.50@1.60
Alfalfa seed	.18@20
Mustard, brown	.4½
Millet	.2¾
Flaxseed	.5@5½
Broom corn seed, ton	.23.50

Feed Stuff.

Bran, ton	.29.00@30.00
Feed cornmeal, ton	.34.00@35.00
Cracked corn	.34.00@35.00
Ground barley, ton	.23.00@24.00
Rolled oats, ton	.29.00@31.00

Middlings	34.00@36.50
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	24.50@25.50
Mixed feed, ton	25.00@27.00
Shorts	29.00@31.00

Citrus Fruit Market

LOS ANGELES, Jan. 4, 1911.

The intense cold prevailing generally over the East has prevented the opening of cars, and consequently a very slow market is greeting the fruit now going forward. Before this condition was realized, the heavier shipments of the first of the year had been started, and it is possible that a very quiet situation will be the result. So far as sales are being made, there is no great slump manifested, and it is hoped lighter shipments, together with bettering weather conditions, will combine to clear the market.

Lemons are quiet, with prices favoring Californias, but all grades of fruit are inactive.

Shipments.

Shipments of oranges from Southern California to date from November 1, 1910, 3,254 cars, of lemons 712, or a total of citrus fruits of 3,966. To same date last season, 1,330 cars of oranges, 604 lemons, with total of 1,934 citrus fruits.

Tulare county shipments aggregate about 2,500 cars, Butte county about 400, Sacramento-Placer 135 cars.

NEW YORK, Friday, Dec. 30.—Eight cars of navels and one car of lemons were sold. The market was higher on navels, unchanged on lemons.

NAVELS—	Avge.
Gabriella, xc, Ind F Co	1.90
Golden Flower, xf, Red G O Assn	2.50
Gold Buckle, R H, E High	2.90
Mallard, fy, Randolph F Co	2.50
Camellia, xf, Red M O Co	2.50
Niagara, fy, Stewart F Co	2.55
Gobbler, fy, Stewart F Co	2.10
Niagara, fy, Stewart F Co	2.10
Symbol, ch, Stewart F Co	1.95
Isis, fy	2.45
Success Or, Green & Speich	2.25

LEMONS — Trail, $2.70; Canon, $2.65; Our Beauty, $2.50. A C G Ex.

BOSTON, Friday, Dec. 30.—Three cars sold. Raining. Market unchanged.

NAVELS—	Avge.
Watchumna, T C C, Lemoncove	2.50
Rose, vf, Red O G Assn	2.75
Gold Buckle, R H, E High	2.50

PITTSBURG, Friday, Dec. 30.—Five cars sold. Market steady on both lemons and oranges. Cold, snowing.

NAVELS—	Avge.
Carnation, xc, Green & Speich	2.00
Defender, xc, Altland F Co	1.65
Diamond Mtn, fy, Randolph F Co	1.65
Belt, R H, E High	1.70
Daisy, ch, Green & Speich	1.55
Del Monte	1.30
Lochinvar, R H, E High	2.25
LEMONS—	
Greenleaf, S T, Whit	2.65

CINCINNATI, Friday, Dec. 30.—Cool. Market weak. Two cars navels and seven cars Floridas sold. Florida Brights, $1.55@2.35; Russets, $1.40@2.30.

NAVELS—	Avge.
Pico, S T, Whittier	1.65
Lucky Sd, Tustin P Co	1.60
Honest Pack, Tustin P Co	1.70

CLEVELAND, Friday, Dec. 30.—Six cars navels, one car seedlings and one car lemons sold. Market is unchanged. Snowing.

NAVELS—	Avge.
Pinecone, S B, High	2.00
Carrier, S B, High	1.55
Canna, S B, Yerkes S	2.45
Gold Buckle, R H, E High	2.40
Belt, R H, E High	1.85
Crafton, xf, Red G O Assn	2.25
Arrowhead, S B, High	2.00
Carrier, I M P, S B, High	2.25
Cosmos, S B, Yerkes S	2.10
Lochinvar, R H, E High	2.35
Royal Knight, R H, Red	2.40
Highlander, xf, M O Dis	2.20

SEEDLINGS—Tulip, T C C Ex, Porterville, $1.90.

LEMONS—Palm Tree, A H, Prenda, $2.40; Commercial, $1.50; Royal Knight, R H, Red, $2.15.

PHILADELPHIA, Friday, Dec. 30.—No California citrus fruit sold. Twelve cars of Floridas sold. Oranges sold from $1.35 to $2.50. Grapefruit, $1.00@2.70; average, $2.20. Tangerines, $1.30@1.70; average, $1.60. Market unchanged. Next sale Tuesday.

NEW YORK, Tuesday, Jan. 3.—Twenty-five cars of navels and three cars of lemons were sold. The market was lower on navels and unchanged on lemons.

NAVELS—	Avge.
Snowflower, fy, Globe Cit Co	2.80
Snowflower, ch, Globe Cit Co	2.50
Highland	2.35
Mallard, fy, Randolph F Co	2.00
Niagara, fy, Stewart F Co	2.25
Vista de Robles, fy, Stewart F Co	2.20
Mariposa, fy, Earl F Co	2.50
Mistletoe, ch, Earl F Co	2.20
Emblem, I M P	2.35
Dos Palmos, I M P, xc, S Marino	2.30
Independent, Growers' F Co	2.20
Constitution, Cleghorn Bros, High	2.05
King Midas, fy, C E, Whitcomb	2.15
Gold'n Flower, xf, R G O As	1.90@2.05
Golden Gate, xc, Red G O Assn	1.90
Gold Buckle, R H, E High	2.70
Glendora Heights, fy, A C G Ex	2.65
Glendora Heights, ch, A C G Ex	2.35
Victoria, I M P, A H Ex	2.70
Victoria, A H Ex	2.50
Golden Orange, I M P, A H Ex	2.70
Blue Seal, A C G Ex	2.55
Crocus, I M P, S B Ex	2.70
Cosmos, I M P, S B Ex	2.55
Cosmos, S B Ex	2.35
Glendora Heights, A C G Ex	2.50
Red C, Covina Ex	2.25
Cougar, Covina Ex	2.10
Pointer, A C G Ex	1.80
Whittier, S T, Whittier	1.60
Red C, I M P, Covina Ex	2.25
Cougar, Covina Ex	2.00
Argonaut, S T Ex	1.55
Pioneer Special, Pioneer F Co	2.30
Pride of West, Pioneer F Co	2.30

LEMONS—Pet, S A Ex, $2.75; Quail, O K Ex, $2.85; Hetch Hetchy, Pioneer F Co, $2.55; Pride of West, Pioneer F Co, $2.10; Mallard, fy, Randolph F C, $2.55.

PITTSBURG, Tuesday, Jan. 3.—Four cars sold. Market lower on oranges. Cold, snowing.

NAVELS—	Avge.
Golden Flower, xf, R G O Assn	2.15
Green Dolphin	1.70
Table Mountain, B C, Palermo	1.45
Golden Gate, xc, Red G O Assn	1.80
Searchlight, S S, Orange	1.70

PITTSBURG, Monday, Jan. 2.—Three cars sold. Market steady on navels. Weather unsettled.

NAVELS—	Avge.
Lincoln, A H, Casa B	2.10
Navajo, I M P, A H, Casa B	1.85
Golden Gate, xc, Red G O Assn	1.95
Navajo, A H, Casa B	1.60
Sphynx, Cent Cal, Lindsay	1.55

BOSTON, Tuesday, Jan. 3.—Six cars sold. Raining. Market continues strong.

NAVELS—	Avge.
Whittier, S T, Whittier	2.35
Priscilla, S B, High	3.05
John Alden, S B, High	2.75
Arrowhead, S B, High	2.60
Watchumna, Cen Cal, Lemoncove	2.75
Bronco, xf, W Amer F Co	2.70
Whittier, S T, Whittier	2.30
Golden Bar, S B, High	3.00
Pine Cone, S B, High	2.65
Carrier, S B, High	2.25
Lemoncove, C C Ex, Lemoncove	2.40

BOSTON, Monday, Jan. 2.—Seven cars sold. Cloudy, raining. Market higher on both oranges and lemons.

NAVELS—	Avge.
Squirrel, A H, Arl	2.55
Alta Cresta, R, A H Pach	3.10
Robusta, R, A H Pach	2.75
Gold Buckle, R H, E High	2.65
John Alden, S B, High	2.80
Success, Or, Green & S	2.35
Cove, So, E Peycke Co	2.05
Alta Cresta, A H Pach	3.20
Robusta, A H Pach	2.95
Hobo, A H Pach	2.40
Priscilla, S B, High	3.05
Isis, Green & Speich	2.55
Venus, xc, E. Peycke Co	2.25

LEMONS—Whittier, S T Ex, Whittier, $2.85.

CHICAGO, Tuesday, Jan. 3.—Lemons are in good supply. Trade is light, and they are easy. Boxes California fancy, 300s, $3.00; 360s, $3.00; off sizes, $2.25@2.50.

ORANGES—There is an easy feeling in this market. Trade in a general way is fairly good for fine fruit. California navels are offered freely and supply the main trade. Boxes, navels, California fancy, 96s, $2.25@2.50; 126s, $2.50@2.75; smaller sizes, $2.75@3.00; Floridas, $2.00@2.25.

PHILADELPHIA, Tuesday, Jan. 3.—Three cars navels sold. Also twenty cars of Floridas, $1.30@2.75; average, $1.80. Grapefruit, $1.05@3.00; average, $1.78. Tangerines, $1.10@1.85; average, $1.30. Market lower.

NAVELS—	Avge.
Jameson, Q C, Corona	2.15
Birch Bark, fy, Earl F Co	2.05
Blue Label, Cent Cal, Lindsay	2.10

Business

COMBINED GRAIN AND FERTILIZER DRILL.

Disc drills have advantages which compel their consideration on the part of farmer and fruit grower. For fertilizer drilling in orchard the Richmond five-disc steel frame fertilizer and grain drill, manufactured by the Wayne Works and sold in California by the Western Implement Co., 131-133 North Los Angeles Street, Los Angeles, is one of the very best. The fertilizer attachment on this machine is made with beveled edge discs, thus obviating the trouble of discs cementing on the edges in bad fertilizer when the machine is in operation. These drills have the strongest chilled iron boot bearings of any machine made. It is fitted with our justly celebrated small rotating cleaning disc, which holds the ground open and the grain is deposited properly. No trash in wet weather can ever catch in this cleaning disc and carry the grain, dropping it in bunches. This feature is an especially patented one, and does the work better than any other device.

Illustration and descriptive matter of this drill may be had by writing the above address.

SUBURBAN HOME.

The general sales agency of the West Riverside Estate (Inc.), has just issued a new booklet entitled "Showing How $2700 Will Grow to $15,000 in Eight Years." It is descriptive of the lands and groves of the company, and is issued primarily in the interest of the property of the Estate. The little book contains much valuable information about the California orange industry and might well be used as a hand book by anyone contemplating an investment in citrus property.

The West Riverside Estate, comprising some 3500 acres of land, is located on the main line of the Salt Lake R. R., five miles west of Riverside. 625 acres are at present in orchard, balance unplanted.

The present company secured the Estate in September, 1910—placed the groves on sale October 1st, but did not get the selling campaign under way before November. In less than two months the sales—made largely to professional Southern California orange growers—total over $200,000, a splendid endorsement in itself.

Owing to the unusual charm of the property, location, etc., the West Riverside Estate is destined in the very near future to be one of the fashionable high-priced suburban home settlements peculiar to California.

A QUEEN.

"Quality, durability, hatchability" is the slogan of the Queen Incubator Co. of Lincoln, Nebraska, which has just issued a "Poultry Guide and Catalog of Queens." The frontispiece is a photograph of Mr. P. M. Wickstrum, under which he states: "I personally back every statement I make about Queen Incubators and Brooders, and guarantee them to be just as represented in this catalog and to do the work I claim for them." The pages following are filled with illustrations of Queen Incubators and their various parts, and give information on incubation and handling of poultry. It's well worth the asking, which is its price.

SELF-SHARPENING SHEARS.

Dull shears are a constant annoyance to the housewife. By a patented device shown on page 31 of this issue shears are kept constantly sharp and in good working order. Every woman should have a pair. They will save their cost several times over each week by enabling you to do more and better work than with the old style shears, which are constantly in need of sharpening and tightening.

(Continued from Page 20.)

lower grades and a great deal of waste in the woods and at the mill. From the standpoint of conservation, the condition would not be so serious if the forests were being replaced after cutting. But the conditions which lead to waste in utilization prevent, also, the practice of forestry. There is, then, a double loss—waste of the present resources and prevention of the production of new resources.

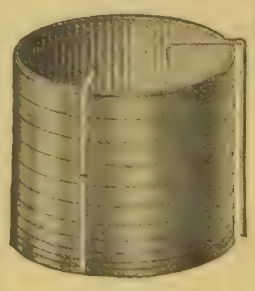
I doubt if this situation can be met at once or by the application of any one remedy. It is clear to my mind, however, that in this case, as in other conservation problems, there must be some present public investment for the future welfare of the country. This investment will take two forms: first, an increased price of products which must approach the cost of producing these by growth, and, second, direct investment in public forests and forestry. So far, the public has not [illegible] condition. There [illegible] the administration [illegible] ests, but the various states are now making the investments necessary to solve their local problems of forestry; the general public is apparently not yet prepared to pay more for the products in order to cover the cost of conservation. One of the first necessary steps is public education regarding our resources and the conditions of their utilization. A better appreciation by the public of the conditions of forest production, logging, and manufacturing of lumber is essential to work out this phase of conservation and bring about a proper adjustment between the limited resources and the needs of the people.

I have felt justified in calling attention to this problem because it is very closely related to the work of forest products and the application of the investigations in this branch of the Service.

As I have only recently become connected with the Forest Service, I feel that I can speak without reserve in praise of the work which has been undertaken. I wish especially to compliment the work of Mr. Hall, Mr. Cline, and their associates in their work of forest products. I wish at this time to express my deep appreciation of the support and cordial co-operation of President Van Hise, and other authorities of the university who have made possible the Forest Products Laboratory.

I regard the co-operation with the university of the greatest value. It is not only in the general educational work in forestry that the Forest Service will be greatly aided, but the association with the university will be very valuable in the conduct of the scientific work at the laboratory. We wish to maintain among our workers that spirit of search after truth which characterizes this great institution. The science of forestry is still in the creative stage. A great deal of the research and of the work of establishing the practice of forestry must be done by the government. To carry on this work, I consider it of the greatest importance that there be no lessening of that spirit of individual initiative, personal responsibility, and high ideals which has characterized the members of the Service under the inspiration of Gifford Pinchot.—Henry S. Graves, Forester of U. S., in address at Madison.

Orange groves at Lindsay, Tulare county, have brought a return to the growers of about $200 per acre.



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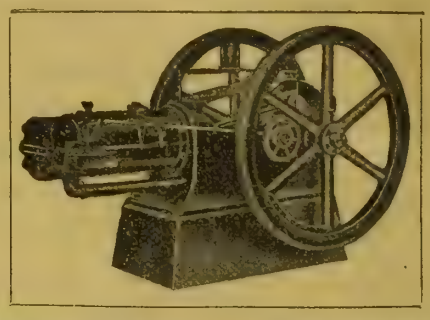

COMMERCIAL ENGINE CO.

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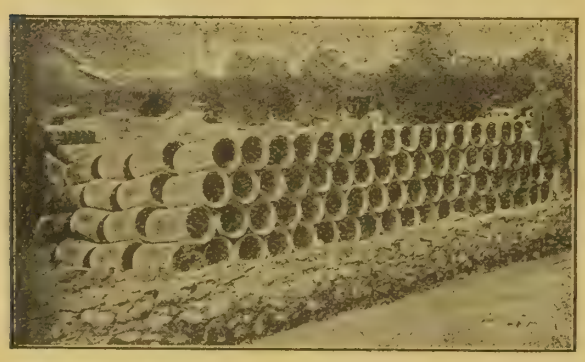
Deep Well Pump Talk Continued :

Cut showing the Luitwieler heart-shaped cam and the only reciprocating pumping mechanism applying the power uniformly throughout the full stroke and uniform speed of the water pistons in both directions. The cam principle is universally conceded to be the most perfect mechanism for lifting water from deep wells or against pressure. Luitwieler pumps are the result of 33 years experience and embody the perfection of the cam principle.

The mechanism is balanced, and our pumps are tested for smoothness of operation, to be run being driven by only a ⅜-inch belt lace, a test impossible with any other reciprocating pump. Luitwieler pumps are in a class by themselves, with fewest working parts and giving most perfect results.

Luitwieler Pumping Engine Co. Los Angeles



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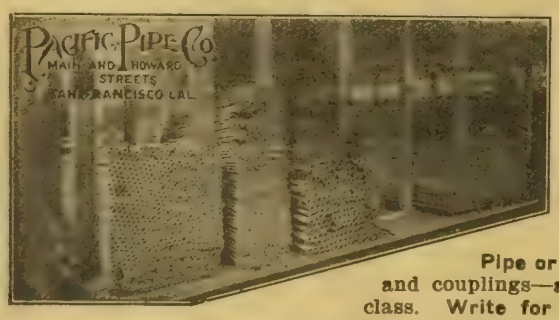

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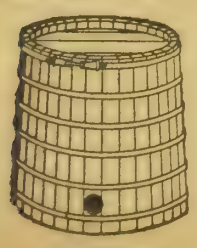

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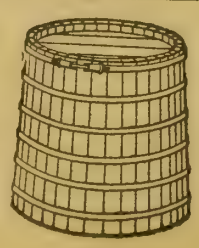

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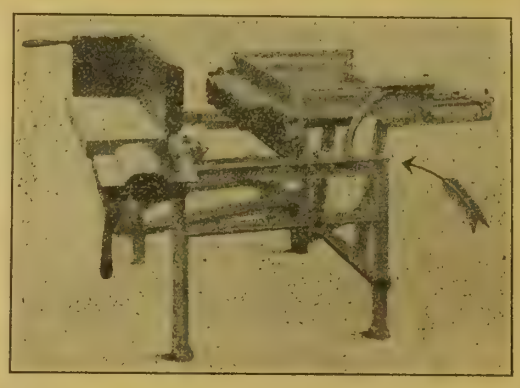

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California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES JANUARY 12, 1911 SAN FRANCISCO

Alligator Pear: The Coming Commercial Tropical Fruit

A Beautiful Tree, producing a Valuable Fruit. Its Cultivation should be Extended. Highly esteemed in West Indies, and will be in California.

GROUP OF ALLIGATOR PEARS, 11 VARIETIES, WEIGHING 23 POUNDS.

A Promising Tree Fruit

No one fruit of a tropical nature has commanded wider attention of late years from plant experimenters than the Alligator Pear (Persea gratissima) of Mexico. And well it may, for not only has the fruit a culinary value, but the tree itself is a noble spreading evergreen. According to Van Mueller's "Select Extra Tropical Plants" the tree is adverse to drouth, hence likes a somewhat humid soil, and is mentioned as available for mild localities outside the tropics. In Jamaica it is cultivated up to 4000 feet; in Eastern Australia it matures fruit outside the tropics. The fruits are generally sliced for salads, and are of a delicious flavor. According to Dr. Froehling, the seeds also possess a medicinal value. As supplemental to what is here said, we refer the reader to descriptive article on another page, by Mr. Will D. Stephens, who is sanguine of its future, and is about to introduce something like a dozen named varieties.

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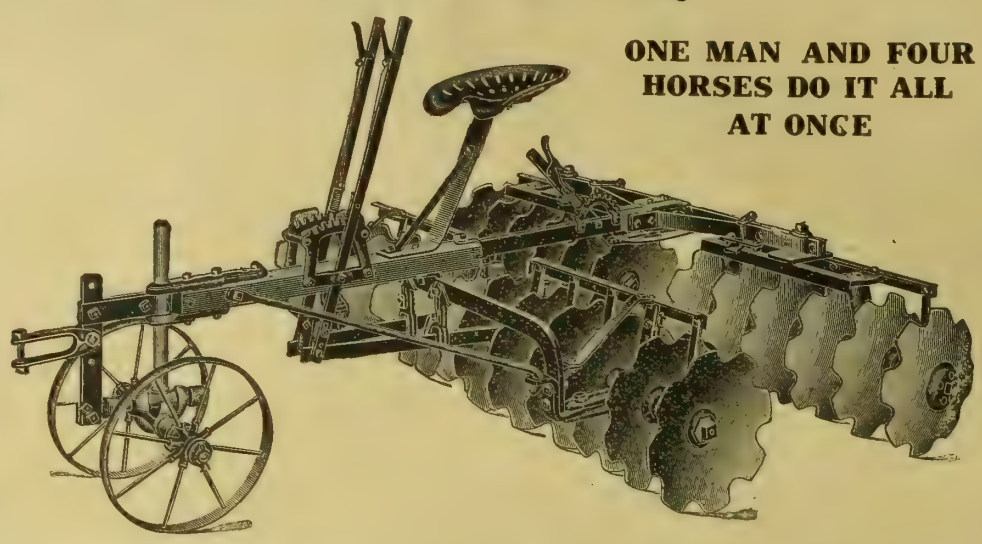

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Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c	per foot
10,000 feet	⅜-inch Standard, at	1c	per foot
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50,000 feet	2-inch Standard, at	8½c	per foot
10,000 feet	2½-inch Standard, at	15c	per foot
15,600 feet	3-inch Standard, at	17c	per foot
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30,000 feet	4-inch Casing, at	19c	per foot
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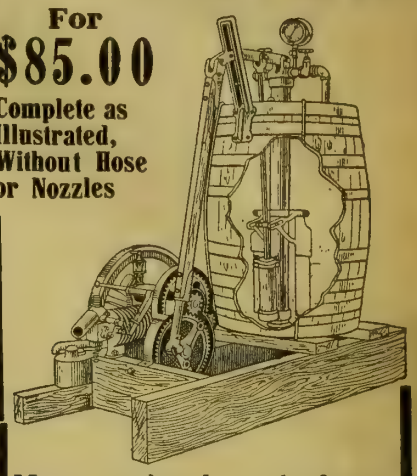

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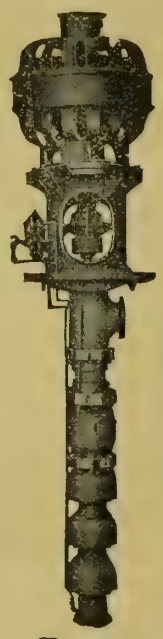

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California Cultivator

Vol. XXXVI. No. 2. LOS ANGELES: THURSDAY, JANUARY 12, 1911 One Dollar the Year

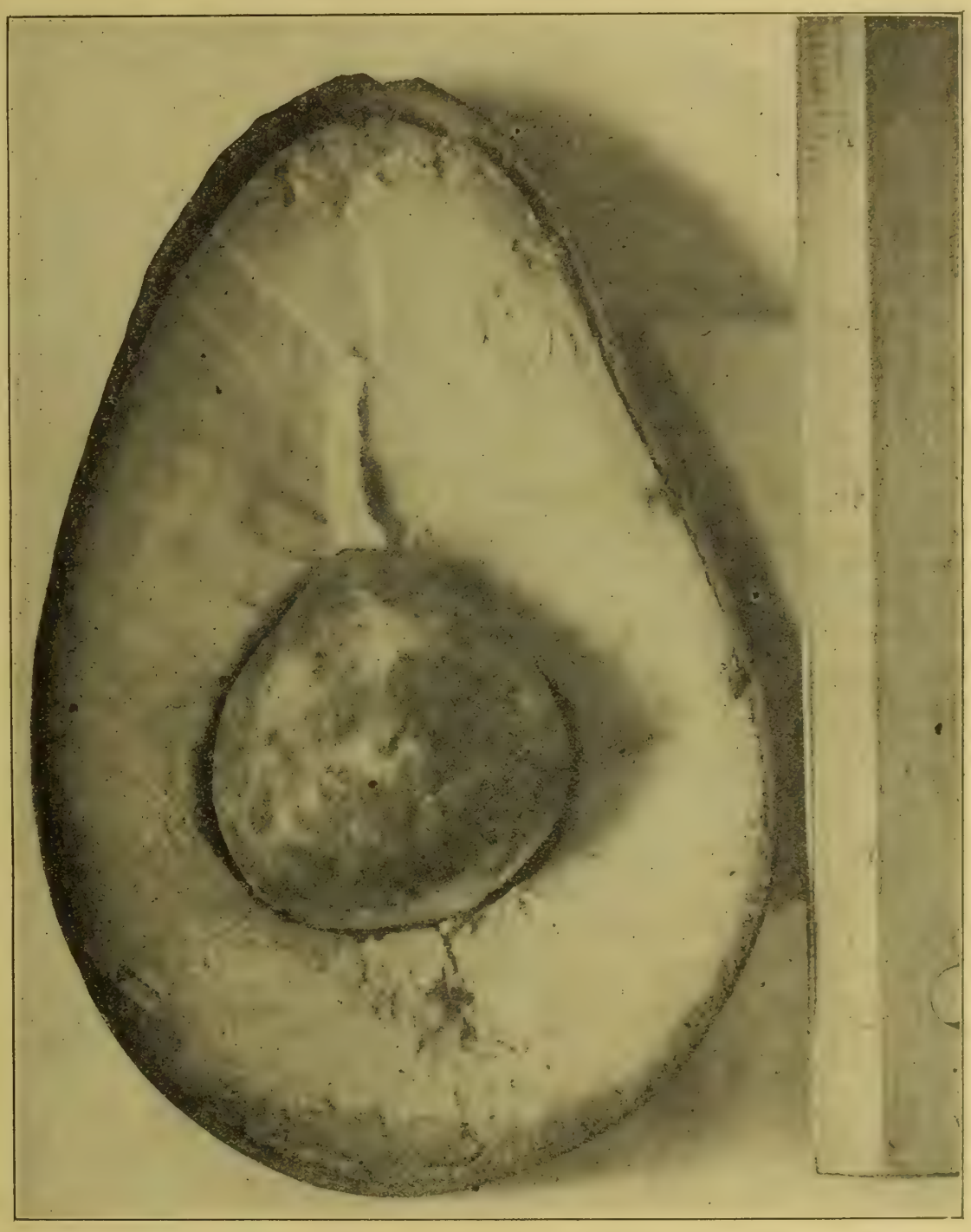
Promise of Enlarged Horticultural Possibilities

Wm. D. Stephens Gives Valuable Information in the Following Description of Avocados, which have Done Exceptionally Well in Some Sections of California

The fruit shown in this issue of the Cultivator and commonly called Alligator Pear, and designated in the U. S. horticultural reports as Avocado, is known in all Spanish speaking countries as the Aguacate (pronounced Ah-wah-cah-te).

The only portion of the United States where they have been successfully grown, so far as the writer has knowledge, are the Indian river section in Florida and our own Southern California. It has been the popular belief that they require a practically frostless climate in order to thrive and produce fruit in commercial quantity. In fact, trees grown here from seed imported from Hawaii and the lowlands of Mexico do not appear to stand any material frosts. On the other hand the tree and fruit are found in their highest state of vigor, productiveness and excellence of quality in the higher altitudes of Mexico where the temperature falls to a point lower than is here believed safe for the growing of citrus fruits, and even where snow usually falls each year. The few trees in California that have reached a producing age and which were grown from seed brought from the high lands in Mexico, have proven that they are at least as hardy and capable of resisting frost as the orange tree.

The Alligator Pear has more the flavor of a vegetable than a fruit with a heavy oily meat devoid of grain or fiber, pale yellow in color and of a delicious nutty flavor. In color and consistency the meat is not unlike butter and in fact is often termed vegetable butter and eaten in similar way by seasoning with salt and spreading upon bread. It is known to be a very wholesome and nutritious food and nine out of every ten persons tasting become devotedly attached to it if they have the opportunity and a purse that can stand the price they bring in our markets. The writer spent some years in Mexico and is now growing these trees in nursery and orchard in Los Angeles county, and also at Jasmin in the early orange belt in the San Joaquin valley. The fruit shown in the accompanying cuts comes from the mountainous district in the state of Puebla, Mexico, at an altitude of more than 6000 feet, a section noted as producing the finest aguacates in the Republic. The writer has visited many portions of Mexico where they flourish, but has found none that approach in size, flavor or shipping qualities these Puebla varieties. The writer confidently predicts as great if not an even greater commercial future for this industry in the citrus producing sections of Southern California than that of orange growing. The profits realized by the owners of the few trees now bearing here are simply amazing, one tree having produced the present year at least $250 worth of fruit at wholesale prices, and other trees much more than $100 each. The fruit from these local trees it should also be remembered is of small size and ordinary quality, weighing from about one-quarter to one-half pound each. The fifteen fruits shown in grouped picture weighed 23 pounds, the largest one weighing two pounds two ounces and the smallest one pound. The tree producing the two-pound fruit is 80 years old and bears 1500 fruits each year, weighing from one and one-quarter to two and one-quarter pounds. Another fine one shown in single picture is from tree only six years old, bearing 500 fruits weighing about one and one-quarter pounds average. Eleven varieties are shown in the group, all very choice and from all of which the writer is receiving supplies of wood for use in budding the seedling stock in his nurseries. There are numerous aguacate enthusiasts in California who will endorse the writer's optimistic views as to the great future in store for this new tree food industry.



A HIGH QUALITY SEEDLING AVOCADO, NATURAL SIZE. WEIGHT 2 LBS., WITH PERFECT FLESH.

The period of ripening of this fruit by proper selection of varieties may be extended over the twelve months. The better known varieties ripen from October to January, but some others have been found which ripen during the spring and early summer months. With care in picking, the fruit is good for thirty days after taken from the tree. This, together with icing and care in shipping will greatly extend the markets and make profitable great production. Of course it is to be expected that the prices quoted in the Cultivator market columns during the last few months cannot obtain when the fruit is produced in a large way, for if such returns could be secured the profits would be fabulous, but with cultivation put upon the basis of that of citrus fruits, a far lower price would be most profitable. With the extension of markets and the introduction of new varieties which lengthen the season, we do not believe there will be any danger of overproduction. One serious drawback has been the difficulty of propagation of some of the varieties, but improved budding methods have been developed and budders now claim that a percentage of buds may be grown equal to those grown in citrus tree budding. The fruit is now being experimentally planted in

(Continued on Page 38.)

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Does not scorch or burn no matter how strong it is used.

In 1 lb., 5 lb., 10 lb., 20 lb., 50 lb., and 100 lb. packages.

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Always Insist on having **SWIFT'S**

Citrus and Tropical Fruits

SPRAYING FOR THE CITRUS MEALY BUG.

By E. O. Essig, Horticultural Commissioner of Ventura County.

From time to time articles have appeared with reference to handling the citrus mealy bug by fumigation and parasites. Fumigation was certainly given an excellent test in this county, and while, through persistent endeavor, it has accomplished much good, yet to the average orchardist this method is beyond reach. The best work was done in a ten-acre lemon orchard belonging to the Teague-McKevett Co. just east of Santa Paula. Adjoining the old ten-acre orchard, this company planted some 240 acres of young lemon trees, and when the mealy bug was found to exist in the old orchard, the owners sought to exterminate it at any cost to prevent its spreading into the young grove. Former County Commissioner P. E. Smith started this work during the fall of 1908 and it had been carried on until the present time. The first tree-to-tree inspection showed 200 trees infested with mealy bug. After this inspection the entire orchard was fumigated, the dose used being in accordance with Woglum's Dosage Schedule No. 1. A second inspection some two months later showed 75 trees still infested and all these trees as well as those adjacent to them were fumigated as at first.

The third inspection, not being so careful, showed only a few trees infested and these were fumigated with a dosage double that used in Dosage Schedule No. 1. The results of this fumigation looked very favorable.

Three months later a very thorough inspection was made, the time required for the ten acres being six weeks. This inspection showed over 100 trees infested, some of them with eggs only, while others apparently supported only a single individual. The fourth fumigation was carried on differently from any work recorded on the mealy bug. Instead of a double dose being given at once, as was used in the third fumigation, a single dose was given as is the usual custom. After one hour exposure this dose was repeated, thus making the dosage double that outlined in Woglum's Dosage Schedule No. 1 and the exposure two hours. It was believed that this would surely get all of the insects which the one hour exposure and one dose did not kill. The results were indeed very satisfactory. So much so that the fifth inspection, which was even more careful than the fourth, revealed only four trees slightly infested. These trees were fumigated with the same system of dosage as soon as they were found by the inspector. A later inspection has revealed no mealy bugs, but only after some time, yet, can we make sure of this. The work shows that the reduction of the pest is exceedingly great and through repeated fumigations the pest can be practically exterminated in an orchard, which was badly infested in all parts. To demonstrate this the double dosage and double exposure system was carried into a very badly infected orchard. The results were little better than what was obtained by a single dose and one hour exposure. In many cases only about 50 per cent of the female bugs were killed, while the percentage of the eggs remained unknown. The cost of the single time for an average lemon tree, including labor and tents, was nearly $1.50.

Believing in a three-hour exposure and a triple dosage, an owner of a badly infested orchard, wished his orchard so treated. After two nights' work a halt was called to await an inspection so as to get some idea of the results obtained. An inspection followed which showed as many as 40 individual mealy bugs on a single tree. The work was stopped and a closer inspection made which resulted in the work being dropped. The cost per tree was near $2.25 and the results very poor.

* * * *

Other fumigation efforts are chronicled by Mr. Essig, in one of which the average cost per tree was $2.25. This is prohibitive in general practice. He afterward concluded:

* * * *

It was after this and other work that my attention was turned to some other means of combating the mealy bug, than by fumigation or the use of the already promising parasites which were working very slowly. To sprays I turned first, believing that a mixture could be found which would do the work. Sprays seemed advisable for the following reasons:

1. At most times of the year the mealy bugs are scattered over the tree in the most exposed manner. Only during the winter months are they massed and more or less protected by their numbers.

2. The only protection afforded to these soft-bodied insects is a thin, white, waxy covering. The requisite for a successful spray would be the power of penetrating and dissolving this waxy coat.

3. A spray which would kill the adults would exterminate all the eggs on the tree at the time of spraying.

4. Weather conditions are more favorable for spraying in this country than for fumigation, because of damp nights, east winds, etc.

With these things in mind, work was begun with both wet and dry sprays. The section chosen was an average-aged lemon orchard very badly infested with mealy bug—a section of about two acres, and where parasites had not been introduced.

The work was carried on during the months of January, February and March, when the trees were more or less dormant, and when the mealy bugs and eggs were massed in great clusters on the trunks, limbs, leaves, and fruit of the trees. The results were so good that beginning July 1st, over 100 acres will be sprayed and steps taken to make a general cleaning up of the entire mealy bug district. Of course there are many things yet to be perfected in regard to the time of spraying and the manner of application, but with an efficient spray to work with, these details will develop only with experience and time.

* * * *

Many sprays are then described and the results of their application given, after which Mr. Essig decided that the carbolic acid emulsion was the only practical one, regarding which he says:

* * * *

Carbolic Acid Emulsion.

The most satisfactory of all the

sprays used in combating the citrus mealy bug is the Carbolic Acid Emulsion. This is probably due to its penetrating qualities which enables it to dissolve the waxy covering of the mealy bug and to come in contact with the naked body.

The formula for mixing up this spray is as follows:

Crude Carbolic Acid..... 5 gals.
Whole Oil Soap.....40 lbs.
Water (hot) .....40 gals.

The 40 gallons of water are first poured into the cooking kettle and allowed to boil. While the water is getting hot, the whale oil soap is cut into fine pieces, so as to make it dissolve easily, and added to the water. When the soap is all dissolved in the hot water, the carbolic acid is added, and all is allowed to boil for a short time to insure thorough mixing. The whole operation requires less than one hour. The contents make about 43 gallons of rich stock solution. For spraying, the stock solution is diluted one to twenty of water, thus making approximately 860 gallons of spraying material. The stock solution will keep indefinitely, but is preferable fresh. When diluted with water it makes a perfect emulsion and can be applied with any spray pump, since an agitator is not needed. When the stock solution is allowed to stand for some time it is best to stir it up before diluting it for spraying.

The resulting spray is very easily handled, it needs no agitation, no straining, is easily and simply made, does not rot the hose or rust iron pipes, and is perfectly harmless to the eyes and hands of the sprayers.

Applications.

In spraying for insects which are protected by a woolly, cottony, or waxy covering, it is essential that an adequate force behind the spray be employed. In the case of the mealy bug it is absolutely necessary to have a power spray pump. This will enable the sprayer to develop the power necessary. In our work the least pressure used was 100 pounds and the most satisfactory pressure 250 pounds. A three nozzled spray seemed to give the best results, for a thorough drenching could be given any spot instantly, and the top of the tree could be more effectively reached. With such a spray there is little danger of missing any considerable surface of the tree, a thing to be guarded against, for every spot untouched means not a few mealy bugs left alive on the tree for the next year. This can be avoided only by thorough work and regular applications. If a few insects are left in a secluded place it will not be long before the young are born and the adults die, or the adults themselves, may move to a more favorable place. The young always move away from the parent and often rove extensively after hatching. The life cycle is quite long, lasting six to nine months, so three applications of spray within this time will surely eliminate most of them. In a badly infested orchard an application should be made once every two months until the conditions are made much better.

In the experimental and field work where the trees were normal in size, and badly infested with eggs, larvae, and adult mealy bugs, 15 gallons were given to each tree, at an application.

Cost of Spraying.

In large quantities the cost of materials is as follows:

Crude Carbolic Acid.....25c per gal.
Whale Oil Soap.....6½c per lb.

A mixture of 43 gallons of stock solution according to the above formula would cost $3.85. This stock solution makes 860 gallons of spraying material less than ½c per gallon. Using 15 gallons per tree this would make the cost near 7c a tree for a single application. After the first two sprayings it would not be necessary to give such a large dose, which would cut down the expenses somewhat. The labor would probably cost less than the cost of chemicals per tree.

Comparing spraying with fumigation, every argument of expense is with the former, and the results are certainly greater in proportion to the cost for each application and as many applications are necessary for fumigation as are for spraying at a cost of about five times as much every time.

Time for Spraying.

In a badly infested orchard the work should be taken up as soon as possible so as to eliminate all of the insects exposed. After two or three successive sprayings within six or seven weeks, a regular system should be followed, just as we fumigate regularly for black scale.

In the late fall, during the months of October, November, December, and on into January, the mealy bug and their eggs are massed in great numbers all over the tree and fruit. Spraying during these months is somewhat difficult, but these are the advantages:

1. Nearly all of the eggs which would produce new broods for the coming year would be destroyed. While the young continue to hatch throughout the entire year, there is a period in the spring when the egg masses, which were deposited in the fall, hatch and the young come forth in great numbers just in time to attack young growth. Therefore spraying in the winter is very effective in preventing these spring broods.

2. In the winter the lemon tree has its minimum amount of foliage, the tree is more open and offers greater opportunities for effective spraying, especially in respect to the large limbs, upon which are massed the most of the eggs.

3. In the winter months the tree will stand more than in the spring months. This was demonstrated by the Lime-Sulfur spray, which killed the new spring growth and did no injury at all to the tough, leathery growth of the winter. The hot weather in the summer is injurious to a sprayed tree. It has been proven that a tree cannot stand near as strong a mixture of distillate and water in the summer time as it can in the winter. This is true to a great degree with regard to any spray.

As was pointed out above, the young begin to appear in great numbers as soon as the new growth starts. These young insects seek first the tender growth and the young fruit buds. Upon the former they settle indiscriminately while on the latter they settle just around the base of the young fruit. I have counted as many as 150 individuals around a single young lemon.

At this period all infested trees should be given a liberal application, in order to preserve the new growth and setting lemons; the greater number of the latter will soon drop unless the pests are removed. In case the fruit matures, the mealy bugs develop with it until, when it is ready to pick, it is so scarred as to be fit only for third grade when it might have been first. While the carbolic acid emulsion did spot the younger, reddish growth, no material change was done at this period, which should prevent spraying. Later in summer, after the young growth hardens a little, is a

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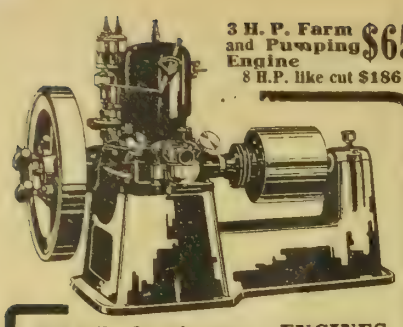

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more favorable time to spray, except that the foliage is very dense and thorough work difficult.

* * * *

The disastrous effect of the mealy bug on the navel orange on which it works from the navel and often into the center of the orange is described. "In a single navel thousands of eggs are deposited." This makes all the fruit unfit for use. Valencias and lemons are worst affected at stem or

A MAGNIFICENT SPECIMEN; WEIGHT 22 OUNCES.

where fruit lies together. As to number of applications of the spray, Mr. Essig says:

* * * *

Number of Applications.

As every sprayer knows, it is impossible to reach all parts of a tree at a single spraying. In combating

ANOTHER VARIETY; WEIGHT 1½ LBS., BUT OF HIGH QUALITY.

so serious a pest as the mealy bug it is therefore necessary to make a number of applications to get results.

In a badly infested orchard three sprayings should be made within two or three months. The orchard will then be freed from serious smutting and the fruit will be hardly scarred. But the work must not be stopped. The mealy bug is a pest which can hardly be eradicated, for it has too many host plants. Parasites are going to do good work as soon as they get started, but the man who wishes to keep this pest down can do so by first cleaning up the orchard as stated and then spray once or twice a year with the carbolic acid emulsion. The main thing is to keep fighting. That is the only way to get rid of any kind of infection, whether it be weeds, fungous or insect pests.

* * * *

The work of parasites is encouraged, but in isolated sections until their worth is proven. The effect of the carbolic spray on the smut fungus was found beneficial for fruit from sprayed trees cleaned perfectly in the washer. Such fruit also showed a lower percentage of culls.

The summary is as follows:

It was estimated that the benefits derived from the spray in cleaning the fruit alone, paid for the cost of spraying. The carbolic acid emulsion gave the best results in this work.

Fruit which was very dirty from smut of black scale was washed in a weak solution of the carbolic acid emulsion in the packing house washer with very good results. The kerosene, which had been used, benefited only the lemons floating on the top of the water, while the emulsion benefited all alike. The mixture was as follows:

Five gallons of the stock solution was added to 200 gallons in the washer. This amount ran one-half a day—steady washing. Only in cases of very dirty fruit has this given any very great advantages over other washing materials.

Carbolic Acid Emulsion and Black Scale.

Many fruit growers here believe that any spray which will kill the mealy bug will certainly slaughter the black scale, but such is not the case. The black scale, even when quite young, is not so susceptible to this spray as is the mealy bug, due to its hard coating. The black scale is protected by its hard shell which is not much damaged by this spray, while the mealy bug is protected by a cottony wax, which is readily dissolved by it. Therefore this spray is not recommended for black scale, although it may kill a great many of the young insects.

Practical Suggestions.

1. Use every means to get rid of the citrus mealy bug at any cost.
2. Spray as soon as you can, and as often as necessary.
3. Use fresh and good material.
4. Do not think that because you do not kill all the pests at one spraying that the spray is not good. Remember that this is a very difficult pest to combat.
5. Use a power pump.

Pressure.

Great difficulty was found in keeping a high and constant pressure with run-down spray pumps. This work is very particular and the pump must be overhauled at the beginning of the spraying season so that the best possible results may be obtained. The pressure should never be less than 200 pounds. In many cases where it went as low as 100 pounds or even 140 pounds the results were not satisfactory. The high pressure not only penetrates the cottony protection better, but it whirls the leaves and enables the sprayer to hit every part of the tree. Much of the poor results obtained were usually traced right back to this cause, which though a small thing, is extremely important in spraying for the mealy bug.

Application.

There is always fault found with the application of sprays. Either the sprayers are careless or, as found in some cases here, did not wish to do the work, so pushed it as rapidly as possible, giving each tree only half the required dosage. By careful work we found that if applied rightly, the Carbolic Acid Emulsion did excellent work, so if you get poor results look up this matter. Few men enjoy spraying and farm hands like to see it finished as soon as possible. Sometimes it was necessary to go over the work twice in order to get beneficial results at all, and in those cases we found that the first dosage given was less than half what the sprayers were instructed to use. Careless spraying is useless.

Material.

The commercial materials used must be carefully examined, for we have found some unfit for anything.

As a rule the crude carbolic acid was good, but if it is allowed to stand in wooden barrels in the hot sun for any length of time it is liable to evaporate and escape, leaving a concentrated liquid which is disastrous to the spraying apparatus because it collects in the hose and stops up the nozzles, and to the trees because it may drop the leaves.

With the whale soap we found considerable trouble. In all we have handled some three tons and find two distinct grades. One is a light brown and is good, while the other is very dark—nearly black—and is worthless. Out of the last ton some 400 pounds were set aside and will be shipped back to the factory. The trouble with this poor grade seems to lie in that it will not form an emulsion, no matter how much is used. Several tanks were sprayed out before the mixer was aware of the difference, which showed up immediately on the trees. No harm was done to the foliage or to the mealy bugs. Therefore in view of this experience you are advised to avoid dark whale oil soap. It is not good.

General Results.

At times the work proves very encouraging, while again it does not show up well, but I am satisfied that all poor work lies with the above named faults. Spraying citrus trees for anything is difficult, and doubly so when spraying for the mealy bug. The pest is bad and hard to kill. Remember it cannot be killed with reckless spraying. Good work always shows up in the results. Remember this in your spraying work.

ALLIGATOR PEAR.

(Continued From Page 35.)

many sections of the state. In general it has been claimed that where the orange will do well the avocado will be at home.

Deciduous Bush-Tree Fruits

HORTICULTURAL TRAINING FOR BOYS.

By E. R. Ong, San Jose.

We have heard so much of the corn-growing contests and others of a similar nature in the East, whereby the boys and girls are being trained each in their respective lines. But how little scientific training the boys of California receive, who are doing so much of the work of the orchards and vineyards. Often the fathers do not take the trouble to explain to their boys the principles which underlie the work. And as yet the schools which give adequate instruction in these lines are so scarce that it is only the favored few who can avail themselves of these privileges. But when it comes to the most common work, such as can be entrusted to the most ignorant workman, then he generally has his full share, even when there may be ample means for hiring such work done.

It has been said that a boy's definition of a farm is "A place to work all day in the field and do chores half the night." And what else can we expect, when he works blindly along without any understanding of the work he is doing?

It is true that instruction in public schools on these lines is very limited, but we have good, live papers at a moderate cost, which will go a long way toward keeping one abreast of the times. A few high-grade books, treating especially on California conditions, and, besides these, there are the United States and state bulletins, which are sent free to everyone who wishes for them. These take up every phase of orchard work, including fruit packing, spraying, grafting and cultural operations.

Teach him of the different roots on which our nursery stock is grown, their effect on the stock, the soils to which they are adapted, and those that may be used locally. This will lead naturally to an interest in the different ways of propagating in the nursery and root and bench grafting, which everyone who expects to be an orchardist should know something about. And a knowledge of the principles and skill required in the work would give an added charm to the orchard such as nothing else would do.

A pamphlet sent free by the United States Department of Agriculture, Washington, D. C., entitled "Top Working of Orchard Trees," will give sufficient information so that any bright boy can take up the simpler forms of budding and grafting. Begin on an apple or pear, as they are more easily worked than some others, and graft a number of varieties on one tree. Instead of grubbing out the unprofitable trees, try working them over with buds or scions cut from a carefully selected tree which has some desirable feature, such as regularity of bearing or freedom from disease, which we desire in our orchards.

No two trees are just alike, and if an orchard is carefully watched for two or three years a few trees will be found which bear more regularly, and perhaps a larger crop, than those around them. These are the ones from which to get buds and scions, and they should be taken from bearing wood rather than from suckers or young trees that have not begun to bear. This opens a wide field, and comparison and selection will probably extend to neighboring orchards and to co-operation with the nurserymen. By so doing you are not only making your own orchard more profitable, but you are assisting in the greatest work of horticulture, that of making more valuable the plants and trees that have come under our care.

AN IOWA PLANT BREEDER.

The fundamental problem of mankind is to produce food for itself. This food must grow out of the earth and in the sea. In the last analysis, it all depends on the vegetable cover of the earth. How to make the vegetable kingdom more productive to the needs of man is therefore a problem that concerns all persons who at any time live in the world.

Great and serious study has been given to this foundamental problem in the last century, and the problem must increase in importance as every new generation adds to the population of the earth. We are eradicating pestilence and insanitation, and are beginning to think of putting an end to war; all this should allow the human race to increase rapidly in the future. But the future increase will probably depend more on social and economic factors than on physical factors alone, and the foremost economic factor is the facility or the difficulty with which the race may be fed.

The plant-breeders are of two groups, those who are not connected with an organization, but who prosecute their work on their own resources, usually in connection with a nursery or seed business, and those who are attached to some college, experiment station, or government department.

As an unattached plant-breeder, Mr. Charles G. Patten of Charles City, Iowa, should be mentioned, both because his work is deserving and because it is of such long standing that I can write of results actually accomplished.

Mr. Patten was a farm-boy in northern New York, reared in the general mixed husbandry of that region. At an early age he went to Wisconsin, where, being impressed with the need of apples specially adapted to the climate, he began to raise seedlings. In 1864 he removed to Charles City, and settled on the raw prairie near the town; in 1866 he established a nursery business. As he attempted to supply the needs of the new and untried region, he found himself compelled to test great numbers of varieties of fruits and ornamental plants from the older country, and also to attempt to breed new ones that might more perfectly meet the conditions of very cold winters with dry killing winds. The result has been the production of the Patten Greening, now a standard apple of the northern Iowa-Wisconsin-Minnesota region (or what may be called the box-elder country) and several other accepted varieties. There are also large numbers of new things yet awaiting fuller tests. It is not often that a man has more than one accepted new variety to his credit.

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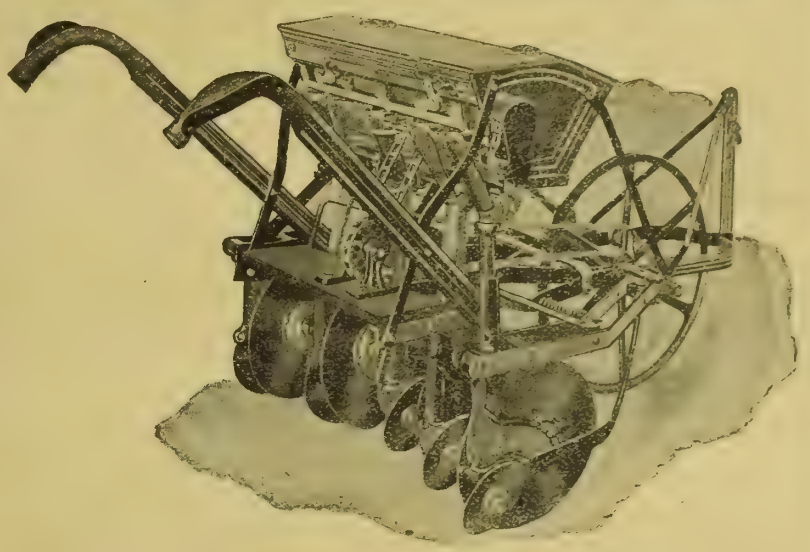

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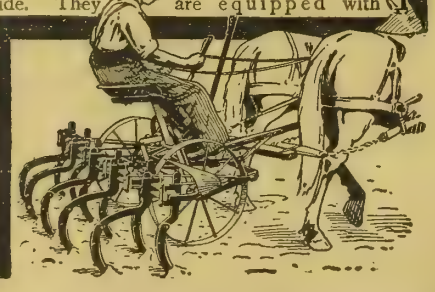

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killed by the winters. Mr. Patten observed that trees and shrubs which did well even in his Wisconsin experience were lacking in hardiness in northeastern Iowa. He pondered all these facts, and worked out a theory or plan of procedure. It was clearly necessary to secure a new stock or race of fruits. There are still several theories as to the best way of doing this with apples. One plan is to import varieties of fruits direct from a country of similar climate; the noted introduction of Russian apples thirty or forty years ago was the working out of this idea. Another theory is to improve the wild crab-apple that is native to the region. From this crab, probably hybridized with the domestic apple, the Soulard and a few others, have actually been produced; but all are of small value where any other apple can be grown. Another idea is to use the Siberian crab as a foundation from which to breed. Another plan, or, rather, practice, is to plant indiscriminately the seeds of eastern varieties, in the hope that an adaptable form may appear. The Wealthy apple, our leading cold-country variety, was actually produced in this way, Peter M. Gideon, in Minesota, sowing a bushel of apple-seed from Maine, out of which this one seedling proved to be valuable.—From L. H. Bailey's "An Iowa Plant Breeder" in the January Century.

HARVESTING THE FRUIT CROPS.

A movement has started in the prune orchards of the Santa Clara Valley that bears so directly upon educational questions that it is here illustrated and sent out for the consideration of the horticultural people and the school people of other parts of the state. The idea is to enlist the interest and the labor of the children and the people of the villages and the towns in the harvesting of our perishable fruit crops, paying them full market wages for their work, furnishing them safe and attractive camping places, facilitating their coming and going, and giving them a season of healthful, active, outdoor life.

This is a practical course of study in California agriculture that may well command the co-operation of the educational forces of the state. The school term may very well begin and close so that the children and their parents can take part in the chief industry of the neighborhood. The curse of the fruit grower is the lack of labor in the gathering of his crop. This it is that brings indigestible foreigners upon us, Japanese, Hindoos, Chinese. This it is that is forcing much of our richest lands into the hands of aliens. The safety of our nation lies in having our land owned by our own people who earn their living from the soil. It is a splendid thing to see the schools closed and the villages depopulated during the harvest season; to see the mothers and the children living outdoors for a time and helping to pick the hops, gather the grapes, dry the peaches, take care of the prunes, apricots, tomatoes, and all that. It makes stronger, happier, wholesomer people. Everybody may well join in it. There is no loss of dignity in it. It advances the interests of California's great industry, the industry by which we must live for centuries into the future, with the world for a rival. It is truly educational, in the best and highest sense.

Homer A. Craig, a fruit grower at Campbell and president of the Farmers' Union, is the leader in this idea. For four years he has been giving it practical trial in his orchards. He finds that by offering employment to whole families and providing them with decent opportunities to live during the fruit season, he can avoid the use of Asiatic labor. The children old enough to work take part in the industry, and the little ones play about under the watchful eyes of the mothers. All gain health and vigor, cheeks fill out, faces grow tanned and ruddy, and habits of industry, thrift, and independence are formed. Really, this is a patriotic enterprise for all concerned. The alien laborers that we draw in for this temporary purpose do not leave the country when the work is done. They must be reckoned with and supported by the nation for all time to come, even when the work is needed by our own people.—Edward Hyatt, Supt. of Public Instruction.

FIGS IN CALIFORNIA.

The fig is destined to become one of California's most valuable products. Its universal popularity, and its great value as an article of diet, its splendid keeping and carrying qualities; the long life of the trees; their great productivity; their almost entire freedom from pests and their splendid adaptability to California conditions—all these things are factors which must inevitably place this fruit among our most cherished possessions.

Even now a fig orchard in bearing is a valuable property; soon it will be rated among the most "gilt-edged" of investments, if the allied industries of fig-growing, fig-packing and fig-marketing are conducted with a reasonable degree of honesty and foresight. If they are not so conducted, this class of property will not be so "gilt-edged."—Gerald Geraldson.

Children receive 10 cents a quart for the cocoons of the Tussock moth which they collect in the streets and public parks of the city of Buffalo, N. Y.

Home Grounds Beautiful

PLANTING A LAWN AND CARE.

The formation of the lawn is often hastily and imperfectly done. The best time to avoid the bad effects which naturally arise from poor judgment, is at the start. It is well to make several maps and draw a different plan upon each, thus securing the means of making comparisons and choosing the one which combines the greatest number of good points. Too great care can not be taken in making various plans and in finally deciding upon one. The locating of existing objects, such as the dwelling, outhouses, trees that may be standing on the grounds, or the planting of ornamental trees or shrubs, is work requiring forethought.

Grading.

After the plan has been completed, the grading of the surface is the first thing in order. Grading is one of the distinguishing features of a complete lawn. All elevations should be plowed up, and the ground from them should be scraped or hauled into the depressions which may exist. At least eight inches of good soil should overlay the whole in all places; also see that the elevations where the soil was removed be replaced with top-soil to this depth.

Where walks and drives are to come the soil should be excavated to the proper depth for filling in with road material. When this rough grading is completed, drains should be laid wherever necessary. Where the process of grading has involved much filling in, time should be allowed for the settling of the soil; and during this period a hoed crop may be cultivated to advantage.

Preparation.

It must be remembered that the lawn when once formed is to remain undisturbed; hence the importance of the most thorough preparation of the soil. After the ground is shaped to the desired grade, then the whole should be dug or plowed. The soil from the first furrow made in plowing will be thrown above the level; after the piece is overturned this should be drawn or wheeled into the open furrow left by the plow in finishing, that all may become even again.

Before plowing the land it should have a top-dressing of well-decomposed manure, at the rate of say eight or ten cords to the acre. The surface then should be made as fine as possible by repeated harrowings and thorough rolling.

To facilitate the work of tree or shrub planting, which next has to receive attention, small stakes should be set at points marked on the plan; planting should be done carefully and without unnecessary digging of the graded surface. After this the harrow (or, better yet, the rake) may again pass over the surface, and afterward the roller. And then the surface is ready to be sown.

Seeding.

The greatest care should be taken to procure seed of the very best quality. A mixture containing perennial rye grass, Kentucky blue, sweet vernal, extra cleaned red top, and Dutch clover, makes a good mixture. Do not fall into the common error of using seed sparingly. Four bushels to the acre is the proper quantity. The time for seeding is from the middle of April to the middle of May, or from the middle of August to the middle of September, in northern latitudes.

The sowing should be done by hand, the seed scattered evenly over the surface. Select a day when there is little or no wind. A very light raking or brushing, and after that a thorough rolling, is essential.

Sodding.

The edges of all grass-sown lawns bordering on walks, drives, flowerbeds and terraces, should, for protection, be sodded one foot wide. In taking up the sods they should be cut into squares of about one foot wide by five or six feet long,—which can be conveniently rolled up for handling. Cut the sods about an inch and half thick. In putting down the sods they should be laid closely, filling the crevices with good soil and giving a light sprinkling of grass seed, and beating them smoothly with the back of the spade.

Mowing.

The number of times the lawn should be cut will depend very much upon the character of the season. Ordinarily, the lawn is mown every week or ten days. The oftener the lawn is mown and the more frequently it is rolled, the better and finer the turf. During the hot, dry, summer months it is best not to cut the grass so closely as in the spring or fall. The grass, if it is very heavy, should be raked off after each mowing.

Top-Dressing.

Where it is necessary to apply fertilizers after the grass has started in order to maintain fertility, a fall dressing of old and well-decomposed manure should be used. When such can not be obtained, commercial fertilizers may be substituted.

Obstacles To Be Overcome.

The principal things to be overcome in the establishment of a perfect lawn are poor soil, bad drainage, dry weather, inadequate water supply and weeds.

Poor soil and drainage are overcome by thorough preparation and enrichment of the soil. Until the turf is well formed constant attention is necessary to prevent the invasion of weeds. They should be removed upon their first appearance, and in no case allowed to gain a foothold; for when once established their removal becomes very laborious.—Prize Article in Journal.

Soil stirring, cultivation, destruction of weeds, and watering will all give abundant work during this month. It is especially necessary that all vegetable plots should be kept free from weeds. Under close cultivation conditions, weeds greatly retard the growth of other plants.

The surface soil should receive regular and constant cultivation. All clods and rough portions should be well broken up with the hoe; weeds should be kept down rigidly, and this can only be done by frequent stirrings of the surface. If any chemical fertilizers are to be fed to the plants, they should be applied immediately before a cultivation.

The Tule Indian tribe has forwarded a protest to the Department of the Interior against the ruling made by the agent that cattle may be grazed on the reservation by the payment of fifty cents per head.

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In regard to the much discussed question of what size seed potatoes to plant, how to select the tubers, etc., I have worked out the following, which I think the very best way: First, I select as many of the best tubers of a variety as I wish to raise my next year's seed stock from, or, in case I buy a new variety, I take them all and plant by hand, taking the uncut tubers in a basket, and drop them in the row at the same time; that is, I take a tuber from the basket on my arm, cut and drop as far as it will go, then take another, etc., until I have them all cut and dropped; then cover by hand, making a unit of each tuber. I think this is far better than first cutting and throwing together, and then planting the selected tubers, as that way loses the characteristic or the individuality of each tuber.

What do I find through the growing season and at digging by my way, where each tuber is planted as a unit (together)? I keep close watch of them in the latter part of the growing season, and find the majority of the tubers making a uniform top growth. I am not able to distinguish the hills of one tuber from another, and the same when dug, but I find a few weak-growing tops or degenerates, not single hills here and there, but almost invariably several together, or as many as the original tuber, about six or eight. This plainly shows that the degeneracy of potatoes is in the whole tuber, and not in the single eyes. Of course, these are marked, or dug out before the others are dug, and almost invariably yield small potatoes. I have not found that the size of the tuber planted has anything to do with the degeneracy, provided, of course, they were not taken from degenerate stock, but, planted as a unit, have found that any size tuber is liable to degenerate or produce tops that would blight early and produce small tubers. Why, I cannot say. We can readily see that if a planter selects the small potatoes year after year he is bound to get more and more of the degenerates to reduce his yield, and will then say his potatoes are "running out."

In growing my seed stock in this way, I have discovered at rare intervals tubers that would grow an extra large top, remaining green after the others had died down, and when dug would give a better yield than the rest. I have been testing some of these, and think a new variety can be originated in this way, as well as by planting the seed from the seed balls. Of course, these are sports or variations from the original type. Seed stock planted and treated like this (and there will be nearly always a few degenerates to dig out each year from aparently good tubers) will keep its original vigor indefinitely, but I do not believe that a variety can be much improved over the original, except a sport or variation could be found, and then it would become practically a new variety. To raise one's seed stock this way, it is not necessary to have a separate field; a few rows can be planted by hand by the side of the main field, digging out the inferior or degenerate hills separately, treating them otherwise the same as the main field. When one raises his own planting stock, I believe this extra work will pay grandly. —Charles L. Todd, in Rural New Yorker.

CABBAGE CULTURE.

From an excellent bulletin entitled "The A B C of Truck Growing," by Samuel H. Dixon of the Texas Department of Agriculture, we take the following cultural directions:

It is the custom to make a seed bed about four feet wide, level and about six inches above the surrounding surface. The seed should be sown from one-fourth to one-half an inch deep, according to the character of the soil. Make the drills across the bed from four to five inches apart. The bed should be kept moist and protected from the rays of the sun.

The cabbage is a very gross feeder and requires a fertile soil and good cultivation to reach perfection. Cultivation should follow each rain. In fact, the most successful growers favor weekly cultivation, even in the absence of rain. There is no crop grown that responds more readily to cultivation than cabbage.

The soil best suited to cabbage is a moist, well drained, sandy loam soil. If it is not rich with humus it must be thoroughly fertilized with a nitrogenous fertilizer.

Cabbage ought to be ready for the market in from five to six months from seed planting, depending, of course, upon the weather conditions. To insure the living of the plant, I always puddle the roots thoroughly before planting. This is not a necessary operation, however, if the soil is moist and weather conditions are favorable.

Rows in which the transplanted plant is to be set should be three and a half feet apart. The distance in the row will be governed largely by the variety planted. The larger varieties should be set twenty-four inches apart, while the small varieties can be set from sixteen to eighteen inches apart in the rows.

Cabbage should not be cut until it has formed a compact hard head. It is usually shipped in crates. An acre should produce from 150 to 200 crates.

Of varieties grown in Southern California the Early Winnigstadt easily occupies first place. It is one of the best early cabbages in cultivation. It is certainly deserving of its popularity; grown extensively for market and shipping. Its merits are many, among which are large heads for an early sort, small outside foliage and uniformity of crop; pyramidal in shape; very solid, fine texture and sweet.

The Eureka or First Early is a flat-headed cabbage, fully as early in maturing as the well-known Early Jersey Wakefield. It is a cross of a fine strain of Early Jersey Wakefield on the well-known Succession cabbage, and is now thoroughly fixed as to type. The heads are large and very solid and the leaves tender, being entirely free from coarseness. The plants may be set as close in the field as the Wakefield, and can be depended upon to head up well.

The Farmers Union of Walla Walla, Washington, will maintain a fight at Olympia during the session of the legislature to secure laws more in the interests of the producer.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

UTILIZING THE BY-PRODUCTS.

Address by Dr. James Withycombe at the Dairy Meeting at Eugene, Oregon.

The cow is the great conservator of wealth. We hear much these days relating to the conservation of natural resources. This refers mainly to the forest, minerals and streams. The great problem of conservation, however, which much more largely influences the wealth and civilization of the nation, is soil fertility. Therefore, any system of agriculture that will conserve or build up the fertility of the soil is paramount to all other problems of national concern. It is peculiarly characteristic of American farming to largely disregard the baneful effects of soil exhaustion. As agriculturists we have been exceedingly prodigal. The almost boundless wealth of virgin soil has perhaps been responsible for this, but now the skimming process is practically at an end and we should lay the foundation for tangible work of soil building. This will logically rest in some form of animal husbandry. Of all classes of animals upon the farm the cow takes the least from the soil and returns the most to the farmer. Thus she is the true soil builder. Fertility follows the cow.

As examples of soil building we may profitably consider systems of farming followed for generations in older countries where farm animals are made the dominant feature of the farm. Despite the poor soil at the beginning they are now producing more than double the amount of wheat per acre that we can show from our practically virgin soil. The average wheat production of the United States is 13.75 bushels per acre; of Great Britain 32.6 bushels, and of Oregon 19.8 bushels. The larger portion of the Oregon production, however, is grown on summer-fallowed land, hence the yield represents a crop every other year. The large yield of wheat in European countries is the result of a practical utilization of all forms of plant food. Millions of tons of feed-stuffs are fed in those countries, largely for the purpose of building up the soil. Ship loads of cotton seed and linseed cake annually leave our shores to enrich the farms of Europe. One of the favorite methods of soil building in those countries is the liberal feeding of farm animals upon these highly concentrated feed-stuffs in the open field. This is scarcely thought of in our own country.

The dairy cows of these countries are largely maintained upon American-grown feed-stuffs. This feed should be fed at home. The European farmer in purchasing feed for stock considers its plant food value as carefully as its nutritive value. When he purchases a ton of bran he estimates that it is worth $14.27 as a fertilizer for his soil; a ton of oil meal, $25,69; a ton of cotton seed meal, $30.15; a ton of alfalfa hay, $10.50, etc. These values are based upon what he has to pay for artificial fertilizers. Thus he fully realizes the importance of rigidly conserving the waste products of the stable. The amount expended annually for artificial fertilizer in the United States is estimated at $145,000,000.

The cow is the conservator of wealth because she manufactures from the crude feed the highest priced product of the farm without drawing much from its storehouse of fertility, or in other words the cow fattens the land. If the waste product of the dairy herd is carefully conserved and applied to the soil and the butter fat only is sold there is practically no soil exhaustion in this system of farming. When the legumes are grown and fed to the cows the nitrogen content of the soil is greatly increased. A good cow well managed will give a larger return for food consumed than any other farm animal. It therefore makes it practical for the dairyman to purchase liberally concentrated food for the herd. This is one of the very best means for maintaining the fertility of the farm. Many dairymen fail utterly to comprehend the value of the compost from the dairy herd. Some years since a very carefully conducted scientific investigation was made to determine the fertilizing value of the compost from a well-fed dairy cow, for one year. It was estimated that the value of this compost ranged from $28 to $35 on an average, in this instance, $31.50. Oregon has 175,000 cows and if these cows were properly fed and at the same ratio of value for compost it would represent the astounding sum of $5,512,500. Thus we can readily see how the cow fattens the land. One of the problems which confronts the dairyman is how can the maximum percentage of this compost be saved. Under present dairy farm practices a very large proportion of the value of this plant food is wasted, especially is this the case with the liquid portion. Many systems for taking care of the by-products of the dairy-barn are followed, but perhaps the most generally successful is the liberal use of straw bedding for an absorbent and hauling the waste material directly to the field. This method is the most satisfactory whenever it is feasible to put in operation. But unfortunately in the humid section of the state, it is largely impracticable during the winter months. Thus it is generally necessary in Western Oregon during the winter months at least to store the compost for future use. If but a limited quantity of straw be used and the compost is wholly supplied from the cow stable a covered shed would be the best means for conserving it. But if much straw is used and the compost from the horse barn is mixed with that from the cow stable, then care must be exercised that excessive fermentation does not seriously impair the value of the manure. Under those conditions it can be stored in the open, but if stored under a shed it must be watched closely and when showing a tendency to overheating water should be applied. Manure that is firefanged has practically lost all of its nitrogen. Perhaps what is the very best plan for storage is to keep the compost under a shed, have the stable floors so that liquids will drain into a tank located in the shed and the liquids pumped occasion-

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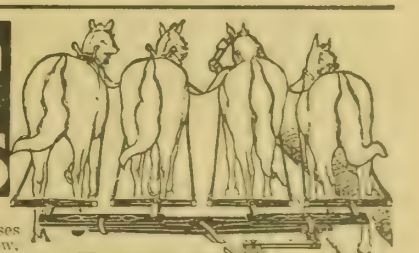

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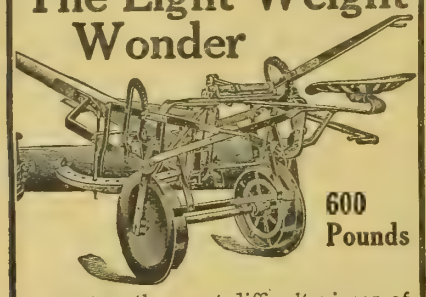

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ally over the compost. If the floors of the stable are to be flushed with much water arrangements should be made whereby the water containing but little plant food may be diverted in another direction. It must be remembered that but a small proportion of the plant food in feed stuffs is appropriated by the cow, hence the residual matter in the form of compost should be carefully conserved. It should also be remembered that the liquid excretion is more valuable than the solid and provision should be made to save as much of this as possible, either by means of absorption or through a system of drainage.

A good practice is to sprinkle the gutters and stable floor with gypsum, land plaster, daily after cleaning. This has a tendency to fix the ammonia compounds and deodorize the stable.

The utilization of skim milk is an important question to many dairymen. Immense annual losses occur from improperly feeding this valuable by-product of the dairy. The greatest mistake usually occurs in the quantities fed. For example, when skim milk is fed to hogs in the proportion of three parts of milk by weight to one part of grain it is worth a good deal more than it is when fed in a larger ratio. In a feeding experiment with hogs results have shown that when three pounds of milk are fed with one pound of grain, 327 pounds of milk will save 100 pounds of grain, but when six pounds of milk are fed with one pound of grain, 574 pounds of milk are required to save 100 pounds of grain. In two feeding experiments conducted at the Oregon experiment station skim milk proved to be worth 85 cents per cwt. Four lots of hogs were used in the experiment. One lot was fed wheat chop, another lot was fed wheat chop and skim milk at the ratio of about three pounds of milk to one pound of chop. The other two lots were fed in a similar manner, except ground barley was substituted for the wheat. The two lots fed milk with the grain gave much the better gains, and the commercial value of the grain saved made the milk worth 85 cents per cwt. This, however, was rather a phenomenal showing for skim milk, but with reasonable care in feeding, skim milk is worth at least 50 cents per cwt. for growing and fattening hogs.

Sweet skim milk and sour milk have about the same value as food material, although some experiments show a very silght advantage in behalf of sour milk.

Butter milk, when no water has been added, is equally as valuable as skim milk for hogs. Whey is also good feed for hogs when fed in connection with grain. Two pounds of whey is equal to about one pound of skim milk. Skim milk is a valuable poultry food when fed with grain. Poultry will give larger returns for milk consumed than any other farm stock. It is especially good for growing chicks and laying hens.

The great consumer of skim milk upon the farm is the calf. It is here where milk has its great direct and indirect value. The greatest need of Oregon agriculture is more cows. Thus the hope of getting more cows rests with the growing of heifer calves. Excellent calves can be grown on skim milk. The difficulty, however, is generally in feeding irregularly, too large a quantity, or feeding it cold and sour. Skim milk should be fed warm and perfectly sweet to the calf. Volumes have been written upon the subject of growing calves upon skim milk, but despite this fact but very few farmers realize the full value of skim milk in feeding calves. Too many stunted, pot-bellied calves are in evidence on dairy farms. There is no excuse for this. If milk be fed in proper condition to calves they should grow well and look sleek and thrifty. The best supplemental grain with skim milk for calves is whole oats.

Cows carefully selected, given good care and the by-products properly utilized, will bring more direct and indirect wealth to a community than any other branch of agriculture.

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

MORE FLESH AND EARLY MATURITY IN MEAT ANIMALS.

If the fat stock shows have shown anything, they have shown, by the premiums awarded and the decisions of butchers, that the thick-fleshed animal that finishes up quickly as possible is the one that is in greatest demand by the meat world.

Both in sheep and cattle, breeders have striven, first of all, for size, regardless of the thickness of flesh and the ease with which these animals fatten into prime condition for slaughter. Awards seem to indicate that this has been a great mistake. Size, of course, is important; and, where economical growth is made, a certain amount of this quality is essential; but what is equally or more essential is that the animal be covered with thick flesh; that it be "meaty," and that when cut it shall give satisfaction. With this thickness of flesh has been and is usually associated comparatively early maturity. It is possible, of course, to get the animal too small and to have the maturity come too soon in life; but, on the other hand, it is possible to do just what people have been doing when they have selected for size, without regard to thickness and early maturity. A medium-sized animal that shows these desirable qualities is rather to be preferred.

Whether it is a mutton sheep or a beef animal, the entire top part is a general indication of what the animal is. It should be of equal width through the chine, through the ribs, through the loin, and through the rump, from side to side. This sort of an animal indicates that the thick muscle runs from one end of the animal to the other. Those that are narrow over the rump, wide over the loin, narrow in the chine, long in the neck, are not heavily muscled. If they are wide in front and narrow behind, they are not thick-muscled. Those that have protruding rear ribs are not thick-muscled, and if they are not thick-muscled they are not early maturers either. Of course, with thickness through the top part of the body, we like to see an animal that stands near the ground and that has the curved rib extending from the top of the body to the bottom. This formation usually goes with thick muscles and with the early maturity for which we are looking.

That improvement is being made in the direction of thickness of flesh and early maturity is evident, now that feeders are talking of discontinuing the two-year-old class, in which the show rules permit an animal to be from thirty-six to thirty-nine months of age when shown. This is being talked of by leading showmen, because the proper type of an animal will reach the prime stage in life, as regards fleshing and finishing and

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I must decline to take any more soil samples for analysis till the work on hand is done.

In this space announcement will soon be made concerning further soil work.

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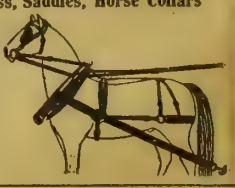

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economy of production, about twelve months before the regular two-year-old show class is reached. Keeping them to show in this class is simply doing something that has no economic value, and is misleading to the public in so far as this is concerned. The move is a wise one; and we hope to see it carried out, and the thickness of flesh and early maturity, which are now held up as points to be sought in cattle, encouraged by all meat producers.—D. O. Gaumnitz, Minnesota University Farm.

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There is no excuse for the farmer of even moderate circumstances to use other than pure-bred, good quality of sires in his breeding of horses, cattle, hogs, sheep or poultry. There is no apology acceptable in this advanced day and age if live stock improvement for the scrub sire, or even the low quality of pure-bred sire, to have a place on any farm; his existence is absolutely without warrant and a heavy penalty should be imposed on the owner or harborer of such animals in the interest of general live stock advancement.

In the majority of public sales of pure-bred live stock there are a number of males that sell for prices away below their actual values. They are not quite up to the standard in flesh perhaps, or they possibly are a little coarser in general character than the average; some little imperfection, possibly, or unfashionable feature in strict breeding quality prejudices the fancy and the animal is not looked on with favor by the breeder of pure-bred animals. Thus a large number of otherwise very valuable animals are sold at low prices at the sales. Just such animals as the common farmer should own; just such animals as the common farmer can afford to buy and use on his grade stock and from which service build his farm stock rapidly into the very desirable and profitable high grades.

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FANCY CHEESE.

We acknowledge receipt from the American Sheep Breeders Company of a little book by Professor Publow, of Cornell University, on Fancy Cheese in America. It deals with all of the different fancy cheeses and gives instructions for making them—some forty varieties in all. It is a practical handbook, and will be found of considerable value by anyone interested in the subject. It sells for seventy-five cents, and can be ordered through this office.

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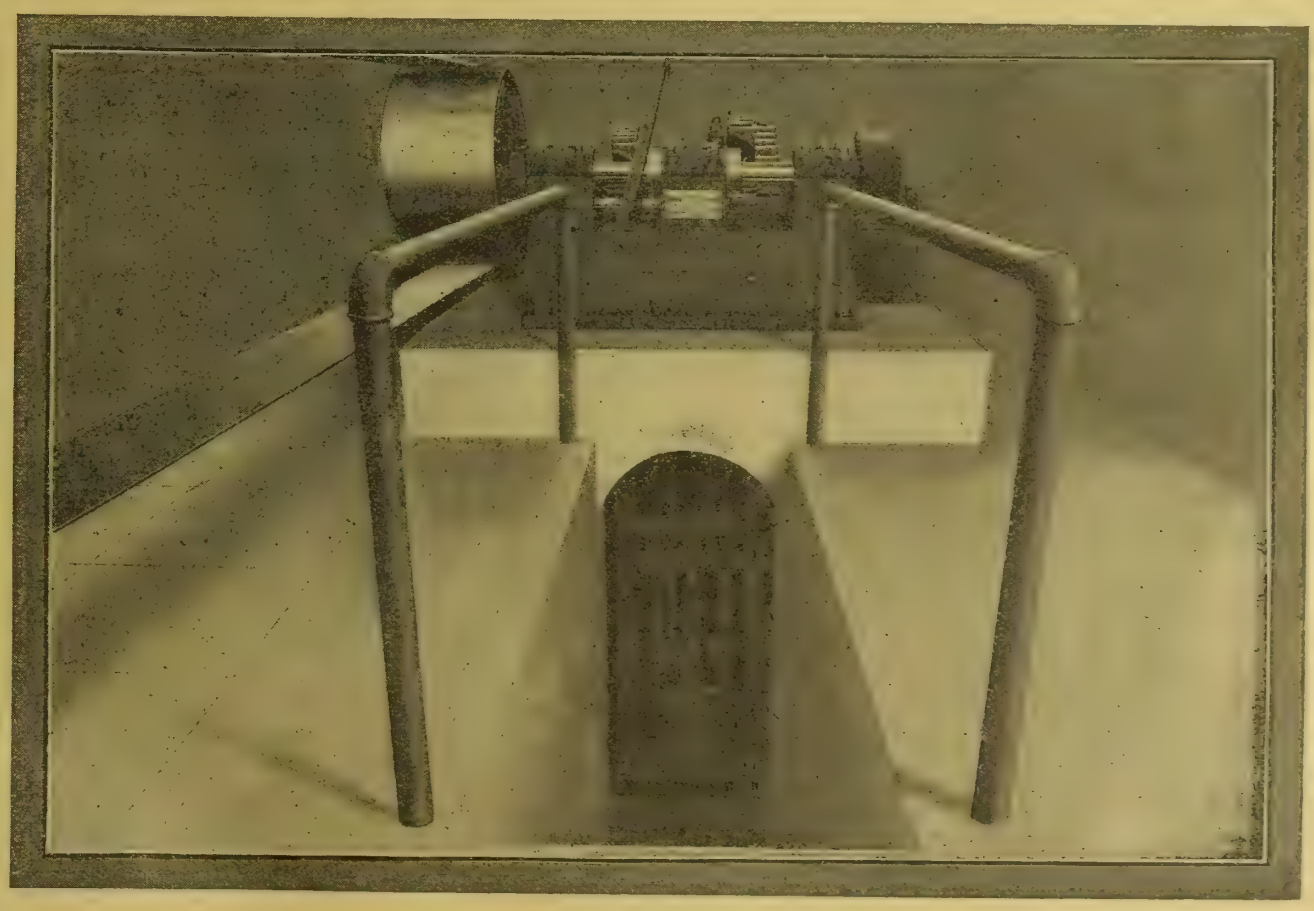

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,600 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, January, 12 1911

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LEMON TARIFF.

The fine Italian hand of the lemon importer is already being manifested in the tariff revision effort. A writer in the January McClure's makes an attack on Senator Flint because of his work for the cent and a half tariff which now obtains. He charges that Senator Flint and those interested were actuated by a desire to "establish a monopoly on an article in which there would be constant shortage, thereby enabling them to regulate prices at their pleasure." The aid of Senator Aldrich was secured or rather his "permission" for the cent and a half tariff was secured because of his need of the votes of Senators Flint and Perkins on other features of the schedule. The writer also charges that Senator Flint based his appeal for the 50 per cent increase on four claims:

"1. That lemon culture in California was facing ruin.

"2. That four per cent or less was all that a grower could expect to make on his investment, under the one-cent tariff.

"3. That Italian competition was ruining the trade.

"4. That if the Sicilian-imported lemon were shut out of the American market California could and would extend its lemon groves until in a few years, it would be supplying the whole country with lemons at a reasonable price."

That the first can be substantiated is plain to every lemon grower in California. To set forth all the facts in hand to prove it, however, would require this entire page and several others, but that hundreds of acres of producing lemon orchards were rebudded to Washington Navels or Valencias is so well known that enough witnesses could be taken to Washington to more than fill all the hotels in the city. Had this industry been as profitable as the writer in McClure's would make out, this changing over of orchards certainly would not have occurred.

As to the second point it is charged that Senator Flint made, we frankly do not believe that the Senator stated it in these words. Later in his article the writer is more honest, using "The average profit which lemon growers have received is about four per cent on their investment." The average of orchards is vastly different from what a man may expect of his orchard in best condition, and we believe the four per cent net return on investment is as much as the industry will average.

On the last point, the extension of the lemon groves of California sufficient to meet the demands of the country (13,000 carloads this year of which California furnished about half) this can be made good if the industry reveives encouragement. That there is possibility of production in California of more than 13,000 cars of lemons goes without saying, but if the encouragement which has been given to the industry is removed and a few hundred more acres are budded over to oranges, the time will never arrive.

The writer backs up his claim of great profits received by the growers by referring especially to reports of dividends of the Limoneira and Leffingwell groves. As to the correctness of these statements we have no information, but assuming that they are correct, we ask what is proved. The returns of two of the very best managed lemon properties in the world furnish no proof as to the average which the industry has to carry. The writer refers to the "great Leffingwell ranch. On this ranch the soil is difficult and water expensive," as reason why its profits are not equal to Limoneira. That is true in a greater degree on other properties.

As to the proof of the hardships which "this iniquitous lemon tariff has imposed," says the writer, "This fruit which is a necessity in cookery and flavoring, but is an essential in the sick room and in institutions and in medical practice," is quoted at prices obtained last October. Then they sold for "$6.00 and $9.00 per box, one car selling as high as $10.50, $10.85, $11.87½ and even up to $12.00." This was because "Californians now are getting control, thanks to the tariff, and they have lifted the price 33 1-3 per cent above the utmost fears."

Bear in mind that these quotations were made in October when neither Italy nor California were able to cut fruit because of the season, yet the McClure writer would carry the idea that a cent and a half a pound duty was sufficient to accomplish that result. As well refer to strawberries at $1.00 per basket, which our New York friends often pay out of season, and figure the profits of the strawberry industry from that one quotation. Last week's Cultivator gave prices of lemons in New York on December 30: "Trail, $2.70; Canyon $2.65; Our Beauty $2.50." In Pittsburg: "Greenleaf $2.65." Cleveland: "Palm Tree $2.40; Commercial $1.50; Knight $2.15." Boston, January 3: "Market higher on lemons. Whittier $2.85." Deducting freight, auction charges, boxes, packing, and other expenses back to the orchard expense, and we believe the four per cent on investment would be gone in everyone of the orchards from which this fruit was picked.

Unfortunately, there is one sting in the article, that is, "A sequel to the lemon tariff which does not lack grim and sardonic humor, in other words, the advancing of the freight rate which the railroads have insisted upon and have finally won." This is claimed to be the rake-off which secured the passage of the 50 per cent increase.

CENSUS FIGURES.

The thirteenth census of the United States shows that the state of California has advanced in population rank from twenty-first place in 1900 to twelfth place in 1910. This was secured by an increase of 60.1 per cent, which placed the state above the two million mark—to be exact, 2,377,549. Ten years ago the population was 1,485,053; in 1890 it was 1,213,398.

In the matter of density of population, California has opportunity for increase. The population per square mile in 1890 was 7.08; in 1900, 9.5; while at the present time it is 15.2, twice the density of two decades ago. Rhode Island shows the greatest density of population in the Union, with 508 per square mile; Massachusetts has 418, New Jersey 337, Connecticut 231, and New York 191—the above in round figures.

Our percentage of inrcease this decade was 60.1, while Oregon, with 672,765, and Washington, with 1,141,990 people, both showed a greater percentage, the former 62.7, while the latter showed the greatest of any state in the Union—120.4 per cent. This high percentage means, however, an actual increase of only 623,887, while California's actual increase was 892,496, or over a quarter of a million more than Washington. Arizona shows a perecntage of gain of 66.2, which represents an increase of population of 81,423, making the present population 204,354. In population density, Arizona is not crowded, showing 1.8 people per square mile.

ANOTHER DEMONSTRATION .. TRAIN.

The Salt Lake Route has taken up the Demonstration Train idea, and will have a train leaving Salt Lake City on February 8 which will tour Utah and Nevada for nearly thirty days. The train will carry experts from Utah College of Agriculture, University of Nevada and University of Idaho. Later it is stated that a similar train will be made up for the lines of the Salt Lake in California.

This train will be different from all other educational trains operated in the West, in that it will carry a car of blooded livestock. Particular attention will be given to the gospel of dry farming. Besides the cars of exhibits and those for the accommodation of the experts, one car will be fitted up for stereopticon lectures.

FARMERS INSTITUTES.

J. B. Neff, Conductor of Farmers' Institutes for Southern California, announces dates for the Imperial Valley institutes as follows: Calexico, January 30; Heber, January 31; Holtville, February 1; El Centro, February 2; Imperial, February 3; Brawley, February 4.

Mr. Neff is also planning for a series of institutes along the line of the Santa Fe east. This will begin soon after those in Imperial Valley.

Notwithstanding more general provision for frost protection than in any previous season, it now looks as if the season may pass without its extended use. We say "extended use," for on the morning of January 1 the temperature went in a very short time, in one of the orange-producing sections, to as low as 24 degrees. In the larger producing sections 28 was the lowest recorded, and it usually stood around 30. Therefore, the indications are that, with fruit as far advanced as it is this year, it is not probable that cold will come this late in the season sufficient to cause any injury whatever. Puffing and some early dropping may affect some fruit, but on the whole a great citrus year is promised.

Northern Californians, especially commercial bodies in the city of Sacramento are making great preparations for the Northern California Citrus Fair which is to be held in that city February 16-18 as an adjunct to the Western Fruit Jobbers Convention. Much space has been engaged for displays not only of citrus fruits but of raisins and all kinds of fruits, dried and fresh. It is planned to show the productive capacity of Northern California orchards to these fruit sellers.

As we go to press there is a little promise of rain, but unless it comes in great quantities we believe the wise orchardists and vineyardists will fill their ground with water by winter irrigation—where water is obtainable. In sections which secure water during the rainy season or depend upon waste of storm waters from streams which are dry in summer, it is good insurance to have the ground filled with water for crops next summer.

Upon recommendation of P. J. O'Gara, the Rogue River Fruit and Produce Association has ordered of a Cleveland firm arsenate of lead for the coming season's spraying.

Agricultural News Notes of the Pacific Coast

Northern California

Healdsburg hop growers are selling at 16½ cents.

Roseville is making an effort to secure a cannery.

Some orchard property at Healdsburg has changed hands at $1,000 per acre.

The Woodland Creamery averaged for butter fat during the entire year 34.9 cents.

There is one automobile registered for every fifty-seven inhabitants of California.

Winters, Yolo county, reports an orange tree averaging fruit fourteen inches in diameter.

Oroville's postal savings bank, the first in the state, has been duly opened and is ready for deposits.

It is announced that the Orland Distributing System will be completed in the next five or six weeks.

A barge of 15,000 sacks of barley sank in the Sacramento near Grimes. The loss will be about $10,000.

Another colonization scheme is under way for Sutter county. Ten thousand acres are to be subdivided.

Seventy thousand acres of tillable land has been eliminated from the Modoc Forest Reserve, and 182,000 acres added.

The state agricultural association will ask the legislature for $300,000 for erection of buildings at the state fair grounds.

Hop growers have formed a co-operative marketing organization, and they hope to dispense with middlemen's profits.

Prof. E. H. Hageman of the State Farm at Davis is giving short course creamery instruction to students at San Luis Obispo.

The Yolo county horticultural commissioner is putting up a strong fight against Johnson grass, and urges cooperation on the part of all.

The rice harvest on the Balfour-Guthrie ranch, near Gridley, has been harvested, and was of excellent quality, and the yield satisfactory.

Santa Rosa has one poultry farm with 600 laying hens, which returned a profit of $874 in three months. This is $6.76 per day over cost of feed.

The directors of the Cloverdale Citrus Fair have fixed upon Tuesday evening, February 21, as the opening date of the nineteenth annual citrus fair.

Mr. C. L. Mitchell, who has been dairy representative of the United States Department of Agriculture in California for two years, is to be succeeded by Mr. T. F. Corneliusen.

At a recent meeting of the Debris Association of the Sacramento Valley it was reported that an injunction had been issued against the Pennsylvania Dredging Company of Sutter county, to prevent debris from reaching the river.

The Chico local of the Farmers Union expects to enlarge its marketing field during the coming season, and is making an effort to secure greater membership among the producers of fruits and vegetables. A packing house and warehouse are a part of the scheme of enlargement.

Central California

Estimates are that Turlock cantaloupe production will be greater than ever.

Kern county claims some of the finest samples of cotton ever produced in the world.

Dinuba, Tulare county, closes the orange shipping season with forty cars to its credit.

The uneasiness over the rain situation is causing all holders of hay to demand long prices.

The withdrawal of 14,000 acres from the Monterey National Forest throws open for settlement good agricultural land.

Santa Clara Valley seedmen claim that grocers and seed men the world over are handling seed grown in that valley.

A basket factory, in which small berry baskets will be manufactured, has been started at Gilroy, Santa Clara county.

Shippers of Santa Clara county are planning for a canal between San Jose and the bay, the cost to be about $300,000.

Prunedale, Monterey county, reports most of the grain sown, though some of the drier lands are awaiting wet weather.

Pomona Grange, of Santa Clara county, met in San Jose last Saturday. The Master of the State Grange made an address.

Visalia's record on the weather sheet for 1910 shows 322 days of fair weather, 27 days of rain, and 15 days of fog; 32 days of frost.

Even the section of the San Joaquin valley which has a rainmaker regularly employed does not seem to be receiving an excess of moisture.

An Italian at Red Banks, Tulare county, grafted ten acres of vines, and of 4,000 grafts only three failed to grow. He maintains he holds the record.

Canneries at San Jose report the 1910 pack of canned fruits larger than that of last season, but hardly up to that of 1908, which was the largest ever.

Stanislaus county, with its great increase in dairying, and also the excellent showing in the census, feels more pride than ever in its great irrigation system, which is given much credit.

The Irrigation District Association of California recently held a meeting at Manteca, San Joaquin county, and adopted a constitution. The next meeting will be held in Sacramento in January.

The Monterey Peninsula Poultry Association has been organized, with a membership of twenty-four, which represents the ownership of about 16,000 fowls. The President is Mr. Frank Greenwood, of Monterey, and the Secretary, Mr. W. A. Geards, of Pacific Grove.

The stockholders of the Salinas Creamery Company elected the following directors for the coming year: Duncan McKinnon, president; E. P. Alexander, E. Hitchcock and J. H. Menke. The First National Bank was elected treasurer, and C. J. Wiseman secretary.

Southern California

Riverside shipped 205 cars of holiday oranges.

The Driving Club at Hemet, Riverside county, held a matinee on January 2nd.

Beaumont boosters maintain lands in that section offer ideal apple-growing conditions.

The Highway Commission of Orange county recommends bonds to the extent of $1,400,000.

Highland, San Bernardino county, claims top notch price on orange shipments to date.

The sugar company at Oxnard, Ventura county, is constructing a 35,000 barrel oil tank at Hueneme.

The Orange County Dried Fruit Association still has a quantity of apricots which it is holding at 12 cents.

A new sugar company has been formed at Santa Ana on a co-operative plan. It is capitalized at $1,000,000.

Cotton picking in the Imperial Valley is still progressing, many growers estimating the total output at about 8000 bales.

The pre-cooling plant at San Bernardino is having its capacity increased by the construction of a 700-foot icing dock.

Whomes and Boehrman of Anaheim have already shipped two cars of sweet potatoes to Portland, Oregon. The sweet potato growers of Orange county have found good returns this year.

Orange growers of Southern California are watching with interest the shipment of oranges which went by water and Panama Railway. Report received is in effect that it is in best condition.

Farmers of El Centro, Imperial county, held a meeting last Saturday addressed by the president of the Farmers Union, Professor Packard and Professor Taylor of the Department of Agriculture.

One of the biggest ranches of Ventura county known as Rancho Santa Clara del Norte, is gradually being broken up, about 25,000 acres of its finest mesa land having been thrown on the market recently.

A suit which may be far reaching has been brought by the Santa Ana River Development Company against water companies mostly in San Bernardino county, to determine matter of water rights for a distance of forty miles along the Santa Ana.

Over 10,000 cows are being milked in the Imperial Valley and the dairy production of butter is about 7000 pounds. The live stock is increasing in numbers so largely that but little hay will be shipped out this season.

The forest service which has to do with the reserves in the Sierra Madre is planting more extensively of pine tree seed than in any former season. It is in the interests of water conservation rather than for timber purposes.

Orange packing houses are settling down to the regular work of the season's pack, though at present shipping is rather light because of large stock accumulated in eastern markets during zero weather when fruit could not be moved.

The Coast

Hogs are still quoted at nine cents at the Union Stock Yards, Portland, Oregon.

The sugar factory at Waverly, Washington, has been closed and it is reported, permanently.

Minnesota capitalists will plant some 18,000 acres of land to orchards near White Salmon, Washington.

The Highland Pumping Company is installing a plant which will irrigate 5000 acres near Twin Falls, Idaho.

The prairie country of Colorado reports the driest summer and fall in the memory of the oldest inhabitant.

Taking its cue from the Spokesman Review of Spokane, Simms, Montana, proposes to install a Country Life Hall.

The largest irrigation ditch contract yet awarded in Montana is to be for the construction of a canal near Malta.

The two states of Oregon and Washington report 2500 bales of hops yet to sell with price near the 16½ cent mark.

A hog grower at Chelan, Washington, recently butchered two hogs eight months of age which weighed dressed 559½ pounds.

Water users at Salem, Oregon, have filed articles of incorporation under the title of Central Oregon Water Users Association.

Whitman county, Washington, reports "largest acreage of fall wheat ever sown in the county." Conditions reported so far are very favorable.

Four thousand acres of fine land on the Snake River near Medbury, Idaho, will be irrigated by waters secured from the One Thousand Springs Company.

Freewater, Oregon, is much puffed up over Christmas strawberries produced in that section. The production, however, is only one small basket.

The North Yakima Poultry Show will be held next week beginning January 16th and extending to the 21st. Miller Purvis of Illinois will be the judge.

The irrigation of 30,000 acres of fine land is to be secured by the construction of a 32-mile canal near Milton, Oregon. The ditch will cost about $250,000.

The forestry department will plant 1400 pounds of walnut seed and 1300 pounds of red oak acorns in the burned over section of northern Idaho and eastern Oregon.

A meeting was recently held in the Throne Room at the Capitol in Honolulu to consider the five cardinal points of conservation, right to use lands, waters, forests, and minerals, and the safeguarding of public health. It was held under the auspices of the Board of Agriculture and Forestry.

The wheat production of the state of Washington during the past year brought to the state $19,970,000, an average of 77.8 cents per bushel. During the same period Oregon's returns were $13,788,000, or an average of 84 cents per bushel. Idaho's production during the same period netted $9,074,000, while that of Montana was $9,081,000.

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Philo System Book and Poultry Review (one year) $1.00.

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117 Miles Ave., Oakland, Cal., Nov. 12, 1910.

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—Set you up in a paying business all your own—a business you can control and expand indefinitely—one you can operate on little capital and in small space—one that will give you real independence, pleasure and profit. Mail me a card to-day for my book containing the remarkable terms on which I am selling Queen Incubators and Brooders, freight prepaid. I have started over 61,000 people on the road to success. The Queen goes out on the make-good plan, the most liberal ever offered on a high grade incubator. My 1911 Poultry Guide and Catalog explains terms fully. It's a down-to-date poultry book, practical, concise, helpful—best book of the kind published. Write and let me mail it to you free.

WICKSTRUM, Queen Incubator Man, Box 53, Lincoln, Neb.

Practical Poultry Culture

PROFIT IN THE POULTRY YARD.

It is with great interest that I read in the Cultivator regarding more profit in the poultry yard. I often find some one's method of feeding and caring for chicks to be of great help to me and I think we make a great mistake in not taking more time to go out and visit other plants. We may see in going from one to another so many little things that we never thought of, at the same time practical and useful. Let me say to any one intending to go into the poultry business to first look the ground over thoroughly and see what a man has to do to feed and care for a flock of from five hundred to one thousand baby chicks. This will give not only an idea of the work, but will furnish material for much thought.

Poultry business in a way seems to be different from other lines. One will go out and see some fine large flock of pure bred birds, perhaps a thousand or more as the case may be, all uniform in color and size, and it will appeal to any lover of birds at once that he can enjoy such a flock. Often he will see no good reason why he could not do as well in producing them as the other has. So he looks the plant over and it looks as though all the requirements necessary are three or four incubators and a few simple brooders to decorate his place with a flock. Many have probably noticed the results of about nine out of ten that start in to build up a poultry business without experience. I have had years of experience in raising poultry, have hatched and raised chickens in all parts of the United States and north of the states in Canada where it gets cold. I consider this the ideal spot to produce poultry.

I breed White Minorcas for layers and they do well for me. I consider the poultry business a good investment and if one will start in with twenty-five or thirty good pure-bred birds and try to raise three or four hundred chicks the first year, and increase his flock from year to year, he is always on the safe side, and will win in place of losing. It will soon be discovered that there are a great many little details to be closely looked after.

I am often asked what I feed. The only answer I can give is this: feed anything a chicken likes best and change about in feeding often enough so they may not get "off their feed." Green feed I find to be one of the essentials for poultry. Without it birds confined in pens will not give results. Green food is one of the most natural things a bird ever looked for.

Profit in the poultry yard means that the hens must have a range outside to rustle the profits. I mean this for egg producing birds. If you are raising a larger breed of poultry for table use it is another proposition, for I think they may be raised to good advantage without range. I am not producing a large amount of poultry. I try to raise a few good ones. I seldom notice any write-up from any of our practical poultry men that raise them in large numbers. As a rule they let well enough alone and keep busy gaining profit from the poultry yard.

In conclusion let me repeat to any one becoming infatuated with the poultry business simply from observation of the other fellow's fine flock, just interview that man and a few more practical workers and look over all the little details fully about these plants and you may discover some weak point in your former idea of gaining profit from the poultry yard.—Daniel Webster, Rialto.

WHY CHICKS DIE IN THEIR SHELLS.

An inferior incubator frequently causes chickens to die in the shell, but in the majority of cases the fault lies with the poultry keeper and not with the incubator maker.

When an incubator of a certain make is known to be reliable, and when thousands of machines of the same make are hatching 90 per cent of fertile eggs in all quarters of the country, it is altogether improbable that unsatisfactory hatching is due to any flaw in the machine which we happen to have, for all reliable machines are fully tested before they are sent out from the works.

In nine cases out of ten we have to look elsewhere for the primary cause. To the question, Why do so many fully matured chicks die in the shell? it is impossible to give a definite answer that will cover the various reasons, but if a vague answer were enough to satisfy the inquirer, it might be: Chickens die during incubation because they have not sufficient vitality to break through their shells.

First of all, the breeder should look to the stock birds. If there is a lack of vitality or health in either male or female, that alone would be sufficient cause for bad hatches. And the great difficulty that here crops up is that constitutional weakness in adult birds is not always apparent.

There may be hidden and wholly unexpected diseases which seriously interfere with the breeding power of the birds, or which are transmitted in an aggravated form to their progeny.

If these cannot be detected there is nothing to be done until it has been proved by results that there is something radically wrong, and that a change of stock birds must be made, and by the time this conclusion has been arrived at it is generally too late in the season to make any improvement worth talking about.

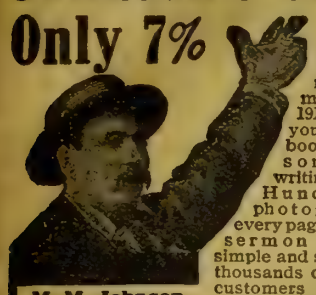
But the careful observer who has experience of stock birds can generally detect any inherent disease which might affect the fertility of the eggs or the stamina of the chicks hatched from them, and of course, all such birds must be kept out of the breeding pens.

In this connection a new use for trapnests has been found—namely, to ascertain the fertility and germ strength of the eggs laid by individual hens. If trap nests were more generally used for this purpose we should soon cease to find people satisfied with a percentage of dead chicks in every hatch as they are at present, provided the percentage is not very large.

Not all fertile eggs will hatch, but we could certainly increase the percentage by greater care in the selection and maintenance of the stock birds.

This, then, is the chief cause of chicks dying in the shells—lack of

Johnson's Share Only 7%



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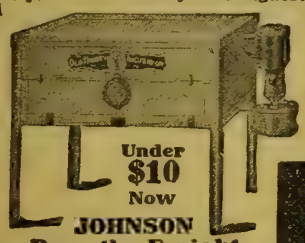

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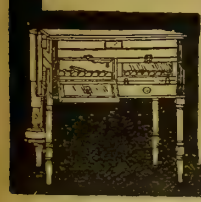

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SULLIVAN'S

Buff Orpingtons

1000 birds to select from. Trios, $7.50 and up. Eggs for hatching, $2 and $3. Special selection; prices on application. Mr. & Mrs. W. S. Sullivan, 50 Market St., Agnew, Santa Clara Co., Cal.

TREES

A fine stock of French and Imperial prunes, apples, Bartlett pears, cherries, plums, peaches, and general fruit tree stocks; also palms, roses, and other ornamental plants.

Send for price list.

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health and vitality in the breeding stock from which the eggs are produced; but we have here a vague, though comprehensive definition which needs to be expounded.

Lack of health and vitality may or may not be the result of disease alone, or at all; but it may be caused by age, youth or immaturity, by insufficient or injudicious feeding, by overfeeding, the use of fattening foods or unsuitable housing.

Now, we come to the consideration of secondary causes of the trouble referred to, and these are almost too numerous to mention. The eggs must receive due care between the time of laying and setting to hatch, for at all times the vital germ is frail and easily injured and killed.

When an egg is laid it is quite warm and of about the same temperature to the very core as if it were in an incubator for several hours, so it takes very little to keep it in this state.

If the weather is warm and the egg is left in the nest where it is sat upon by other hens that come to lay, or by stray broody hens, the temperature required to start the germ is fully kept up and there is every reason to believe that the germ does not begin to develop in the course of ten or twelve hours, and that when heat is afterward withdrawn the germ may be either injured or killed outright.

Hence we see the necessity for collecting the eggs which are required for incubation off the nests two or three times a day in summer and at least once a day in winter and spring, and it is also apparent that a broody hen ought to be kept out of the laying house, if we want to preserve the eggs for hatching unimpaired.

An egg can stand a fair share of rough handling without apparent injury while the germ is in a dormant state; but once the germ gets started, it must be treated with the greatest care.

The other causes of chickens dying in the shells at various stages in the period of incubation are usually due to careless manipulation of the incubator.

A common cause of the failure of fertile eggs to hatch is lack of sufficient ventilation. The fresh air supply depends to a greater extent than is generally known on the differences in the temperature of the air inside the machine and that of the room in which the incubator stands.

For some time past we have been hearing a good deal about "non-moisture" incubators, but it is not generally known that the difference between these and the older type of machine is that the older machine admitted a huge volume of air in the form of draught which absorbed a large quantity of moisture from the eggs, just as a stiff breeze dries up the roads after some rain has fallen, but this same draught took up some moisture from the trays and supplied it to the eggs, while on the other hand the non-moisture machines admit the air gradually; there is no current and the eggs retain their moisture.

This plan works very well in low-lying damp localities, but the old system of plenty of air and sufficiency of moisture gives better results in high and dry districts.

Too much moisture will also cause chicks to die in the shells, and a common error, due to inferior regulators or to carelessness and irregularity in attending to the lamps, is in allowing the temperature to vary very considerably.—Farm World.

SHIPPING CRATES.

Shipping crates should be light and durable. They should be commodious, large enough to accommodate the fowl or fowls to be shipped in them. Crates that are at least two feet in height are to be commended. A foot of ground or floor space should be allowed each fowl. A crate square or oblong is the usual shape and should be ventilated near the top on the sides. Handles may be added to assist those who handle the crate while en route.

The best material for a crate is white pine, for it is light and strong. The corners of the crate should be reinforced with posts as here is where the most strain will come in handling it. The cover may be fastened in with a padlock or a hasp or some device of one's own invention; but the padlock will prevent exchanging of birds during shipment.

It is a good plan to paint all shipping coops or crates attractive color, together with the name of your plant or your own name and address; for in this way you advertise your business. Have the words: "Return to" precede your name and address so your crates will come back to you. The express companies make no charge for returning empty crates.

It is a poor idea to use berry crates, dry goods boxes, or anything one can find in which to make his shipments. Such a course looks slovenly to the outside world and makes a poor impression on your customers. "What is worth doing at all, is worth doing well." Endeavor to use uniform crates, that appeal to the eye, and they will attract attention everywhere and bring you business wherever they go. —Successful Farming.

PRACTICAL HINTS.

It is one thing to produce good poultry and eggs, but it is quite another to dispose of same at a financial profit.

Good pure water, in clean dishes and fresh added, is necessary for growing chicks, and in fact all poultry should be well supplied.

Feed only what the hens will eat clean; scatter the grain in litter or spade it in the ground and make them scratch for it.

There is no "best breed," the one you prefer, the one that suits your ideal fancy will better suit your purpose, and you will get better results.

Learn how to feed, what to feed, and get acquainted with the needs of the hen, fortify against diseases and make every hen do her best.

Air-slaked lime scattered about the houses and yards is a splendid disinfectant, and will help to keep it sweet and clean and the flock healthy.

One of the most important points in chicken growing is to keep them growing. Every condition must be at its best and you must keep them so.

Put plenty of nests in the laying house and in a semi-dark place. The hens prefer this kind of a nest and will leave others to use the darker nest.

For the average person to make a success one breed of fowls is enough. There are many points in favor of one breed.

It is an easy matter to overfeed fowls, and poultrymen should bear this in mind. They often have the appearance of starving when they do not need it at all.

The male bird is half the flock, then how foolish to use one that is not up to the standard or idea you are aiming for. This means much to you and it is possible to improve faster

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Special Chick Food

The chick that dies is a loss. The chick that lives is a source of profit

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Is the greatest life-saver known in the chicken industry. It makes weak chicks strong and healthy chicks even more vigorous. It costs less than 2c a chick to feed COULSON'S SPECIAL CHICK FOOD for four weeks. Don't experiment but buy the feed which has given years of satisfaction. After six weeks change to

Coulson's Growing Chick Food

It keeps the chicks healthy—makes them develop fast and brings them quickly to the point of profit-paying. If your dealer can't supply you with COULSON'S CHICK FOODS write us. Any way write for the free book "Poultry Feeding for Profit."

Remember our trade mark on every sack

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We are So. California Agents for
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BABY CHICKS

Hatched from heavy laying stock of S. C. White Leghorn hens that have made Petaluma famous. Also baby chicks from selected S. C. Black Minorcas, Barred Plymouth Rocks and Rhode Island Reds. Send for price list.

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WINSLOW'S REDS
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"Chicks well hatched are half raised"

CHICKS

White and Brown Leghorns
Orders booked for future delivery

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The Arenberg Brooder Stove

Proven to be the most successful Brooder Stove on the market. Awarded gold medal for most Meritorious California invention at California State Fair, Sacramento, September, 1910 Burns distillate, perfectly simple and easy to manage. Write for details. H. F. ARENBERG, Petaluma, Cal

WINTERS' WHITE INDIAN RUNNERS

The world's greatest egg producers. First, California State Fair, 1909. First, display pen; first, breeding pen; first, drake; first, duck and second, duck, at the Los Angeles show, 1910. Eggs for hatching.

WHITE AND BARRED ROCKS AND WHITE MINORCAS.

Eggs for sale in season.

C. O. WINTERS, 5107 Washington Ave., Los Angeles, Cal.
Phone, Sunset East 1197.

in this way than any other.

Poultry and dairy farming go well together. In fact, milk fed to poultry in all forms produces good results. Milk fed poultry in the fattening pens demand a fancy price over other fed poultry.

There is a difference in the hatching of different color shell eggs and from different breeds. If possible, to secure the best results, use eggs of one color and from one breed for each incubator or hen set.

Plan to raise more and better poultry this season. No breed will pay better than the one you have if it is suited to your purpose. It's the man behind the breed that makes them pay, as much or more so than the breed. —American Poultry Adv.

A little flaxseed meal in the food will help the old fowls to pass through moulting rapidly.

SOUTHERN CALIFORNIA POULTRY SHOW.

After months of sunshine and beautiful weather, the members of the Southern California Poultry Breeders' Association were somewhat nettled to have the downpour come during their show week. However, they are a forgiving bunch, and the show is generally so satisfactory that the mistake of the weather man was overlooked.

It's a good show. Something over 1500 birds were exhibited. A few of them are bants, but mostly utility breeds. Buff and White Orpingtons are strong classes, as are Barred and White Rocks. One of the most numerous, also, is the White Leghorns, and some very fine birds are shown.

White Wyandottes, which in some of the past shows have predominated in numbers, are not so numerous this year, but there are some magnificent birds in that class. The Reds are strong, while Black Langshans have a showing of especially large birds. A $250 Cornish fowl is one of the proudest aristocrats in the bunch as he stands wide and watches the common people.

The bantams, especially the Black Breasted Red Games, were a surprise in both numbers and quality.

Bronze Turkeys, as usual, were not numerous, though birds of fine size, vigor and form were cooped. Water fowl was a weak class as to numbers. Geese hadn't a single representative. Ducks were better, Indian Runners and Pekins being most numerous.

Owing to the great number of exhibits, double-decking was necessary, which did not do fullest justice to all exhibitors.

The judges were Judge E. Sites, of Elyria, Ohio; Judge George W. Masterson, of Duarte, and Judge N. E. Luce, of Los Angeles.

The officers of the association are: E. E. Emerson, president; J. Madison Wright, first vice-president; R. B. Hayes, second vice-president; A. H. Memmler, secretary; J. L. Harrison, treasurer; directors, C. C. Bonnell, Joseph E. Davis, H. W. Gunston and Henry Mumford. Besides the annual show, meetings of the organization are held monthly at the Chamber of Commerce building in Los Angeles.

The large tent annex houses some fine exhibits by poultry supply and feed houses. Of course, Ironmonger, successor to the Albers retail house of Los Angeles, is there with a full line. West Coast feeds and remedies occupy liberal space, and the Germain Company representatives are there with the goods. The Philo system is exemplified by a working model. It's a curiosity, but the poultryman usually shook his head and passed on.

The special cup awards are as fol olws:

Orange county challenge cup, largest exhibit from Orange county—Won by O. M. Robbins, Buff Leghorns.

Santa Clara county cup, offered by Santa Clara County Poultry Association, best display for Northern California—W. H. Bissell, Twin Oaks Farm, Livermore, on White Orpingtons.

The Colorado trophy, best display of Rhode Island Reds—J. L. Harrison, South Pasadena.

Los Angeles Chamber of Commerce cup, best ten birds in the show—A. A. Bamford, on White Rocks.

Ladies' cup, best pullet shown by a lady exhibitor—Miss Margaret Hale, on Black Orpington.

Ironmonger cup, largest display of poultry made by a novice—Hoyt & Lawyer, San Gabriel, on White Rocks.

Emerson & Mumford cup, best display of Barred Rocks—Fred Espe.

Ironmonger cup, best Barred Rock pen—A. C. Kullman.

Joseph E. Davis cup, best pen Barred Rocks by a novice—E. M. McCulloch.

Fred Espe cup, best display White Rocks—Emerson & Mumford.

D. T. Wieland cup, best pair White Rocks by a novice—A. A. Bamford.

Fowler & Masterson cup, best pen White Rocks—Emerson & Mumford.

R. B. Hayes cup, best display Buff Rocks—Fred Sperling.

R. Mitchell cup, best five White Wyandottes—A. W. Huskins.

West Coast Seed Company cup, best pen White Wyandottes—W. A. Bremer.

A. H. Memmler cup, largest display White Wyandottes—S. P. Moore.

M. A. Scofield cup, best Buff Wyandotte cock, cockerel, hen and pullet—O. S. Hofman.

A. W. Huskins cup, best eight Partridge Wyandottes—R. Mitchell.

Directors' cup, best Partridge Wyandotte cockerel—R. Mitchell.

W. P. James cup, best Columbian Wyandotte male and female—C. J. Siegfried, Alameda.

Scriver & Quinn cup, best Single Comb Rhode Island Red cockerel—A. B. White.

E. E. Emerson cup, best Single Comb Rhode Island Red pullet—Goodacre Bros.

Rhode Island Red Club cup, best pen Rhode Island Reds—R. B. Hayes.

C. C. Bonnell cup, best breeding pen R. C. Minorcas exhibited by a member—J. Madison Wright.

Hollywood Minorca Ranch cup, Rose Comb display pen exhibited by a club member—J. Madison Wright.

Eleanore Minorca Farm cup, best Single Comb display pen by a member—D. J. Lovell.

W. J. Blackman cup, best shape Single Comb White Leghorn male—O. L. Livesey, Pasadena.

P. Cook cup, best pair White Leghorns—Miss C. B. Carrington, Haywards.

J. T. Digman cup, best display pen White Leghorns—Swanson & Johnson.

N. J. Fulks cup, best display Buff

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Leghorns—Lindgren Bros., Kingsburg.

Germain Seed Co. cup, best pen in show—Emerson & Mumford, on White Rocks.

Mandy Lee Incubator, best display pen in show—J. E. Chandler, on Light Brahmas.

Coulson cup, best display one variety—R. Mitchell, Partridge Wyandottes.

L. E. Berkey special, best exhibit by novice—A. A. Bamford, on White Rocks.

Pacific Poultrycraft cup, best pen by novice—A. A. Bamford, on White Rocks.

Swanson & Johnson cup, best S. C. R. I. cock and hen—J. C. Pike.

Dr. C. E. Winslow cup, best R. C. R. I. male—N. J. Fuiks.

J. Madison Wright cup, best display Light Brahmas—W. R. Struthers, Monrovia.

R. B. Hayes cup, best display Black Langshans—J. W. Wright, Pasadena.

Joseph E. Davis cup, best display Brown Leghorns—Williams Bros.

FRENCH BREEDS.

Houdans—Houdans are of French origin and very popular among that race as a table fowl, weighing seven pounds for cock, six for hen, and six and five with cockerel and pullet. They are mottled in color and bearded, with leaf comb, prominent nostrils, short strong legs, red faces, and white ear lobes.

Crevecoeurs—Crest and beard doubly ornamental, this breed, from France, are about one pound heavier than the Houdans. They have leaf comb, compact body, plumage rich, black and glossy.

La Fleche—Also black as to plumage; weighing eight and one-half pounds cock, seven and one-half hen, seven and one-half cockerel, six and one-half pullet. They are favorites with the Parisian marketman, and dress good meaty bodies; heavy thighs and long shanks, and altogether showing the finish of a bird destined for the table.—Rural World.

PREVENTION BETTER THAN CURE

A poultry bulletin issued by the Rhode Island Agricultural College recommends methods of prevention rather than treatment of poultry diseases. The turkey production in New England has been on the decline for several years, and especially in that state where so many turkeys have always been produced. This bulletin states that blackhead causes a great loss among the New England turkeys, and that this disease, like all others, is due largely to carelessness. The bulletin explains how the farmer and poultry raiser can save a whole lot of work and loss provided he gives the chickens and turkeys the proper feed and care. The treatment of disease is of little value, this bulletin states, after it gets into the flock.

A comparative test of the American plan of freezing eggs to preserve them with the method of treating with lime has been made by a scientific French experimenter. The refrigeration process is pronounced hygienically superior. At low temperature even when continued several months there is no perceptible change in the taste or properties of the egg, the yolk retains its position instead of falling to the lower end as in lime preservation, and the only change in appearance is a little greater wateriness. It is necessary, however, to keep the temperature about 2 degrees F. below freezing point, with the hygrometer as near 78 degrees as possible.

A FEW DON'TS.

Don't forget to paint the walls of the poultry house with a thick coat of whitewash.

Don't let another laying season go by without trying trap nests. They will tell about unprofitable hens.

Don't sell the best of the flock because you can catch them easier. Cull with judgment.

Don't put fifty fowls in a house built for half that number.

Don't buy screenings for feed. Buy good wheat or corn.

Don't mix in a few good birds with the culls when marketing, thereby expecting to get a better price. It works the other way every time.—Ranch and Range.

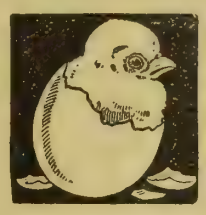
Huxley, the great English scientist, said that the development of the embryo in the egg was the most wonderful thing in the world, and yet, wonderful as it truly is, when studied from the standpoint of scientific inquiry, how many people living on farms have ever given this wonderful transformation any study? Three weeks of heat serves to bring life, bones, feathers, heart, brain and a marvelous organism out of the embryo, where the most powerful microscope fails to find anything of the kind in the beginning. The farmer is fairly surrounded by scores of deep mysteries like this, but familiarity in most cases has not aroused their interest in this wonderful phenomenon.—Hoards Dairyman.

The squab industry is yet in its infancy, and the possibilities are as great as ever, for there seems to be no limit to the demand. The rapid growth of squabs is another feature to be taken into account when one is looking into the investment part of this business.

It is a loss of time and money to try to keep several breeds of chickens unless one is prepared to keep them separate. Of course they can be allowed to run together during the seasons when eggs are not wanted for hatching; but this does not always work well, for each breed has its peculiarities. Some are more timid than others, and do not get their share of feed at meal-time. The different natures require different care. Mixing them is detrimental every time. One breed selected according to one's markets and facilities, is sufficient for the average farmer. To attempt more means more trouble for the owner and less comfort for the fowls if he tries to keep them separated.—Farm Journal.

The following lotion is recommended for wet eyes in pigeons: Solution of atropine, one dram; sulphocarbonate of zinc, two drams; water to make half an ounce. A few drops should be dropped into the bird's eyes twice a day.

Ernest Winslow, one of the most practical pigeon men in this country, advocates cleaning the lofts weekly, and also cleaning the nest boxes each time they are stripped of squabs. Air-slaked lime is then sprinkled in the boxes.



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A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Booklet descriptive of our stock and farm, containing recipe for mixing the best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels. On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

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We Don't Guess—We Measure

The Mandy Lee is as far in advance of other incubators in heat and moisture as it is in ventilation. We do not guess at anything. The sensitive regulator controls heat to the fraction of a degree and *we measure moisture* just as accurately with the Mandy Lee Hygrometer (one sent with every incubator). You know what you are doing. *You* measure and control moisture; *you* control the hatch. The Mandy Lee is the all-season, all climate, all condition hatcher, always producing the most and the strongest chicks.

Mandy Lee Brooders give direct contact heat to the backs of the chicks. That is *real* mothering, the most important thing in poultry. Hovers are raised and lowered as weather gets warmer or cooler—heated from end to end. Chicks do not pile up and smother. Write to-day for catalog and full information.

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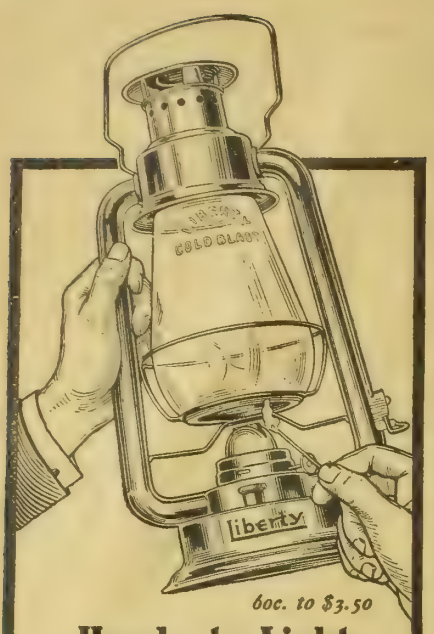

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is made of Trinidad Lake asphalt. Doesn't crack, rot, or break. Gives lasting protection to your home, barn, and all other buildings.

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Cheapest and most efficient water supply for country place, irrigation, farms, etc. Satisfaction guaranteed. Booklet, plans, estimates free.

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Irrigation and Forestry

IRRIGATION INVESTIGATIONS.

In his annual report recently submitted to the President, Secretary James Wilson of the United States department of agriculture devotes much space to the irrigation investigations conducted by his department. As is well known to those interested in the subject of irrigation, the irrigation investigations have resulted in the accumulation of a vast quantity of information about the progress and practice of irrigation throughout the West. In recent years, in addition to the general investigations heretofore conducted, much attention has been given to assisting new settlers on the many public and private irrigation projects that have opened new irrigated land for occupancy.

"During the past year," says the secretary, "the office of experiment stations, while maintaining most of the old lines of work in its irrigation investigations, has endeavored to modify its plans so as to meet the demands for information on the new issues which are constantly arising.

"This is particularly true as regards the assistance which has been given to the new settlers. The task of converting desert land into productive fields is not easy under the most favorable conditions, but when the one who attempts it knows little or nothing about irrigated farming, the difficulties are greatly increased. Those in charge of irrigation investigations in the West have, therefore, devoted a considerable portion of their time to advising the newcomers as to the methods best adapted to their individual needs. This personal advice, supplemented by practical bulletins, has done much to prevent mistakes and to safeguard the settler from either partial or total failure.

"So widespread an interest has of late been created in the East regarding irrigation in the West that the department has been flooded with requests for information as to the conditions and possibilities of different districts. The series of bulletins on irrigation prepared by this department in co-operation with western state engineers and others has done much to furnish the information desired. Of this series, ten bulletins have already been published and four more are being prepared. When complete, the irrigation conditions as regards climate, soil, water supply, extent of land, crops, etc., of each state and territory in the West will be accurately described.

"In former days water for irrigation purposes was both plentiful and cheap and in attempting to use it much was wasted. In many parts of the West the old wasteful methods still prevail, although the value of water has increased many fold. The results of seepage measurements of irrigation channels obtained by the department, coupled with the high price of water rights and the rise in value of agricultural products, have induced many companies to line their main canals. As a result, many channels which formerly lost from 20 to 30 per cent of their total flow are now practically watertight. In many cases such improvements would not have been made if the attention of the managers had not been called by our engineers to the large losses sustained and the best means of preventing this waste. In other cases farmers used large amounts of water without realizing how excessive was the use until measurements were taken. When the irrigators of the San Joaquin Valley in California first began to apply water on what had been dry-farmed grain fields they frequently used over nine feet. Now about one-third of this amount is found to be ample. The water users of Greeley and neighboring districts in Colorado used to think their crops would burn up unless they had a miner's inch of water to the acre. Now they are raising crops on the same ground that are worth about four times as much with one-fourth the water formerly used. They are learning that cultivation takes the place of irrigation to a great extent.

"The demonstration farms established in former years have been maintained. These have been of great value during the past year in showing, among other things, the benefits to be derived from the use of scanty water supplies on small fields in connection with dry farming. At the Cheyenne farm during the past season, 54 bushels of oats were raised per acre with the application of only 8 inches of irrigation water, while the crop grown without irrigation was practically a failure. Alfalfa yielded 4805 pounds of hay per acre with the application of 13.3 inches, while the unirrigated field yielded only 550 pounds. Beardless barley, with the application of 9.7 inches of water, yielded 31 bushels per acre; that unirrigated and raised on summer fallowed ground yielded only 2½ bushels. At Gooding, Idaho, 8.8 tons of red clover was harvested from land which received only 19 inches of irrigation water. These results show what can be done with a limited supply of water when properly applied.

"The need of investigating the questions which arise in connection with the use of water in irrigation is so keenly felt by the people of the West that several western states are now co-operating with the department in the prosecution of these studies. For years the states of California and Utah have given dollar for dollar for the purpose of carrying on this work. The states of Idaho and Wyoming are likewise contributing considerable sums for the co-operative investigation of problems peculiar to those states. In time it is expected that many other states will enter into co-operative arrangements with the department for the investigation of irrigation problems.

"In many sections of Louisiana, Arkansas and Mississippi the ravages of the boll weevil have made the growing of cotton unprofitable and the producers are substituting other crops. Experiments with the growing of rice have proved that it can be grown there profitably. In consequence, large areas of cotton land have been planted to rice during the past season and costly failures are quite certain to result unless proper methods are followed. These farmers as a rule know but little about pumping plants, the building of levees for rice irirgation, the quantity of water to apply, and the proper time of application. It has therefore been found necessary to detail a man to this field to devote his entire time to a study of rice irrigation and to work out, if possible by experiments, better and cheaper methods than those now in vogue. A Farmers' Bulletin on the irrigation of rice for the benefit of beginners will soon be published.

"The widespread drought of the past summer throughout most of the humid region has greatly increased the interest in the irrigation of gardens, truck farms, and the demands on the one agent we have been able to detail to this work have been far greater than he could meet. The advantage of irrigation as an insurance against the long dry spells for some of the crops has been brought out in a striking manner on several farms where experiments were conducted this summer. As a result of adding both moisture and fertilizer to the soil on ex-

MOKELUMNE RIVER SCENE NEAR LODI, SAN JOAQUIN COUNTY.

perimental plats in Iowa by irrigating with sewage, the yield of beets increased one and one-half times, that of timothy was doubled, while the yield of blue grass was ten times as great as on the non-irrigated plats.

"At Neenah, Wis., it was found that irrigation prolonged the bearing season of strawberries ten days and increased the yield 50 per cent. On the same field irrigated carrots yielded 50 per cent and irrigated onions 150 per cent more than the non-irrigated crops.

"The utilization of a flowing well at Albany, Ga., in irrigating corn the past season quadrupled the yield, and as the result of an experiment conducted by this department wells are now being sunk in this district for the irrigation of corn, cotton and legumes in order to insure against droughts, to introduce scientific rotation, and to increase the profits from small farms."

The irrigation investigations maintain state headquarters in nearly every western state and territory, and in some cases, as in California, the states provide one-half of the funds used in carrying on the work. The California headquarters are in the agricultural building of the University of California at Berkeley, and information or bulletins about the work in this state may be had on application to Frank Adams, in charge, at the above address-

CALIFORNIA DRY FARMING.

In an interview with me on the subject of dry farming which appeared in the Los Angeles Times of October 20, the reporter drew somewhat heavily upon his imagination in some of his statements, and I am glad to accept the invitation of The Cultivator to give the real facts in the case.

The fact that last spring I harvested a crop of oat-hay, the best of which attained a height of six feet, was in view of the lack of rain during February and March, sufficiently interesting without lengthening its growth an additional three feet. Last year was undoubtedly a very trying year for dry farming in California. While we had heavy rains in November and December, 15 inches in Pasadena, there were no rains from January 3rd until the last of March when 2½ inches fell, with another half inch during the first ten days of April, and then no more, with the exception of a few light showers this fall, up to the present writing. The seven acres alluded to which produced three tons of hay to the acre, runs from very light to quite heavy soil and upon the latter the crop must have been nearly five tons to the acre, while on an adjoining field the crop was about one-quarter of a ton to the acre. Both fields were seeded before the heavy rain of January 3rd, but my field had been planted to melons the previous two years and to this fact I lay the heavy crop, though I plowed the land about ten inches deep and put in the crop with great care and used 130 pounds of seed to the acre, all of which had its effect. With one exception of a few years ago I have never before grown hay, but I have long wondered at the folly of farmers sowing the same land to the same crop year after year. It costs about $10 to raise a ton of hay to the acre including rent, seed, labor and baling, and if you sell your hay for $15 per ton and raise only half a ton to the acre, you are out $2.50 for every acre you put in, while if you raise three tons you are ahead $31 after paying for baling the three tons. Instead of putting in the same land to hay again this year, raise a crop of melons or pumpkins or corn, by dry farming methods, and see how big a crop of hay you will get next year. Then plow deeply, cultivate thoroughly and seed heavily. If after you have seeded the land a heavy rain comes, harrow the land lightly, even if the crop is up, and do this after every rain till the crop is high enough to shade the ground and prevent its baking after a rain. If the rains come frequently your labor is lost, but if you get a few weeks of dry weather your crop will keep on growing, and it pays to hustle as much in farming as in any other business.

Most of my experience in dry farming has been in raising melons for the Pasadena markets. I soon found that watermelons and Casaba melons grown without irrigation were far superior, both in flavor and texture to those raised with plenty of water applied during the growing season. I think this is also undoubtedly true of peaches, grapes and other fruits, and even of alfalfa. Then I take great pains in selecting my seed, saving seed only from those melons which my family agrees are especially fine, and they always demand the most promising looking Casaba for breakfast and watermelon for dinner. Then I take great pains in seeing that no melon is picked until thoroughly ripe.

The Casaba I consider the most delicious thing that grows. But nine times out of ten it is picked before it is ripe. It should be left on the vine until mellow enough to leave a dark impression under the pressure of the thumb, when it will generally easily part from the vine when rolled over.

The people have found out that the "Hayes" melon is invariably first-class and I sell only two or three of the principal stores, which handle my melons exclusively, and receive two-thirds of the retail price; which I estimate is about twice the amount received in the ordinary channels of marketing melons. Now at the middle of December I am getting $2 per dozen up, three times that price for the large ones. I don't see why this should not be done in other towns by farmers living near them. What then is the secret of raising melons by dry farming methods?

Deep plowing and thorough cultivation at the right time, going over the land, first with the cultivator, then the smoother and "plank," then the cultivator and smoother and "plank" again and again until the weeds stop growing and the ground is fine as road dust. On heavy soil two or three times the work is necessary that is required on light soil, but the results are the same on any soil. I use no fertilizer except plowing under weeds and clover, as very rich soil produces more vines than fruit. But extremely light gravelly soil is not suitable for melons.—Marshall C. Hayes, Pasadena.

UNREASONABLE HOWLING.

Inspector E. B. Heiberg of the state food department was talking about a certain restaurant in St. Paul.

"Why, it's as bad as the hotel up at—," naming a middle-sized town in the iron range.

"The landlord up there does not come out and say 'Dinner is ready,' as they do at ordinary places," he said. "He comes out with a big hand bell and rings it so it can be heard all over town.

"I was sitting in the front room one day when he came out with the bell. The ringing made the dog set up a howl.

"'Shut up!' said the traveling man to the dog, 'you don't have to eat here.'"—St. Paul Pioneer Press.

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OIL-BURNING STEAM TRACTION ENGINE

FOR SALE CHEAP

This Engine is equipped with all approved time and labor-saving devices. It has been slightly used for experimental work only and is warranted to be in first-class condition.

AVERY COCKSHUTT PLOW—ten 14-inch steel bases, especially for this engine—will be sold cheap. It is brand new—has never been used. The Cockshutt Plow has won first prize at all international plowing contests for the last three years.

Both Engine and Plow will be sold below factory cost, and we will be glad to mail you description and prices. This is a real opportunity to buy a first-class outfit at big saving over the cost of inferior goods.

Newell Mathews Company

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Krogh New Type Vertical Water Balanced Pump

This Pump Will Interest the Irrigator

Pump has Water Sealed Gland, Enclosed Balanced Impellor. Will not cut out by sand. Can be placed in a smaller pit than any other pump. Our Bulletin, C12, tells all about it. The pump can be seen in operation at our places of business. We have a permanent branch house at

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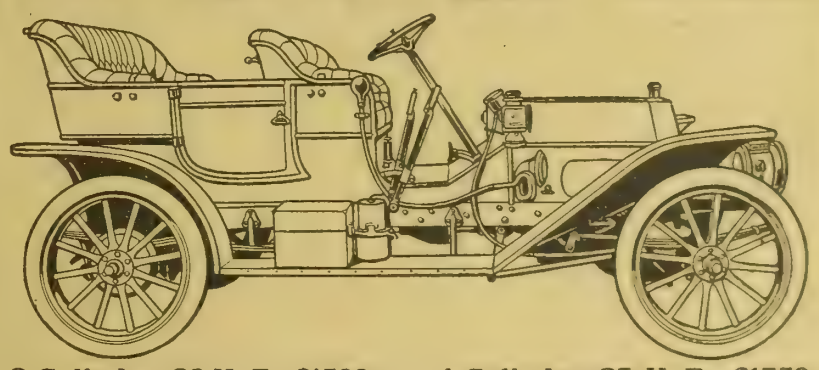

2-Cylinder, 26 H. P., $1500 4-Cylinder, 35 H. P., $1750

Made in Los Angeles and factory open to your inspection. Come and see us.

Both Phones Durocar Mfg. Co., 935 S. Los Angeles St. Los Angeles, Cal.

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My plants are grown in Tropico and on land never before used for Strawberry Culture. Plants are selected by myself for breeding and the blossoms always picked, therefore the strength grows into the new plants. This is why my stock will produce by far the greatest amount of berries. If you are going to set out 100 or 5000,000 be sure and write to

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Grower of Strawberry Plants only, and only the best.

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San Jose Mayette and Concord; blight resisting. Best commercial nuts; send for samples. Eucalyptus Trees, no better stock grown; prices very reasonable. General Fruit Tree and Ornamental Stock. Our 1911 Horticultural Calendar now ready, price 15 cents. Catalogue Free. Thirty-four years' experience in California.

LEONARD COATES NURSERY CO. Inc.

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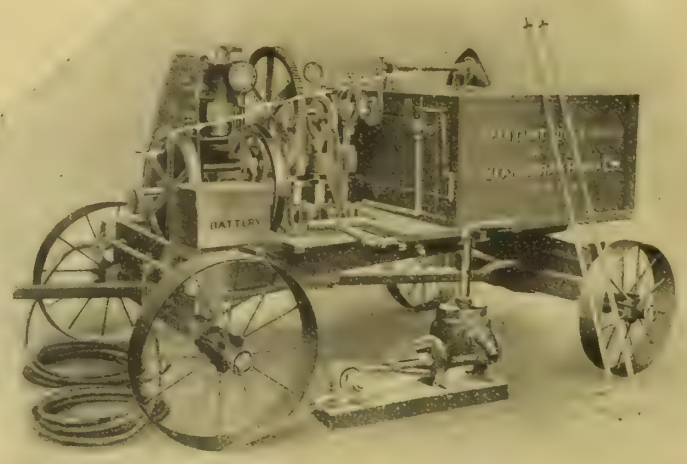

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The Most Reliable, High Pressure, Large Capacity Sprayer in the World.

The Bean Giant Power Sprayer is but 9 feet long from end to end, and but 4 feet 8 inches from the ground to the top of the tank. The Bean Giant is not top heavy and is easily hauled where most sprayers would be at a serious disadvantage—on hilly ground, for instance, or where the soil is wet or very soft.

The entire outfit weighs only from 1600 to 1800 lbs., according to equipment, which also adds to the ease of handling. The unique construction of the Bean Giant enables it to be used in the most densely planted orchards. It is very compactly built and will make very short turns.

The best standard engines are used and all Bean Giant Sprayers have the Giant Three-Cylinder Power Pump, which assures large capacity, even pressure, and a minimum of wear and strain. The cylinders are porcelain lined and are absolutely non-corrosive. Besides, they can't fill with grit and dirt—they're upright.

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BEAN SPRAY PUMP CO.

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Awnings, Tarpaulins, Stack Covers, Bags, Irrigating Hose, Wool Sacks, Water Coolers, Fruit Picking Bags, Roll Canvas, Khaki Suits for Men and and Women.

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to me for correct names and commercial valuation, 25c each specimen.
GUARANTEED ASSAYING
Gold and Silver $1.00
Copper, Tin, etc..... 1.50
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Orange Trees

First-Class Navel and Valencia one and two years old.

J. S. Killian, El Monte, Cal.
Phones: Sunset, 8x4. Home, Red 31, or
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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Liver Trouble.

Please tell me treatment for liver trouble in turkeys. Droppings are partly yellow, with patch of green. Is the trouble contagious?—Subscriber, Morganhill.

In turkeys this is practically incurable, and the best remedy is the hatchet where turks are badly affected. If the trouble is just beginning to show, a thorough cleansing with epsom salts, combined with cleaning and disinfecting of the houses and yards, will be beneficial. The taking of the sick turks to another run, and leaving the well ones in the infected yards, is exactly the wrong way to handle these diseases. Take the well ones to clean quarters. Absolute cleanliness, with wholesome feed, is the best preventive.

Cutting Lemon Buds.

When is the best time of year to cut orange and lemon buds to be used in March budding, and what is the best way of keeping?—H. B., Orange.

The fresher buds can be cut, the better; but, of course, it is sometimes difficult, where the sap is flowing at the March budding, to find sufficient bud wood which has not started growth. Some budders watch the orange trees closely, and, just before the young shoots begin to start from the bud, sticks are cut and buried in wet sand or moss, or, if they are to be used in a very few days, wet sacks will answer. With covering in wet sand the greatest safety is secured, because with sacks or wet straw, which is sometimes used, heating is possible, in which case the buds become worthless.

Product for Wet Land.

Will Bartlett pears grow in a sandy soil where peach and walnut trees have died from too much moisture, and what would you recommend for such land? Will cranberries and blueberries grow in swampy land where water is near the surface?—Subscriber, El Cajon.

Bartlett pears will certainly stand much more water than peaches, but if water stands near the surface we do not think they would be ideal for your situation. As to cranberries and blueberries doing well in your valley, we question it very much. We believe the dryness and heat of summer would not be best for their growth. Bartlett pears would perhaps succeed if land could be underdrained; of course, that depends entirely upon conditions.

Planting Sweet Potatoes.

At what time should sweet potatoes be planted, and where may the plants be procured? How many will be necessary to plant five acres?—Subscriber, Bakersfield.

The time of planting will depend upon your immediate locality. If mesa land, where air drainage is good and danger of late frosts at a minimum, they may be planted early, at least by the first of April, though May is not too late. Soil should be a warm, sandy loam, and plantings made on low ridges. The ordinary distance apart is 1½ by 3 feet. An acre will require nearly 1,000 plants. The retail price per 100 is 50 cents, but of course, in such quantity as is needed for setting five acres, special prices should be secured. The raising of plants and planting will be to [illegible] upon more at length in a later [illegible] of The Cultivator, in the garden [illegible] partment.

Transplanting Peach Trees.

Can peach trees that have made most a year's growth in the field, are from two to four feet high, be transplanted? Also, could blue gums four to six feet high be reset?—Subscriber, Livingston.

Either the peach or eucalyptus trees may be transplanted at that age, but we do not think the results would justify the effort. We assume that the peaches in the field you mean have planted from the nursery last spring. Nurserymen consider deciduous trees which they carry over after one season's growth after budding or grafting as of no value, and they are burned. Work with them might almost be equivalent to time thrown away.

Date Palms.

Will date palms raise good [illegible] region of Chico?—Subscriber.

It is not probable that dates will give satisfactory crops in that [illegible] though we have not heard of [illegible] being made to grow them. [illegible] orado desert and in Arizona [illegible] varieties are doing exceptionally [illegible] The so-called ornamental date palm, the Phoenix Canariensis, does not bear edible fruit. Those grown from the seeds of commercial dates may be bearing trees or more probably will not. If, however, you secure suckers from good bearing trees, it might be worth the trial in your section.

Poisoning Gophers.

What is the best way to poison pocket gophers?—Subscriber, Chico.

A small quantity of strychnine in center of whole raisin is one of the choice morsels which lay the gopher low. Split the raisin carefully, and do not scatter any of the bitter poison over the skin. Sweet potatoes, potatoes, carrots or any such roots, used as carriers for the poison, are also good. As with the raisin, do not scatter poison over the sruface, but cut the potato in pieces, say the size of a walnut or hickory nut, and slip the poison in so that it will not be tasted at first. Open the main runway, and place poisoned morsel in a few inches.

Roupy Hens for Breeders.

Will chicks hatched from stock that has had a slight touch of roup be more susceptible to the disease than if the parent stock is sound or completely cured —Z. N. D.

In general, we will say that we would not care to breed from any stock which had been affected with roup. The disease may not be hereditary, but the weakened constitutions and reduced vigor do not give promise of healthy stock. We note that you say "slight touch of roup" and "completely cured." Those two factors may completely overcome any ill effects, but, in general, reproduce only from the very healthiest.

Number of Ducks.

What is the proper number of ducks to run with one drake, Pekins and Indian Runners? What time of year does laying begin, and what is the proper feed?—Subscriber, Fresno.

The number of ducks to the drake depends upon breed and season, varying from five to twelve. With Pekins,

J pring, five is the proper number; r, in early summer, seven or eight ould be allowed. With Indian Runners, six or seven is the usual number, though some breeders increase to welve. They begin laying early in March, and will continue until early sometimes mid summer, according o care. The following ration is recmmended by "Ducks and Geese," pubgrea by Reliable Poultry Journal: of g e fed every morning and evenm Five measures corn chop, five measures bran, two measures midper one and one-half measures cent ap, three measures boiled veg- "T three measures cut green Alb per cent sand."

past

nard Planting.

I have an orchard, seven arces of same being set out. Three acres was et one year ago to apricots and walir , the walnuts being cut back on count of frost or something, mak- t rather unhealthy-looking trees. The ots are fine. But the old part of orchard, seven acres, was set wenty feet apart, and the entire orchard is regular. The new three acres was set thirty feet apart, which does not conform to the old. Taking into consideration the kind of walnuts have, what disposition would you e of the three-acre piece? There six rows—three rows apricots rty-one trees each), and three rows nuts.—M. L. T., Hemet.

nia

bulle walnuts are not strong and ma y after their first year's growth, Ada uld replace with stock that is. dress- ne from the inquiry that the d apricots were set in alter- s, with the expectation of CAL g out the apricots and leavIn walnuts sixty feet apart. If su is the desire, that would be a ood distance apart for them. If the inquirer wishes to know as to making the three acres conform to the seven, we are unable to answer, that being a matter for his own taste to decide. Of course, it would be impossible to grow walnuts as one would peaches or apricots, twenty or twenty-four feet apart. If a uniform orchard is desired, then trees of only one variety would be preferred. It would be unwise to attempt to lift the apricots and reset in conformity with the older orchard, so that the only question would be as to wiping out the newer setting and replacing entirely with other trees. If the walnuts and apricots have grown thriftily, this would occasion a loss of one year's growth.

Tincture of Aconite.

For indigestion, or almost any disease that fowls are heir to, I have found aconite a wonderful remedy. One teaspoonful to one gallon of water, put it where the fowls can have all they want. If the fowl is very sick, I take about three tablespoons of water with three or four drops of aconite, wet a piece of bread in this, and force it down the throat, pouring the water that is left down the throat. May have to repeat the dose next day.—T. F. Burrows, Tulare.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Contagious Eye Disease.

Twenty head of heifers, fed alfalfa and middlings along with their pasture, have sore eyes. Tears flow freely, and the eyes are nearly closed, but examinations reveal nothing in the eyes. Some have recovered, while others are contracting the trouble. Is there a disease, or do you think grass has struck the eyeball while they were feeding?—Subscriber, San Jose.

Grass spears would not affect all your young cattle—both eyes alike—in such systematic disorder. This is an infectious form of catarrh of young cattle. Old cows are rarely afflicted. From your description, the disease appears to be running a mild course, and will soon disappear. However, it would be well to see that your cattle have pure water, wholesome food, and clean, comfortable quarters, especially at night, and to avoid the spread of the disease to your neighbors' herds. —F. G. M.

Bladder Trouble.

For about one week my horse has been urinating too often—half a dozen times in a half day. His appetite is good. The food given him consists of grain hay and Egyptian corn twice, and alfalfa once a day.—Subscriber, Turlock.

Try leaving off the alfalfa first, and then each of the other foods, to determine if either is responsible for the trouble. Have your druggist prepare sixteen powders, each containing potassium iodide half drachm, gallic acid one drachm, and powdered belladonna two drachms, and give one powder in ground feed twice daily.

OPPORTUNITY'S MISTAKE.

"This is the opportunity of a lifetime, madam," declared the smooth-tongued canvasser as he stood at the door.

"Seems to me I've heard that before," thought the housewife.

"Opportunity knocks at every one's door—but only once," continued the caller.

"That's where you're mistaken, young feller," snapped the woman as she reached behind her. "Opportunity has knocked at my door eight times this week so far. I'm out four dollars and ten cents, an' nothin' to show fer it. Jest in case he should knock again I be'n savin' this kettle o' hot suds—"

But Opportunity departed hurriedly. —T. L. Holiday in Woman's Home Companion.

"Especially do I think that the farmers' wives should be assisted and helped in every way possible. I want to see farm life so arranged that there shall not be a better outlook for the farmer than for the farmer's wife. While he is equipping his place with machinery for outside work, he shouldn't forget the new devices for inside work. Don't forget the modern machinery that makes woman's life easier on the farm. We hear much about women's rights. Decent men should be thinking about women's rights all the time."—Theodore Roosevelt.

Irrigators on the west side of the San Joaquin valley who hoped for the formation of a Wright Irrigation District, to cover many thousand acres of land, find they will be oposed by Henry Miller, who owns much land within the boundaries of the district.

Mr. Farmer---

Prepare now to give your Soil a Spring Tonic.

A change of food is essential to health of man—so is some form of fertilizer essential to the productiveness of your soil.

Our little booklet, "Farmers' Friend," will explain to you the good qualities of our fertilizer and tell you what it has done for others. Write for it today—it is free.

Pacific Guano & Fertilizer Co.

310 Sansome St. San Francisco — 503 Central Bldg. Los Angeles

EUCALYPTUS

Large, well rooted plants; best varieties; some with balled roots for distant shipment. Price moderate.

Large lots grown by contract. Circular Free.

HENRY SHAW

Riverside Nursery,

320 River St., Santa Cruz, Cal.

REPORT OF THE CONDITION OF

The First National Bank of Los Angeles

AT CLOSE OF BUSINESS JANUARY 7, 1911

RESOURCES:

Loans and Discounts		$12,509,480.64
Overdrafts, secured and unsecured		18,365.64
U. S. Bonds to secure circulation		1,250,000.00
Bonds to secure U. S. Deposits		305,000.00
U. S. Bonds on hand		5,000.00
Premiums on U. S. Bonds		
Bonds, securities, etc. (Bonds only)		1,027,325.00
Due from National Bank (not reserve agents)	$1,329.758.10	
Due from State banks and bankers	210,154.75	
Due from approved reserve agents	755,527.98	
Checks and other cash items	137,329.87	
Exchanges for clearing house	340,966.91	
Notes of other National banks	158,034.00	
Fractional paper currency, nickels and cents	5,133.06	
Lawful money reserve in bank, viz.:		
Specie	$1,480,045.00	
Legal tender notes	392,700.00	1,872,745.00
Cash and Sight Exchange, . .		**$4,809,649.67**
Redemption fund with U. S. Treasurer		62,500.00
Customers' liability under letters of credit		67,804.80
TOTAL, ...		**$20,055,125.75**

LIABILITIES:

Capital stock paid in		$ 1,500,000.00
Surplus fund		300,000.00
Undivided profits, less expenses and taxes paid		1,935,674.60
National Bank notes outstanding		1,250,000.00
Due to other National Banks	$ 1,590,760.04	
Due to State banks and bankers	943,903.43	
Due to trust and savings banks	850,477.73	
Dividends unpaid	10,267.50	
Individual deposits subject to check	10,921,534.12	
Demand certificates of deposit	131,093.80	
Certified checks	34,992.38	
Cashier's checks outstanding	203,287.81	
U. S. deposits	300,516.75	
Letters of credit	70,340.80	
Total Deposits, ...		**$15,057,174.36**
Reserved for Taxes		12,276.79
TOTAL, ...		**$20,055,125.75**

No Real Estate. No Furniture and Fixtures. No Premiums on U. S. Bonds.

STATE OF CALIFORNIA,
County of Los Angeles—ss.

I, W. T. S. Hammond, Cashier of the above named bank, do solemnly swear that the above statement is true to the best of my knowledge and belief. W. T. S. HAMMOND, Cashier.

Subscribed and sworn to before me this 10th day of January, 1911. W. N. HAMAKER, Notary Public.

Correct—Attest: J. M. ELLIOTT, STODDARD JESS, W. C. PATTERSON, JOHN P. BURKE, J. C. DRAKE, Directors.

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How To Make Your Land Pay

$500 TO 1200 Per Acre

That may sound like a story—but I am here to tell, to show and to prove that a profit of from $500 to $1,200 per acre is within the reach of every farmer or grower in the country. I have made this remarkable record on my farms for several years—other farmers who have adopted my methods are also succeeding—the same success is within your reach. The secret of this wonderful profit is scientific and intensive farming, special preparation of soil and the growing of special crops.

Write For My Two Free Books

Book No. 1 is my intensive farming book, not a catalog, published to sell for 50c; send and get it now free; tells of my experiments and experience for the last 32 years. It has taken 32 years to write and to complete it. If you will at least spend 32 minutes reading it it will prove to be the most profitable time you ever spent. This book explains my special method of soil preparation, how to rotate crops, how to make your land pay big profits as I have done by growing my Grandpa's Pride Globe Onions which have produced an average profit of $15,000 on 40 acres and other special crops.

Book No. 2 gives the history of the Alton Improved Red Raspberry which has produced an average profit of $1,200 per acre on account of its remarkable size, flavor, long fruiting season and vitality.

Write for my books today, they are free and will interest the man who is looking for big profits.

A. O. GILBERTSON, CROP SPECIALIST,
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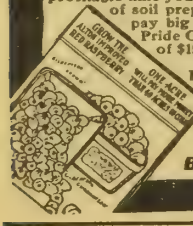

I Have Farmed For 32 Years

During this time I have experimented, my one aim was to produce special crops that would be out of the ordinary in quality and profit. One of the most successful experiments was with raspberries. Instead of growing the ordinary variety and taking an ordinary profit I propagated a special variety now known as the Alton Improved Red Raspberry that has stood the winters of Northern Minnesota, North and South Dakota and even as far north as Canada, without the least winter protection. The Berry is especially remarkable for its size and delicious flavor as well as for its long fruiting season, which on an average extends over a period of three months. If you only have a city lot or if you have a farm investigate this wonderful, large, delicious berry now.

EUCALYPTUS TREES

Large quantity, extra quality to select from. **ORANGE and LEMON TREES,** A. 1 quality, A large assortment of **PALMS.** Orange Seed Bed Stock, Sour and Sweet.

Our trees guaranteed best grade, true to name. Our long experience is a guarantee of our reliability. We especially call attention to our large stock of **EUCALYPTUS TREES.**

COVINA NURSERIES

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The Roessler & Hasslacher Chemical Co.

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Works: Perth Amboy, N. J.

CYANIDE guaranteed 98-99% for generating HYDROCYANIC ACID GAS

The only positive eradicator of the **San Jose Scale, Red** and **Black Scale** and other insect pests.

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Citrus and Tropical Fruit Trees

5000 Eureka Lemon trees
5000 Valencia Late Orange trees
5000 Navel Orange trees
3000 Grafted Walnut trees
500 Budded Avocado (Alligator Pear) trees

People who intend to plant lemon or grafted walnut trees this season will have to secure them from some source early as they are now very scarce.

A. R. RIDEOUT

Magnolia Nursery Whittier, California

Timely Ranch Suggestions

ALFALFA EXPERIENCE.

By C. E. Lillibridge, Corona.

I enjoy reading reports of the experience of alfalfa growers, and possibly your readers will like to know how we grow alfalfa at Corona. I own forty acres, and pump 276 inches of water, at a cost of twenty cents per hour, fourteen feet from the surface. I pump through twelve-inch steel pressure pipe underground, and use ten-inch surface irrigating pipe to distribute.

My alfalfa has been seeded five years, and I have no foul grasses or ditches. I take out Bermuda grass with a delving fork, and burn every joint whenever it shows up. It is practically all clean, and I keep it so. I fertilize in December, and spring-tooth harrow it both ways in January or February. I use stable manure, the same as for corn in the East. I use cow manure, which I buy at two cents per foot at the dairy. I bale ten tons to the acre each year, and sell 100 tons during the season to keep up all expenses, and store 300 tons for winter prices. I bought ninety-two tons this season at $10, and have 400 tons holding for the winter price, and in this way I get the storage man's profit, and net $3,000 per year on an average. My land is not for sale at any price, as I am satisfied with this.

I hire all hay baled in the field, and I mow and rake my own hay, and bunch with a rake. I never use a fork. I also cart or haul into the barn all my hay, and I keep only one man to do the irrigating and help put baled hay in the barn. It takes twelve days to irrigate once over, and then I usually put in five to ten days going over any spots that look as if more water would do any good.

If anyone has a better plan of growing alfalfa hay, I would like to learn it, as we can always learn in the curing and in growing the most tons to the acre. I cut six cuttings, and let my hay mature well, or cut when one-quarter in bloom, but, owing to my land being so thoroughly soaked, the leaves all remain on, and I handle all hay while damp with dew, which helps in keeping on all leaves. Then I turn over all hay with a rake each morning, from the time it is bunched until it is baled, before the sun colors it, thus keeping it all damp and of a perfectly green color. The sun shining on hay with dew on it is what colors it. If turned over before the sun strikes it each morning, which takes about one hour to ten acres, it keeps perfectly green.

ERADICATE JOHNSON GRASS IN SUMMER.

By Prof. Elmore Chase, Fair Oaks, Sacramento County.

The problem of eradicating Johnson grass from the roadsides is a very difficult one, because of the great variety of soil conditions and the number of types of root stock development. But to grub out Johnson grass at this season of the year is a waste of time and money. In order to make it effective, the grubbing must be very thorough. This would require, in mellow soil, digging from one to three feet deep and sometimes deeper. Johnson grass can be eradicated by this method but the process must be repeated the second year, since it is well nigh impossible to remove all the root stocks. Mr. J. S. Cates, scientific assistant of the Bureau of Plant Industry at Washington, has given several years of careful study to the root stock habits of this grass, and has fully demonstrated that this pest can be brought under control in one year's thorough cultivation under ordinary field and meadow conditions, and this is done with comparatively little expense. This method applied to your conditions would be to allow the soil to remain undisturbed this fall. Where the Johnson grass has grown the past summer, the ground is well stocked with rootstock. Every one of these will begin to grow in the spring season and continue to do so as late as August, if the soil and moisture conditions are favorable. If now this grass is not allowed to make much growth beyond the blossoming period, in fact, it is better not to allow it to bloom, the formation of rootstock for next year's crop, if they grow at all, will be confined near the surface. The most efficient way of preventing this growth where the soil conditions are favorable, is to run a weed cutter just below the surface of the ground so as to cut off the crown of grass. This is about three or four inches below the surface. This should not be done till the grass is heading out. By going over the ground twice, possibly three times during the season, there will be but few root stocks for the next years' growth, but this cannot be done under all conditions. Other weeds, shrubbery, or rocky soil may prevent the use of a weed cutter. A good instrument for this work in arable land is to remove the plows from a two-gang plow and substitute two V-shaped weed cutters made of steel and constructed to fit the plow, and with a good strong team some very difficult soil can be thus treated. Other methods may be employed according to the soil conditions. The essential thing is to sever the crown of grass above ground from the root stock just below the crown. A large amount of hand work will have to be done. A man with a good strong hoe can clean up a large patch of ground in a day. The root stocks near the surface will send up tufts of grass earlier in the season. Later, root stocks from lower depths will send up tufts of grass and this will continue until August as above mentioned. By allowing the grass to head out, the root stocks in the soil will be exhausted and not send up shoots again, and if they are severed before it blooms, no new growth will be formed for next year. Let no one be discouraged because after once cutting, more grass comes up the first year. Of course there will be all stages of growth of the grass at each cutting, but it is the blossoming bunches that will be destroyed each time. Later in the season, new root stocks are formed even if the grass is not allowed to head out. If land is pastured several years enough short root stocks will be formed to continue the existence of the plant. If road sides could be pastured with sheep or goats one season and then in the fall a shallow plowing will almost entirely destroy the new root stocks which seldom extend more than three or four inches. Of course the grass will appear occasionally the third or

fourth year after such treatment, but it will be under control by careful cultivation.

Disturbing the root stocks by plowing is equivalent to planting. The more the root stocks are broken the greater will be the number of tufts of grass. By cutting a potato into many pieces, more vines will grow.

How Johnson Grass Grows.

A careful distinction should be made between roots and root stocks of our noxious weeds. One species of the morning glory is propagating by roots, and another by root stocks. If one thinks of the root stocks of Johnson grass as a tuber or a potato, he will understand readily the method of destroying this pest by preventing the growth above ground. Every one knows that if potato vines are cut at the surface about the time they bloom, no new potatoes may be expected. The same is true in regard to the new root stocks of the Johnson grass, though the latter is more difficult to destroy.

As an illustration we may suppose a long root stock be formed beneath the ground from one to three feet in mellow soil. During the spring many buds will start from the joints, forming a new root stock reaching up to the surface of the ground. On reaching the surface a vigorous growth of grass is sent up. This continues to grow rapidly until the flower stalk is well begun and ready to bloom. At this point a new white shoot at the crown starts downward, forming a new system of root stock for the next year. These are very numerous, and if the grass is allowed to mature, the ground will be well stocked. The old root in the ground is called the primary root stock. That which comes up from the primary root stock and forms the tuft of grass is called the secondary root stock, and the third which descends into the ground is called the tertiary root stock. The primary always dies every year, but the secondary and tertiary become the primaries for next year.

It is evident, if the tertiary root stock has but a shallow growth, that the secondaries for next year will be nearly eliminated. A root stock two or three feet in the ground furnishes a large amount of secondary rootstock. These also send out other secondaries as they come up, thus a large mass of stock fills the soil for the next year's growth. Thus by preventing the growth above ground, either by frequent cutting with scythe, or pasturing, the rootstocks will be formed near the surface. Then by shallow plowing for winter fallow, or by spring plowing for either summer fallow or a cultivated crop, this pest will be brought under control in one year. If any of the grass is allowed to go to seed, the work has to be done over again.

This method of eradicating this pest has been employed in this county and in every case where labor could be had and faithful work has been done the success has been complete.

There is no reason why California can not get rid of this pest in a short time. It will take faithful work. When the right stage of growth is reached, then no delay in doing the work can be had without loss. The matter of seeds is not difficult to control, as these are easily destroyed as any ordinary weed seed, before the root stock system is formed. The requirement not to allow seed to form is to prevent the dissemination of the plant and to keep back new growth of rootstock.

Mr. J. S. Cates has sent to my office a number of bulletins for distribution. By the rules of distributing these bulletins only one can be secured by an applicant. In order to facilitate the distribution in this state I can send these to any one on application by simply sending postage. Each Horticultural Commissioner should have a copy or more for the use of his county.

You know it is not an easy matter for one to read a bulletin and fully understand its application. One must investigate for himself. I have often been compelled to dig up the grass and show the farmer what the grass is doing and show him how to prevent these new points that are seen on each bunch of grass about the time it is ready to bloom. Once convinced, and the work is done.

If meadow land is once planted to alfalfa, the whole problem is solved if the alfalfa is cut before the Johnson grass heads out, and this is generally so far behind the alfalfa that it is readily done.

VALUE OF THE GARDEN.

The Farm, Stock and Home suggests that possibly some of the cityward movement of the farmers' sons could be traced in a measure to the lack of a home vegetable garden. A continual round of pork, beans, potatoes and bread, or any other unvaried, monotonous fare, seldom broken by green, succulent and delicious dishes from the garden, is not conducive to a very happy farm life. Meals, instead of being made merely a means of satisfying hunger—often to be approached without relish, and to be partaken of because of necessity, which is altogether too often the case on the farm—can be made a source of infinite pleasure. The farmer's wife is, of course, an important factor in making meals such a source of pleasure; but she is by no means the only factor. How many women there are who could say to their husbands: "Let me have more things to cook, and I will prepare you better meals."

Perhaps the family resources do not permit the purchase of everything that is desired; but how often a continuous supply of fresh vegetables would help to vary an otherwise monotonous meal or a mere "fill-up," and add to it those qualities which make it eminently more to be desired! The more limited the family resources are, the greater is the need of such a supply of vegetables.

It is impossible to imagine how any farmer who gives this matter but a moment's thought, and who cares at all for the health of the family and the happiness of the home life, could be without a splendid home vegetable garden. Even if it meant less profit from field operations, the farmer should not go without a vegetable garden, because of the innumerable ways in which it adds to the pleasure of home life. But it need not be done at a decrease of profit.

A GIRL'S ESSAY ON BOYS.

"Boys are men that have not got as big as their papas, and girls are women that will be ladies by and by. When God looked at Adam he said to himself, Well, I think I can do better if I try again, and he made Eve. Boys are a trouble. They wear out everything but soap. If I had my way the world would be girls and the rest dolls. My papa is so nice that I think he must have been a little girl when he was a little boy. Man was made, and on the seventh day he rested. Woman was made, and she has never rested since."

WRITE FOR CATALOGUE AND PRICES

Trees: Book orders now for the following standards.

Peaches: Tuscan, Orange, Phillips, Levi, Foster, Triumph, St. John, Early Crawford, Elberta, Muir, Lovell, Fay-Elberta, and Salway.

Peaches have paid growers more profits in the last 25 years than any other fruit.

Apples: Alexander, Red Astrachan, Gravenstein, White Astrachan, Jonathan, Rome Beauty, Spitzenburg, Bellflower, Newton Pippin, Grimes Golden Pippin, Ortley, McIntosh Red, Winesap, Wagner, Winter Banana, Arkansas Black and many others.

Get in your orders now for Gravenstein, Jonathan, Spitzenburg, Yellow Newton Pippin, White and Red Astrachan, Alexander. They always sell out first.

Cherries: Black Tartarian, Bing, Black Oregon, Black Republican, Royal Ann, Lambert.

Cherries are great money makers. The above varieties always sell out early.

Also all standard varieties of

Plums, Prunes, Apricots, Almonds, Pears, Quinces, Persimmons, Figs, Oranges, Lemons, Etc.

Our trees are selected, thrifty, well-rooted and true to name.

WRITE US AT ONCE.

FAY ELBERTA: The improved Elberta. The best peach of the season. Write for descriptive circular.

The Silva-Bergtholdt Co.

202 Orchard Street, Newcastle, Cal.

TREES TRUE TO NAME. The SILVA-BERGTHOLDT CO. NEWCASTLE, CALIF. PLACER NURSERIES

MAKE YOUR SOIL PRODUCE MORE MONEY

By Using the Right Kind of

FERTILIZER

Buy NOW for your Spring Application

NITRATE OF SODA, TANKAGE, BLOOD, BONE MEAL
BONE FLOUR, NITRATE OF LIME, GYPSUM,
GUANO, SULPHATE POTASH, ETC.

BRAUN CHEMICAL COMPANY

906-910 East Third St. LOS ANGELES,

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Warehouses in every Principal Town in the Citrus Belt.

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Registered Holstein Bulls; 1 to 2 years old. Some sired by Prince Juliana, brother of former world's record heifer, Juliana De Kol. Dam and granddam, A. R. O. cows. Three record-breakers in some of their pedigrees. M. E. Sherman, Minnewawa Vineyard, Fresno, Calif.

Fistula, Poll Evil, Quittor and all running sores cured permanently by a recent discovery of medical science. Write for particulars. Dr. Fred G. Matthews, Veterinary Bacteriologist, 1232 Central Ave., Los Angeles.

Angora Goats—of the famous Philo Ogden strain—at half prices account lack of pasture. C. H. Teeter, Sunland, Cal. Free Los Angeles phone, call Sunland 34.

Wanted—Registered Holstein or Jersey bull old enough for service. State strain and price in first letter. Arden Dairy, El Monte, Cal.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, 448A Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Skilled and Experienced Horticulturist wants to get charge as superintendent or foreman over any good property under acceptable conditions. Please apply to Editor Cultivator.

Wanted—By married man, situation on orchard ranch with house. Address Geo. Osgoodby, San Dimas, Cal.

Help Wanted—We want several good solicitors to solicit for a high class suburban monthly publication. Good profitable employment to the right party. For particulars address Box H, Cultivator Office, Los Angeles.

Wanted—One to two cars first or second-class alfalfa hay. State price and amount to sell. Arden Dairy, El Monte, Cal.

Wanted—Jubilee Incubators, 108 and 504. Send description and price. J. L. Tummond, Anaheim, Cal.

Wanted—One-year-old Loganberry and Mammoth Blackberry plants. State quantity you can supply, also price. Address Fancher Creek Nurseries, Fresno, Cal.

TREES.

Removal Prices—Make an offer. Black Walnut selected trees, one and two years old, 2 to 8 feet high. Also seedling peach trees, good stock, and Maliner Kren Horseradish sets. A. P. Henning, Clements, San Joaquin, Cal.

For Sale—250,000 first-class rooted vines, Zinfandel, Tokays, Muscats, Black Morocco, Black Ferrara, Cornichons, and Emperors in 1,000 lots at $11.00, smaller lots $1.50 per 100. Geo. McArthur, Acampo, Cal.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Ballou's Nursery, 728 East Orange Grove Ave., Pasadena, Cal.

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

Fig Trees For Sale—White Pacific and Black Spanish, 2 years old, in large or small lots. Write for prices and particulars. W. F. Fisher, 1784 North Broadway, Los Angeles.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

PIGEONS.

Carneaux Pigeons—Guaranteed thoroughbred; original stock purchased from Plymouth Rock Squab Co., Boston. Four weeks squabs, weight twelve to twenty ounces. Breed ten times a year. Guaranteed mated and working when sold. Write for particulars. W. C. Barrett, Carneaux Squab Co., San Pedro, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

FARM LANDS FOR SALE.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars call or address Paxton, 612 Lankershim Bldg., Los Angeles.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

RANCHES.
RANCHES.

Want any bargain poultry, stock, grain, alfalfa, orchard, grove, dairy, nursery, vineyard around So. California. Large and small for sale or exchange. Parrish Barker, 207 Union Trust Bldg., Los Angeles.

RANCHES.
RANCHES.

For Sale—Mountain home near Riverside. 160 acres hill land with concrete buildings in excellent repair, and 140 stands of bees in fine condition. Good spring close to house. Ideal location for healthseeker or chicken raiser. H. E. Wilder, R. F. D. 1, Riverside, Cal.

For Sale—815 acres in San Luis Obispo County. A typical dairy ranch. Plenty of wood, water, irrigable land, buildings, fenced and cross fenced. Orchards, vineyards, oranges, lemons and walnuts do exceedingly well here. Forty acres of land suitable for these. Price $21 per acre. For further particulars apply to Mrs. F. A. Clink, Pozo, Cal.

For Sale—The Fresno Meadows Colony is now opened for settlement in lots of 40 acres or more with water at $50 per acre. This is an opening price and is made to induce settlement. Arrangements can be made so that the first payment will carry the deal indefinitely. Call or write at once. Green & Webb, Gen. Sales Agents, 406 Laughlin Bldg., Los Angeles. Phone A8284.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

60 Acres in Santa Clara County. A splendid dairy ranch. Good barns, dwelling and water supply. ¾ of it in excellent stand of alfalfa; close to railroad; one hour's run from San Francisco. Address 281 North Third St., San Jose, Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

Cuba—Most productive soil. Delightful and healthful climate. Ample rainfall. Cheapest transportation facilities to the world's greatest markets. Particulars free. Sanderson, 13 Palace Building, Minneapolis.

For Sale—20-acre fruit ranch, Ontario. 10 peaches, 10 apricots in full bearing. Suitable for oranges. No trade. M. E. York, Owner, R. F. D. 2, Chino, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

TURKEYS.

For Sale—Young Mammoth White Holland Turkey Toms. Fine large birds of the celebrated J. C. Fischel Strain. None better as thoroughbreds, also excellent to cross with the Bronze for the market. Price $8.00 to $10.00 each. Foreman Bros., Box 213, Corning, Cal.

For Sale—Few fine Mammoth Bronze Turkey Toms, standard weight. No eggs or hens at present. Mrs. A. C. Wisegarver, San Fernando, Cal.

White Holland tom turkeys, brothers to winner of first prize at Los Angeles show, Jan. 5, 1911. Eggs and poults later. Also French Houdan and Rhode Island Red eggs and cockerels. Mrs. Hocking, Guasti, Cal.

For Sale—Choice Pure Bred Mammoth Bronze Turkey Toms. Extra large and well marked. Mrs. Frank McVey, Turlock, Cal.

DUCKS.

Fawn and White Indian Runner, and Buff Orpington ducks. Stock and eggs. List free. Caldwell & Co., Los Angeles, Cal., R. D. 3.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Coolers, Bottles, Caps, brushes, Buhl milk cans, Sharples separators, Babcock testers, veterinary instruments, wood soled boots and shoes, and our celebrated "Prosperity" washing powder. Guy F. Kelsey, 108 E. 8th St., Los Angeles, Cal.

Milk Coolers, Bottles, Caps, brushes, Buhl milk cans, Sharples separators, Babcock testers, veterinary instruments, wood soled boots and shoes, and our celebrated "Prosperity" washing powder. Guy F. Kelsey, 108 E. 8th St., Los Angeles, Cal.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

LOVELL'S BLACK MINORCAS
California's
Greatest Egg Producers
Pedigreed, trapnested, scientifically bred. Free circular. DAVID J. LOVELL, 5720 So Park Ave., Los Angeles, Cal.

Day-old Chicks from my pure bred and carefully selected stock of S. C. White Leghorns from January 15 to February 15, $10 per 100; after February 15th, $9 per 100. Spring orders taken now. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Very Fine Strain Barred Plymouth Rock cockerels and eggs for hatching. Also thoroughbred S. C. Black and White Minorcas and R. I. Reds, cockerels and eggs, S. C. White Leghorn. R. B. Sherman, Newcastle, Cal.

Schellville Hatchery—Thoroughbred Leghorns, Black Minorcas, R. I. Reds and Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Barred Rocks a Specialty (Hawkins strain). Perfectly barred, vigorous birds, correctly mated. Best matings $2.50 per 15; incubator lots a matter of correspondence. Enoch Crews, Fairmount Ave., Santa Cruz, Cal.

For Sale—Thoroughbred S. C. Black Minorcas, 13 pullets and hens, one cock, 7 cockerels and two Buff Orpington hens. These are all from special matings. R. Toon, 1337 W. 24th St., Los Angeles, Cal.

S. C. Rhode Island Reds, good stock, fine layers. Eggs $1.50 per 15, $6.00 per 100. Chicks hatched if ordered. L. Haynes, Madera, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
Eggs for hatching after Jan. 15th. C. C. Bonnell, State Vice-President American Black Minorca Club, 2919 Brighton Ave., Los Angeles.

Eggs for Hatching—$1.00 per 15, $5.00 per 100. Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons and Black Minorcas. Day-old chicks to order. Stamped envelope or cash with order. L. W. Neilsen, R. R. 2, Box A1, Petaluma, Cal.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

I Hatch White Rocks Exclusively—Baby chicks $15 per 100. Guaranteed pure bred and from heavy laying strain. Will book orders for stock one to ten weeks old. Circular free. J. Wesley Lord, Inglewood, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, R. I. Reds and Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

We are now booking orders for day-old chicks, White and Buff Orpingtons and R. I. Reds from thoroughbred stock. Very best winter layers. Vallejo Poultry Yards, 208 Frisbie St., Vallejo, Cal.

R. I. Red Eggs for hatching from scientifically tested layers. The Luedkes, Anaheim, R. D. 1.

Blue Andalusians—Get new blood by buying a setting of eggs or a cockerel. Our matings are new this year. Mrs. T. R. Griffith, 3957 Halldale Ave., Los Angeles. Phone West 841.

Eggs for Hatching—White and Buff Wyandottes from best strains. W. C. Parker, 113 Pacific Ave., Santa Cruz, Cal.

S. C. Brown Leghorn Cockerels For Sale—$3.50, $5, $7, $10, and $15 each, Bright strain. Mrs. C. H. Vary, Pomona, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

Sterling White Wyandottes—Stock and eggs for sale. Write S. P. Moore, 958 Spence St., Los Angeles.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Orland Hatchery—Just hatched White Leghorn Chix. Booking orders for later delivery. P. L. Simpson, Box 13, Orland, Cal.

Baby Chicks and Eggs for Hatching—Orders now taken for January and later delivery of R. I. Reds (Tompkins Strain), White Minorcas and S. C. Black Minorcas (Northrup Strain). C. U. Chamberlin, Los Gatos, Cal.

CHICKENS FOR SALE.

Black Langshan Cockerels For Sale—$3.00 and $5.00. Bred from Boyd's famous Missouri strain of heavy layers. W. S. Parr, Armona, Cal.

For Sale—Baby chicks. White Rocks, Barred Rocks and Rhode Island Reds. Are now booking orders. J. W. Lyon, Garden Cal.

MACHINERY.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. P. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—Second-hand windmills, tanks, engine, farm machinery that will do same work as new at half price. 8 ft. steel aermotor, tower, 3000 gal. Redwood tank, 10 ft. stand, galvanized pipe, pump and rods complete, $69 on cars; 12 ft. steel Fairbanks aermotor 5000 gal. tank, fine 16 ft. stand, pipe, pump complete. Tanks, all sizes and kinds. Finest and largest stock of second hand tanks we have ever had. Special sale two 8000-gallon, practically new, with hoops, at $55, cost new $92.40. Redwood tanks 2x8 ft. wide, $10. Carlots and 2000 gal. tanks at cut prices.
Look!
4 H. P. engine and No. 2 centrifugal pump for $98; also many others. Second-hand farm machinery, all kinds. Anything a rancher wants we can supply. Call and see. Demmitt Co., up stairs, 120 N. Main St., Los Angeles.

For Sale—20-H.P. Distillate engine used a month. A new engine at a second-hand price. Bailie & Brandt Co., 943 N. Main St., Los Angeles, Cal.

For Sale—First-class 15-H. P. gas, cheap. Will not refuse reasonable. Machinery Exchange, Main & Bl Los Angeles, Cal.

NURSERY STOCK.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berry dale Experiment Gardens, California Ave., Holland, Mich.

Rivera Nursery, L. L. Bequette, Prop.—Wholesale and retail dealers in Northern and semi-tropical trees, shrubs, roses, greenhouse plants, etc. Have good stock of apples, peaches, etc. Send for descriptive price list. 625 S. Breed St., Los Angeles, Cal.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J. A. Powell, R. D. 1, Box 1, Ripon, Cal.

Improved Superlative Red Raspberry Plants—Largest raspberry in cultivation. 100 plants, $5.00. Send for description. William Richard, 438 River St., Santa Cruz, Cal.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S FOWL WHITE FARM, Moorpark, Cal

THE PERCHERON SOCIETY OF AMERICA

Has just increased its capital stock to $100,000. 10,000 shares of $10 each. 3,000 shareholders, Nov. 28, 1910. 100 breeders have taken memberships since December 1st. Ninety-five per cent of the Percheron breeders of America record with the Percheron Society. Information pertaining Percherons furnished. Address Wayne Dinsmore, Secretary, Union Stock Yards, Chicago, Ill.

BUSINESS METHODS IN FARMING.

Farming is a business, and when conducted on a proper basis is one of the most profitable businesses in which a man can engage.

As a rule, however, the farmer does not run his farm along the strictly business lines of the manufacturer and merchant, and he is the loser because of it.

It is the custom among many of our farmers to gauge their profits by the size of the crops and the price they bring alone, rarely taking into account the individual expense attached to producing the crops. Through this system, or lack of system rather, the farmer often finds himself poorer at the close of the season than at the start, and he wonders why, in spite of good crops and fair prices he doesn't prosper.

There are many farmers working along year after year, depending largely upon the weather and market prices for a successful season, who could increase their yield of crops, reduce working expenses, and add greatly to their profits by adopting improved time and labor-saving Planet Jr. tools in their work.

The well-known Planet Jr. farm and garden tools are the greatest time and labor-saving farm implements ever invented. They frequently do six men's work and enable the farmer to get larger and better crops with half the labor and expense.

These implements are the invention of Samuel L. Allen, himself a practical farmer, and they are adapted to every variety of farm and garden work.

Every farmer who is desirous of improving his farm and garden and adding to his profits should procure the Planet Jr. catalogue which will be sent upon request by addressing S. L. Allen & Co., Philadelphia, Pa., manufacturers of Planet Jr. tools.

General Household Notes

'IKE HIS MOTHER USED TO MAKE.

was born in Indiany," says a stranger lank and slim,
As us fellers in the restaurant was kind o' guyin' him,
And Uncle Jake was slidin' him another punkin pie
extry cup o' coffee, with a twinkle in his eye.
was born in Indiany—more'n forty years ago—
An' I ain't been back in twenty—and I'm workin' back'ards slow;
But I've et in ever' restaurant 'twixt here and Santa Fee,
nd I want to state this coffee tastes gittin' home to me!

as out another, Daddy," says the feller, warmin' up,
speakin' 'crost a saucerful, as Uncle uk his cup.
n I seed yer sign out yander," he went on to Uncle Jake—
ome in and git some coffee like yer mother used to make'—
ght of my old mother and the osey County farm,
a little kid ag'in, a-hangin' on her arm
s she set the pot a-bilin', broke the eggs and poured 'em in,"
And the feller kind o' halted, with a tremble in his chin.

And Uncle Jake he fetched the feller's coffee back, and stood
As solemn, fer a minute, as a undertaker would;
Then he sort o' turned and tiptoed to'rds the kitchen door—and nex'
Here comes his old wife out with him, a-rubbin' of her specs—
And she rushes for the stranger, and she hollers out: "It's him!
Thank God, we've met him comin'! Don't you know your mother, Jim?"
And the feller, as he grabbed her, says: "You bet I hain't forgot—
But," wipin' of his eyes, says he, "yer coffee's mighty hot!"

—James Whitcomb Riley.

SO LONG AS LIFE SHALL LAST.

It is years ago that I saw it, but I can still remember that it was near the top of the left hand column on a certain right hand page of some magazine that my eyes first fell upon the words: "The more I see of people, the fonder I am of dogs." Whether it was quoted, or whether the writer was giving utterance to a saying of his own, I have no idea. It did not mean necessarily that the man who said it originally was no lover of his kind. It does not mean that the man who still quotes it as an expression of his own thought is indifferent to the relations that bind him to his fellows. But he who has known the love and companionship of a dog, and found in that loyal friend something that has never failed him, disappointed him, or deceived him, wishes that he could say as much of many of the men and women he has met. That genial humorist who has just left us, once said: "If you pick up a starving dog and make him prosperous he will not bite you. This is the principal difference between a man and a dog." The saying reminds you of a remark made in one of his speeches by Sir Robert Peel with reference to another who had bitterly opposed him: "I am at a loss, Sir, to conceive what can be the cause of the strong hostility to me which the honorable gentleman exhibits, I have never conferred on him an obligation."

To have one friend who meets all your moods with the same unchanging affection, who makes no sign of complaint no matter whether you meet him with glad or heavy heart, who looks up out of confident eyes that seem to say, "I am here, ready to go with you if you want to go; ready to stay with you if you want to stay; talk to me, or sit in silence, only count upon me always,"—to have one such friend, even though he does not speak your language, or ever call you by name, is to enter into a relationship with far more influence upon your life than a stranger to such an experience might ever guess. Perhaps we must call him a brute, this animal with four legs instead of two, but to know him, to trust and love him, is to grow more human rather than less. It is often to learn from him lessons of patience, of forgiveness, of gratitude. They are not few who after some moment of forgetfulness, or of illtemper of which that unresenting companion has made them ashamed, have taken the patient face in their hands and said: "Dear old friend, Forgive me! I hurt you; I am sorry. If only I could blot out injury and hide away in oblivion ingratitude with your splendid magnanimity! At least I should call it that I found it in a human friend."

There are multitudes of people who have no more capacity for appreciating a dog than others have for feeling the beauty of a noble piece of music or perceiving the glory of a great painting. Both are to be pitied. Each goes through life missing something that has in it, if he only knew it, much which could refine and enrich his soul. Men who know dogs, and have loved them, sharing with them many a sorrow and many a joy, are perfectly honest when they say that there are times when it would cost them far more to lose the companionship of their dog than that of a whole host of some of the people with whom they have often had to associate.

How long the dog has been man's trusted friend we have no means of knowing. Travel back as far as we will through the literature of the race, we find him always manifesting those same traits that win for him today his place in our hearts and in our homes. It is a far-off time of which Homer sings in the Odyssey, but how many of us feel the pathos of the picture he draws for us when, after the many years of great Ulysses' wanderings he returns at last a stranger, in the guise of a vagabond, unrecognized by those who once had known him best. The story runs:

A dog was lying near,
And lifted up his head and pricked his ears.
'Twas Argus, which the much enduring man
Ulysses long before had reared, but left
Untried, when for the hallowed town of Troy
He sailed . . . And he saw
Ulysses drawing near, he wagged his tail
And dropped his ears, but found that he could come
No nearer to his master. Seeing this
Ulysses wiped away a tear unmarked
By the good swineherd.

Neglect and age had done their work upon this loyal friend. He was too old and weak even to crawl to his master's feet, but he had not forgotten, and when Ulysses
Passed through to where the illustrious suitors sat

Organized 1889

Twenty Fifth Annual Statement

January 1st, 1911

State Mutual Building & Loan Association

223 South Spring Street

In all our twenty-one years of business, the year just closed shows the greatest growth.

A close study of the statement below will show plainly the excellent condition of this association.

Assets

Loans and Advances (secured)	$2,908,423.84
Accrued interest on Loans	4,344.90
Furniture and Fixtures	5,500.00
Real Estate	613.45
Cash on Hand and in Bank	87,071.95
Total	$3,005,954.14

Liabilities

Permanent Capital Stock and Surplus	$ 121,348.42
Ordinary Capital Stock, Surplus and Reserve	667,261.19
Investment Certificates	1,669,125.65
Payments on Definite Contract Loans	521,980.67
Matured Coupons and Miscellaneous Accounts	26,238.21
Total	$3,005,954.14

6% **All loans are secured by first lien on approved real estate of an appraised value of over $6,000,000**

Our $100 Certificates

earning 6 per cent. interest, make the ideal investment—absolute security—liberal rate of interest—no worry.

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enables you to place your savings with us regularly each month, where they will earn 6 per cent.

Write or call for full particulars.

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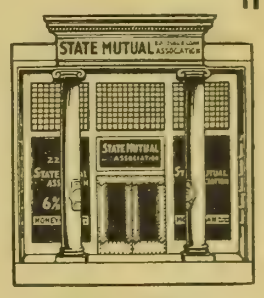
D. M. CUTHBERT, Loan Inspector. — C. J. WADE, Secretary.



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Capital and Reserve $1,850,000.00

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Over 62,000 Open, Active Accounts

4% **Interest on Savings Accounts**
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Which Accounts may be checked against without presentation of Pass Book. Interest is paid monthly on the minimum monthly balances provided it amounts to $300 or over.

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. . . over Argus the black night of death
Came suddenly as soon as he had seen
Ulysses, absent now for twenty years.

Shall we outgrow him, this age-long friend? Shall we become so highly civilized at last as no longer to need his companionship, to prize his affection, to appreciate his devotion, to learn from him some deeper meaning in that word, fidelity? It may be. But generations will come and generations will go, how many of them no man can tell, before the race to which we belong will turn from its doors and shut away from its friendships this unfailing friend who has been willing down all the centuries to follow his human master through want and shame and sin even to the grave.—Sunday Globe.

ASPARAGUS RECIPES.

Asparagus Salad.

Tie the asparagus in bunches, heads all one way, and cook three-quarters of an hour in salted water. Drain, and have quite cold before using. Make a dressing with a teaspoon of mustard, a teaspoon of onion juice, half a teaspoon salt, a little white pepper, six tablespoons olive oil, three tablespoons lemon juice or vinegar. Add a little oil to the dry ingredients and rub smooth, add the rest of the oil, and lastly the lemon juice, and beat until creamy. Pour over the cold asparagus just before serving.

Plain French Dressing.

Plain French dressing with the cold asparagus served on lettuce leaves with slices of hard-boiled eggs gives another most acceptable salad.

Baked Asparagus With Eggs.

Break into inch lengths, and boil until tender in salted water. Turn into a buttered baking dish with a cup of nice cream sauce, break the required number of eggs over the top, dot with butter, dust with salt and white pepper, and bake until the eggs set.

Asparagus With Cheese.

Boil in the usual way, drain, and put into a buttered baking dish in layers with grated cheese between. Cover the top with buttered crumbs, another layer of cheese, and bake ten minutes in a hot oven.

Cream of Asparagus Soup.

From a quart of asparagus break off an inch of the tips. Break the remainder of the stalks into inch lengths, and if the bottoms do not snap easily put them on to boil a half hour before the tender part is added. Use just enough salted water to cover, and when tender rub through a colander or sieve. Add one pint each of veal or chicken stock and milk, or without the stock a quart of milk. Rub a tablespoon flour into butter the size of an egg, and add to the soup with white pepper and salt to season. Stir until it thickens, add the tips which have been cut into bits and cook separately, and pour over dice of toasted bread or serve plain as preferred.

Asparagus With Scrambled Eggs.

Beat six eggs without separating, add six tablespoons milk, salt to season, and beat again. Add an equal quantity of cold boiled asparagus cut into small pieces. Heat two tablespoons butter in a spider, turn in the asparagus and eggs and scramble until thick and creamy.

Asparagus Patties.

Cut a quart of asparagus into small pieces and cook in salted water until tender. Add a white sauce made with two tablespoons butter, one of flour, one-half teaspoon salt, pinch of white pepper and one cup of milk. Cut two slices of bread, remove the crusts and scoop out the centers. Toast a light brown over the coals or in the oven, fill with asparagus and serve hot. Or prepare cases by lining deep gem or patty pans with a rather short crust, cutting lids of crust for the top and baking on a separate pan. When both are baked, fill with the hot asparagus, lay on the lids, and serve immediately.

Asparagus Fritters.

Make a batter with two beaten eggs, a tablespoon butter, one cup of flour, a little baking powder and salt, and enough milk to make a drop batter. Add cold cooked asparagus, cut in small pieces, to the batter, and fry in deep fat.

Creamed Asparagus on Toast.

This is a palatable way of using left-over asparagus for breakfast or supper. Melt two tablespoons butter, add one of flour, stir smooth, add salt, white pepper and celery salt to season, and one pint of milk. Stir until it thickens, and add an equal amount of cooked asparagus cut into bits. Spread over thin slices of freshly toasted bread and serve at once.

HOMELY HINTS.

Orange peel burned in a room will remove any close, foul odor, and is especially refreshing in the sick room. Place the peel in a shallow pan, and burn for several minutes.

Stains in table linen can be removed by plunging into clear, boiling water. Soap will only set the stain.

Light kid-gloves can be cleaned by gently rubbing with a cloth dampened in milk, and afterward dried with a dry, clean cloth.

Tennis flannel makes excellent broom bags. If dipped in kerosene oil and dried they will remove all lint and dirt from the hardwood floors and leave a gloss that can be obtained in no other way.

Machine oil stains should be rubbed with lard and let stand several hours and then washed in soapy water.

To remove a scorch, wet the spot, rub with soap, and bleach in the sun.

When the eyes ache, after reading, writing or sewing, especially in the evening, it is a sure sign that they need rest. Work should be discontinued immediately, and the eyes given a hot bath, taking care not to go into a draft, or cold air, until they have cooled.

Dish cloths should be kept scrupulously clean by washing thoroughly in soap and water, well rinsed and hung in the air, after using.

An ordinary brick is excellent for an iron-stand, and if heated before using, the irons will keep hot much longer than with the common iron stand.

NERVOUS HEADACHES.

"Nervous headaches occur in hysterical or neurasthenic individuals and those suffering from overwork or worry," says Dr. Jean Williams, in the Woman's Home Companion for December. "In this class might also be mentioned headaches due to eye-strain. The error of vision may be so slight that the patient is not conscious of any impairment of her sight, but the constant effort to counteract is sapping her nervous energy. When frequent headaches occur, it is important to have the vision carefully tested by a competent eye specialist. No further search for a cause may be necessary. Disease of the ear, a de-

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$1000 profit per acre; plant now. Berry plants of all sorts. Cut this adv. out and mail today.

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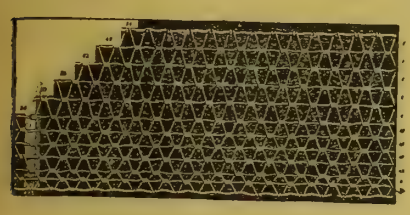

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Pansy Payne's Royal Exhibition. The best strain offered on this coast. Pkt., 25c.; ⅛ oz., $1.00; oz., $6.00.

Stocks Giant Perfection. White, flesh color, sulphur yellow, rose, crimson, light blue, dark blue. Separate, each, per pkt., 15c.; mixed, pkt., 10c.

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Correspondence Invited.
W. A. T. STRATTON, Petaluma, Cal.

viated septum in the nose; adenoids; enlarged tonsils, and other abnormalities of the nose and throat, are often responsible for persistent headaches that resist treatment. In all cases these possilbe conditions must be considered and, one by one, eliminated. Persistent headaches require careful study by a careful, competent physician, and painstaking observance of the advice and directions he gives."

"TIMES IS CHANGED."

"Yes, siree, Bill; times is changed since you an' me was doin' our courtin'," said Adoniram Clover, with a note of sadness in his voice, to old Andy Clover, who had come over to "set a spell."

"When we was doin' our courtin', Andy, a gal thought she was bein' treated right harnsom if a feller bought her ten cents' wuth o' pepmints once in a while, an' if he tuk her to any doin's in town, she didn't expect him to go down into his jeans to the tune of a dollar or two for ice cream an' sody water, an' candy at fo'ty cents a paound. My son Si tuk his ducksy-daddle to the band concert in town yistiday, an' there wa'n't a quarter left of a dollar bill he struck me fer, time he got home. Beats all, the way young folks throw the money away nowadays. I tell ye, times is changed mightily since we was boys, an' the Lawd only knows what the end will be, with a feller layin' out seventy-five cents on a gal in one day!" —St. Louis Republic.

MEASURE OF BEAUTY.

Women are wont to say that they dress for the men. I believe they do; also for themselves; also for other women, says Erman J. Ridgeway, in The Delineator for August. I don't believe one man in a thousand can appreciate an elaborate gown. Most men, I think, like simpler effects. A gaudily overdressed woman makes her escort painfully self-conscious, if he be a gentleman. But all men can and do appreciate the ensemble of a beautiful face and a beautiful figure beautifully gowned. And the simpler the gown, the greater the appreciation. The best dressers realize this. I heard of one recently whose parting injunction to her tailor was: "Spare no expense to make it simple."

Why is it that trained nurses are so attractive? I never saw an unattractive one, and some of them are "a joy forever." Is it health? Their study has taught them how to take care of themselves. Is it their immaculate costumes? Why shouldn't everybody be aseptically clean? Is it their mission which appeals to our sentiment? Why shouldn't everybody have a mission? After all, isn't that our real measure of beauty?

PINEAPPLE CONFECTIONS.

Pineapple Bonbons.

Drain the contents of a can of sliced pineapple, reserving the juice for sherbet or pudding sauce. Cut the rounds of pineapple into pieces of even size, about one-half an inch at the outer edge. Place on a plate so that they do not touch, and dry in the gentle heat of an open oven. Boil sugar to the "soft ball" stage, and beat to a fondant. Shape the fondant over the pieces of pineapple, decorating the white bonbons with bits of candied cherries, violets or angelica.

Pineapple Glace.

Prepare the pineapple as for the other confections, taking care that the surface of the pieces is quite dry, as this is essential to success. Boil sugar without stirring until it spins a brittle thread, and pour carefully into a cup or bowl which stands in a pan of very hot water. Dip the pieces of pineapple very carefully into the hot candy, and cool on lightly buttered plates. Like all other glaces, this can be made only in crisp, sharp weather, as very moderate heat or moisture will make the surface sticky.

FUN FOR EVENING GUESTS.

Each one in the company must be supplied with paper and pencil and then you ask all together to suggest ten letters of the alphabet, which are then to be written down at the head of each one's sheet of paper in the order in which they were suggested.

Now, the players must exercise their wits to make up a telegram of ten words beginning with the letters in the order given.

After ten minutes or so call "Time's up," and gather up the papers. Display a prize for the one to be adjudged as best and then read the telegrams aloud. Let the company decide which is best.

Here are examples:

Suppose the letters were A, L, W, K, B. E. T. O. G. H.

One telegram: Ailce Lane Will Know By Evening That Oscar Gambles Horribly.

Another telegram: Another Lad Will Kiss Before Edith Thinks Of Going Home.

Lots of fun in this game. Try it.

TWO BATCHES OF BISCUITS.

At the breakfast the biscuits were rather harder than they should have been, and Jones growled out:

"I wish I were an ostrich maybe I could eat these biscuits and live afterward."

"I wish you were," said Mrs. Jones. "Maybe then I'd get a few feathers for my hat."

This reminds us of another story. A young husband came home and found his bride of a few weeks in tears. "What's the matter, my dear?" he asked. "Oh," she said, "the dog has eaten the biscuit!" "Why, never mind, my dear," he replied soothingly, "I'll get you another dog."

ORANGE MARMALADE.

Slice very thin twelve oranges and three or four lemons, using the entire fruit, but removing all seeds. To every pound of fruit add one quart of water. Set away for twenty-four hours. Boil the fruit in the same water till tender, then to each pound of the boiled fruit add one and one-half pounds of sugar. Boil till transparent, about forty minutes. It will be thin at first, but will jelly nicely when thoroughly cold.

A GOOD SHAMPOO.

There is no better shampoo than that made by beating a raw egg into a sponful of castile soap jelly. The latter is made by dissolving soap (to any quantity) in boiling water, letting the mixture stand where it will keep hot, but not cook, until the soap is dissolved. When cold it will be thick. This keeps indefinitely, until the egg is put in. A tablespoonful of water may be added to each egg and spoonful of soap, and the mixture is massaged over the scalp and hair before washing in clear water.

SAUCE FOR THE HEN.

Mother—Alice, it is bed time. All the little chickens have gone to bed.

Alice—Yes, Mamma, and so has the hen.—Harper's Bazaar.

Save for the Home at the Home Savings

Your Money Grows Here

You draw out more than you put in when you become a savings depositor at this Home Bank. Your profit is definite, sure, constant. Every year is a prosperous one. Begin now. Keep your surplus funds at work.

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THE CLIPPER
Will cut tall grass and weeds and do all the trimming along the walks and drives.
Your dealer should have them—if he has not drop us a line and we will send circulars and prices.
Clipper Lawn Mower Co
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Syracuse Easy Vacuum Washers and Hand and Power Vacuum Cleaners. Patented Clothes Line
Sold for cash or easy payments. 30 days Free Trial. Freight paid. 6000 sold in California.
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10,000 SEEDS 10c.

We want you to try our Prize Seeds this year and have selected 50 best varieties and put up 10,000 seeds especially to grow Prize Vegetables and Flowers. They will produce more than $25. worth of Vegetables and 10 bushels of Flowers.

800	Seeds	Cabbage	3	Best Varieties	3 pkts.
2,600	"	Lettuce	4	" "	4 "
800	"	Onion	2	" "	2 "
1,000	"	Radish	4	" "	4 "
300	"	Tomato	3	" "	3 "
2,000	"	Turnip	4	" "	4 "
2,500	"	Flowers	30	Grand Flowering Varieties	

In all 10,000 Seeds, and our new Seed Book with a 10c Credit Check good for 10c selection, postpaid, 10c.
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710 N. Main St., Los Angeles, Cal.
All Kinds of Oil Storage Tanks.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Jan. 11, 1911.

Butter.

Butter continues steady and at exactly last week's quotations.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	35
Firsts	32½
Cooking	25

Cheese.

Local	18
Northern, fresh	18@18½
Oregon Daisy	18@18½
Imported Swiss	32
Domestic Swiss	21@24

Eggs and Poultry.

Light receipts, combined with heavy demand, have caused the strongest of market conditions and an advance of 4 cents during the week.

Paying price f. o. b. Los Angeles is:

Local ranch candled	40
Case count buying price	36
Northern and Imperial	34@38
Eastern fresh	32
Eastern storage	30
Seconds	28

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	15@17
Roosters	9
Spring	17@21
Turkeys	20@22
Ducks	17
Geese	12
Squabs, per doz	1.75

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

175 to 200 lbs	8¼
steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	1.85@2.10
Salinas	2.25@2.35
Lompoc	2.25@2.35
Oregon	2.00
Oregon, Early Rose	2.00
Nevada	2.00
Idaho, Rurals	1.85@2.00
White Rose, local	1.85@2.00
Early Rose Northern	2.00
New potatoes	4.00@5.00
Sweets, yellow, per ctl	3.00@3.50

Onions.

Wholesale quotations:

Oregons	2.00
Australian browns	2.00
Nevadas	2.25
Garlic	7@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Beets, sack	90
Beans, Lima	10@12
Beans, green	10@12
Beans, wax	10@12
Brussels sprouts	8@10
Bell peppers, lb	8@10
Green chilis	3@4
Cucumbers, box	1.00@2.25
Cabbage, sack	75@85
Celery, crate	2.25@2.75
Cauliflower, crate	1.50@1.75
Carrots, per sack	90
Egg plant, lb	8@10
Horseradish	12½
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@90
Oyster plant, doz	40
Okra, lb	10
Peas, lb	8@10
Parsley, doz bunches	20@30
Parsnips, doz. bunches	40
Pumpkins, lb	1@2
Radishes, doz. bunches	20@25
Rhubarb, Crim. Winter, box	1.00@1.25
Spearmint, doz. bunches	30@35
Spinach, doz	20@25
Hubbard squash, lb	1½
Tomatoes, crate	85@1.00
Turnips, sack	90
Watercress	20@25

Citrus Fruits.

Navels	1.75@2.25
Grapefruit	1.75@2.75
Lemons	1.50@2.50
Tangerines	1.75@2.00

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	4.00@5.00
Apples, Belleflower	1.00@1.25
Spitzenbergs	1.75@2.50
Jonathans	2.00@2.50
Greenings	1.10@1.25
Pearmains	1.10@1.50
Pippins	1.20@1.35
Pineapples	6@7
Casabas, doz	2.00@2.25
Grapes, lug box	2.00
Mangoes, lb	10@15
Persimmons, lb	7
Pomegranates, lug	1.00
Guavas, basket	5@6
Pears, lb	5
Bartletts, lb	8@10
Winter Nelis	2.50
Strawberries	10@15
Blackberries	8@10
Raspberries	12@15
Christmas melons	2.50

Dried Fruits.

Wholesale prices are:

Apricots	13
Evap. Apples, fancy, lb	11½@12½
Figs, box	1.75
Peaches	7@8½
Nectarines	10
Pears	11@12½
Prunes	7@12
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	5.50
Black eyes	5.50
Pinks	6.00
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Lentils	7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	15@16
No. 1 hard shell walnuts	14
No. 2, all kinds	11
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb., new	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	13.00@14.00
Wheat hay	14.00@15.00
Tame oat	14.00@16.00
Alfalfa	13.00@14.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, ctl	1.80@1.85
Corn	1.60
Popcorn	3.50@4.00
Egyptian corn	1.75
White oats	1.80
Rye seed	2.00
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.15
Cracked corn	1.65
Cracked wheat	1.95
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed Meal	1.70
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Jan. 10, 1911.

Butter.

Butter has taken a tumble, and on Monday, when a 3-cent decline was made, storage was withdrawn, and a recovery is predicted.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	28
California firsts	27

Cheese.

California flats, new	13@16
Cal. Young America, fy., new	16@16½
Oregon, fancy	15½

Eggs and Poultry.

The egg market is steady at this writing, but a heavy decline is noted during the week. On Thursday and Friday the decline carried to present quotations. The higher market in Southern California will cause diversion of much stock that way. Storage is withdrawn.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	31½
Firsts	30
Hens, doz	4.00@10.00
Fryers, doz	4.50@5.50
Ducks	6.00@10.00
Broilers	3.00@4.50
Roosters, doz	4.00@7.50
Turkeys	22@25
Geese	2.00@3.00
Pigeons	1.50@2.00
Squabs	3.00@3.50

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@5¾
Cows and heifers	3½@5
Calves, lb	4½@6¼
Hogs	5½@8¼
Milk lambs, unshorn	5½@6
Wethers, No. 1	4½@5
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.45@1.65
Salinas Burbanks, cwt	1.85@2.00
Oregon Burbanks, cwt	1.60@1.75
Lompocs	1.85@2.00
Sweets, ctl	3.00@3.25

Onions.

Onions, California, sack	1.50@1.60
Onions, Oregons	1.75@1.85

Vegetables.

Wholesale quotations:

Artichokes	25@40
Beans, string, lb	12½@17½
Beans, Lima	8@10
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	75@85
Celery, crate	75@1.75
Bell peppers	8@10
Chili peppers, lb	3@4
Egg plant, lb	8@10
Mushrooms	50@1.50
Okra, box	40@60
Peas, lb	8@10
Summer squash, box	1.50@1.75
Rhubarb, box	1.00
Tomatoes	1.00@1.15
Turnips	65
Garlic, lb	2½@3

Citrus Fruits.

Navels, new	1.50@2.25
Grapefruit	1.50@3.00
Lemons	1.50@2.75
Limes	3.00@4.00
Seedlings	1.50@2.00
Tangerines	50@1.50

Fresh Fruits.

Apples, box	75@1.00
Apples, Belleflowers	75@1.00
Newtowns	90@1.25
Spitzenberg	1.75@2.25
Bananas, Hawaiian	75@1.25
Pears, Bartletts	1.50@2.00
Winter varieties	1.00@1.25
Persimmons, box	50@75
Pineapples, Hawaiian	2.00@3.50
Pomegranates	50@1.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.: Apples, 9¾@11c; apricots, 10¾@13c; do, Moorparks, 14c; peaches, 5¾@7¼c; with a premium of ⅛@¼c on Muirs; prunes, bulk basis, Santa Claras, 6½@7c, with ¼c premium on 60s to 90s; outsides, 6@6¼c; figs, 6¼@7c for white, and 5@5½c for black; pears, 9¾@13c.

RAISINS—1910 crop; London layers, in 20-lb. boxes—6-crown clusters, $2.50; do, 5-crown, $1.75@2; 4-crown, $1.30@1.40; 3-crown layers, $1@1.10; do, 2-crown, 95½c@$1. Seeded, per pkg.—Fancy, No. 16, 5½c; choice, No. 16, 5@5¼c. Loose Muscatels, in 50-do, 3-crown, 4@4¼c; do, 2-crown, 3½@3¾c. Dried grapes, 3c. Seedless—Muscatels, 3¾c; Sultanas, 4¾c; Thompson's, 5@5¼c.

Nuts.

Walnuts, No. 1 soft shell	15
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13
Almonds, '10 Nonp	15
Almonds, '10 I X L	14
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	5.25
Pink	5.50
Black eyes	5.50@5.65
Small white	3.40
Large white	3.40@3.45
Kidneys	5.75
Garvanzas	2.90@3.25
Bayo	5.15
Horse beans	2.50@2.75
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	18@25
Hops, 1909	12@15
Hops, Oregon	12@15

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Scott, Magner & Miller say:

Arrivals of hay for the week have been 2,400 tons. The receipts for the last two weeks have, therefore, been somewhat lighter than usual.

There is somewhat of uneasiness felt in certain sections where no rain has fallen, and many of the holders of hay in those sections are adverse to disposing of their interests until some change is marked in the situation.

There is some inquiry in the interior sections for alfalfa hay for dairy purposes, and some movement has taken place in this article on that account. There is also some alfalfa being moved this week for shipment to the north, but not to any great extent. However, under these conditions alfalfa is firm and shows an undercurrent of strength.

A strong advance in prices is noted.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	13.50@14.00
No. 1 wheat or wh and oat	11.50@13.00
No. 2 wheat or wh and oat	10.00@11.00
Choice tame oat	12.00@12.50
Other tame oat	9.00@11.00
Wild oat	8.00@10.50
Stock hay	6.00@7.00
Alfalfa, ton	9.00@12.00
Straw	40@50

Grain.

Wheat, No. 1	1.42½@1.50
Barley, fancy	1.12½@1.15
Barley, good to choice	1.07½@1.10
Barley, poor to fair	1.00@1.05
Oats, white	1.45@1.55
Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Bran, ton	29.00@30.00
Feed cornmeal, ton	34.00@35.00
Cracked corn	34.00@35.00
Ground barley, ton	23.00@24.00
Rolled oats, ton	29.00@31.00
Middlings	34.00@36.50
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	24.50@25.50
Mixed feed, ton	25.00@27.00
Shorts	29.00@31.00

Almonds

Under date of January 5, J. P. Dargitz, of the California Almond Growers' Exchange, sends the following information to members:

"We have had offers for sixteen cars since Christmas day, all of these too low by one-quarter to one-half cent per pound. We rejected all of them, and already five of these cars have been placed at our prices, the buyers coming to our terms.

"This cuts our available supply to not over thirty cars, and every indication is favorable for rapid movement in the near future.

"The continued dry weather will have its effect in stimulating buying very shortly. It looks now as though the first of March would see very few almonds left on our hands.

"We desire to congratulate every member upon the present market conditions and the interest shown, same being more encouraging than at any time since we took hold of the business. Also wishing every one of you the most prosperous kind of a New Year."

Citrus Fruit Market

LOS ANGELES, Jan. 11. 1911.

The cold weather and promised colder weather of the East has had a somewhat depressing effect, and some sales at low prices are reported. Auctions contain some sales reports showing as low as $1.50. This is, however, of fruit which is of low grade or showing decay. The decay is not that which is so serious later in the season, but a development from the black spot in the navel end. This trouble is difficult to detect this year, because the lack of rain has not caused it to drop from the trees as usual, so that some goes into the boxes without the knowledge of the packer. Fancy stock of regular sizes is commanding $2.50 and as high as $2.75 in most of the markets. This would indicate approximately $1.00 to the grower. Shipments are now running from 120 to 160 cars a day.

The lemon market is, if anything, stronger, and the demand is such that every offering is picked up at once and at prices slightly in advance of those of the last few weeks. The stock going forward is all of the very best quality.

Shipments.

Shipments of oranges from November 1, 1910: 4250 cars, of lemons 758 cars, or a total of citrus fruits of 5008 cars. To same date last season: Oranges 1759 cars, lemons 686 cars, total 2445.

NEW YORK, Monday, Jan. 9.—Nineteen cars of Navels and one car of lemons were sold. The market was higher on oranges and lemons. Partly cloudy.

NAVELS—	Avge.
Pioneer Special, Pioneer F Co	2.80
Hetch Hetchy, Pioneer F Co	2.40
Pride of the West, Pioneer F Co	1.95
Brownie	2.10
Golden State, C C C Ex	3.30
Watchumna, C C C Ex	3.00
Lemoncove, C C Ex, Lemon	2.40
Gold Buckle, R H Ex	2.80
Belt, R H Ex	2.20
Glendora Heights, A C G Ex	2.55
Iris, D M Ex	2.75
Royal Knight, R H Ex	2.55
Pine Cone, S B, High, Imp	2.80
Blue C, Covina Ex	2.30
Honest Pack, xc, Tustin P Co	1.85
Lucky, Sd, Tustin P Co	1.60
Emblem	2.05
Dos Palmos, San Marino G P A	2.20
Highlander, xf, M O Dis	2.55
Cactus, xc, M O Dis	2.15
Camellia, xf, Red M O Co	2.30
Highlander, xf, M O Dis	2.15
Mallard, fy, Randolph F Co	2.00
Niagara, fy, Stewart F Co	1.85
Independent, Growers' F Co	2.25
Constitution, Cleghorn Bros	1.95
Euclid, Or., Growers' F Co	3.35
Uplander, Or., Growers' F Co	2.65
Venus, xc, E Peycke Co	2.15
Cove, Sd, E Peycke Co	1.85
LEMONS—	
Pet, S A Ex	2.75
Mallard	2.50

CHICAGO, Monday, Jan. 9.—Lemons are selling slowly, and the offerings are liberal. Boxes, California fancy, 300s, $3.00; 360s, $3.00; off sizes, $2.25@2.50; extra choice and choice, 25c per box discount. Standards, 75c@$1.00 a box discount.

Oranges—Fancy Navels are moving fairly. The quality does not run even, and for the ordinary or common stock there is a slow market. Boxes, Navels, fancy 96s, $2.25@2.50; 126s, $2.50@2.75; smaller sizes, $2.75@3.00; choice and extra choice, 25c per box less.

PHILADELPHIA, Monday, Jan. 9.—Four cars Navels, one car lemons and twenty-nine cars Florida oranges sold. Florida oranges, $1.00@2.95; average, $1.50. Grapefruit, 85c@$3.25; average, $1.75. Tangerines, 85c@$2.25; average, $1.45. Market is lower. Sales will now be held tri-weekly only.

NAVELS—	Avge.
Fairoaks, Fairoaks F Co	1.90
Stag, A C G, Glendale	2.40
Highgrove, Sugar Loaf O G A	1.85
Argonaut, S T, Fullerton	1.70
Sugar Loaf, Sugar Loaf O G A	2.05
LEMONS—	Avge.
Quail, O K Ex	3.20
Blue Jay, O K Ex	2.80
Coyote, O K Ex	2.90
Tangerines, halves, Stag	1.35

CLEVELAND, Monday, Jan. 9.—Six cars Navels and one car lemons sold. Market is firm on good fruit, weak on small sizes Navels, firm on good stock lemons. Three cars Floridas sold, $1.05@2.00; average, $1.55. Market continues lower.

NAVELS—	Avge.
Planet, S S, Orange	1.50
Belt, R H, E Highlands	1.70
Camellia, xf, Red M O Co	2.30
Climax, Sd, E Peycke Co	1.35
Gold Buckle, R H, E Highlands	2.55
Glendora Heights, A C G, Concha	2.25
Luna, ch, E Peycke Co	1.50
LEMONS—	
Royal Knight, R H Ex	2.35

BOSTON, Monday, Jan. 9.—Nineteen cars sold. Favorable. Market easier.

NAVELS—	Avge.
Planet, S S, Orange	2.05
Arrowhead, S B, Highlands	2.35
Athlete, S A Ex	2.30
Watchumna, C C Ex, Lemoncove	2.45
Gold Buckle, R H, E Highlands	2.75
Royal Knight, R H, Highlands	2.85
E High A, E Highlands C A	2.50
Bouquet, xf, Randolph F Co	2.45
Clover, xc, Red O G A	2.35
Golden Flower, xf, Red G O A	2.05
Honest Pack, xc, Tustin P Co	1.80
Climax, Sd, E Peycke Co	1.40
Pinecone, S B, Highland	2.25
Carrier, S B, Highland	2.00
Squirrel, A H, Prenda	3.25
Lemoncove, C C Ex	2.00
Gold Buckle, R H, E Highland	2.75
Camellia, xf, Red M O Co	2.60
Rose, xf, Red O G A	2.50
A One Ex, ch, E Peycke Co	2.35
Venus, xc, E Peycke Co	2.35
Diamond Mtn, fy, Randolph F Co	1.05
Luna, ch, E Peycke Co	1.55

CINCINNATI, Monday, Jan. 9.—Cold. Market advancing on oranges, steady on lemons. One car Navels, two cars lemons, six cars Floridas sold. Florida Brights, $1.45@1.90. Russets, $1.35@1.70.

LEMONS—	Avge.
Pet, S A Ex	3.00
Duck, S A Ex	1.50
Del Oro, ch, Sparr F Co	2.15
Arab, S A Ex	2.50
Crackshot, Or, Sparr F Co	2.30
La Luna, Sparr F Co	1.10
NAVELS—	
Planet, S S, Orange	2.00

PITTSBURG, Monday, Jan. 9.—Six cars sold. Market steady on oranges and lemons. Cold, snowing.

NAVELS—	Avge.
Hawk, S A Ex	2.45
Royal Knight, R H, Redlands	2.25
Newsboy, R H, Redlands	1.85
Jasmine, D M, Duarte	2.05
Holiday, Placentia M O Co	1.60
Planet, S S, Orange	1.70
Ben Hur, R H, Redlands	1.90
Iris, D M, Duarte	2.45
Clover Leaf, Interstate F D	2.00

ST. LOUIS, Monday, Jan. 9.—Cold. Prices low on account of quality of Navels. Very strong on lemons.

NAVELS—	Avge.
Searchlight, S S, Orange	1.65
Rooster Buckeye, S S, Orange	1.75
Navajo, A H, Casa Blanca	1.75
Navajo, Imp, A H, Casa Blanca	2.05
Planet, S S, Orange	2.00
Pico, S T, Whittier	1.95
Ideal, A H, Caca Blanca	1.65
Ideal, Imp, A H, Casa Blanca	1.80
LEMONS—	Avge.
Stock Label, A C G, Azusa	2.55
Red Shield, A C G, Azusa	2.90
Alcazar, A C G, Azusa	2.65
Green Crown, A C G, Azusa	2.80

NEW YORK, Friday, Jan. 6.—Seven cars oranges, three cars lemons sold. Oranges stronger, lemons unchanged. Fair.

NAVELS—	Avge.
Highlander, xf, High F G A	2.40
Golden Trout, fy, Randolph F Co	1.85
Carmen, xf, Randolph F Co	1.65
Wildflower, ch, Randolph F Co	1.50
First American, fy, Or Rand S Co	2.20
Lighthouse, Sd, Or	1.95
Golden State	3.35
Watchumna, T C C Ex	3.05
La Mesa, Riv Ex, Riverside	2.60
Golden, Riv Ex	2.00
Pointer, A C G Ex	1.70
Foothill	1.70
VALENCIAS—	
La Mesa, Riv Ex	3.20
Golden Rule, Riv Ex	2.70

Half boxes Valencias, La Mesa, $1.55. Half boxes Navels, La Mesa, $1.40.

LEMONS—Pet, $2.65. Arab, $2.30. Duck, $2.15. Greenleaf, $2.60.

CINCINNATI, Friday, Jan. 6.—Cold. Market advancing on lemons, weak on oranges. One car lemons, two cars Navels and five cars Floridas sold.

Florida Brights, $1.30@1.75. Russets, $1.25@1.75.

NAVELS—	Avge.
Gold of Ophir, Butte Co, Palermo	1.65
Lucky, Sd, Tustin P Co	1.25
Honest Pack, ch, Tustin P Co	1.50

LEMONS—Greyhound, S A Ex, $2.35; Duck, $1.65.

CLEVELAND, Friday, Jan. 6.—Five cars Navels, one car lemons sold. Higher on good quality Navels, declining on small sizes, lower low grades Navels. Snowing.

NAVELS—	Avge.
Planet, S , Orange	1.85
Yankee Doodle, A F, Allesandro	1.60
Defender, xc, Altland F Co	1.70
Golden Pheasant, xc, Ind F Co	2.15
Eagle, A F, Allesandro	2.05
Moga, A F, Allesandro	1.20
Del Monte	1.40

LEMONS—Touchdown, Ind F Co, $1.65; Freedom, xc, Ind F Co, $1.60.

ST. LOUIS, Friday, Jan. 6.—Cold. Market weak on account of weather, but is advancing. Four cars Navels sold.

NAVELS—	Avge.
Argonaut, S T, Fullerton	1.95
Lochinvar, R H, E Highlands	2.40
Gold Buckle, Imp, R H, E High	2.60
Belt, Imp, R H, E Highlands	2.20
Searchlight, S S, Orange	1.95
Belt, R H, E Highlands	2.25
Lochinvar, R H, E Highland, Imp	2.45

SEEDLINGS—Gold of Ophir, $1.60.

PHILADELPHIA, Friday, Jan. 6.—One car Navels sold, also eighteen cars Floridas. Florida oranges, 75c@$2.15; average, $1.65. Grapefruit, $1.00@1.85; average, $1.60. Tangerines, 85c@$1.95; average, $1.45. Market strong on small sizes.

NAVELS—	Avge.
Stag, A C G, Glendora	2.40
Pointer, A C G, Glendora	2.15

Oongshiu, halves, Stag, 80c.

PITTSBURG, Friday, Jan. 6.—Two cars sold. Market doing better on Navels. Cold.

NAVELS—	Avg.
Tally Ho, S B, Rialto	2.00
Watchumna, C C Ex, Lemoncove	1.85
Justasgood, C C Ex	1.60
Big R, S B, Rialto	1.80
Lemoncove, C C Ex	1.55

BOSTON, Friday, Jan. 6.—Five cars sold. Clear, cold. Market strong.

NAVELS—	Avge.
Iris, D M, Monrovia	2.30
Gold Buckle, T H, E Highlands	2.95
Cosmos, S B, Yerkes S	2.75
Golden Trout, Randolph F Co	1.95
Violet, D M, Monrovia	2.15
Crocus, S B, Yerkes S	3.10
Biplane	2.60
Carmen, xf, Randolph F Co	1.95

CHICAGO, Friday, Jan. 6.—LEMONS—There was only a quiet trade. Supply is ample. Boxes, California fancy, 300s, $3.00; 360s, $3.00; off sizes, $2.25@2.50; extra choice and choice, 25c per box discount; standards, 75c@$1.00 a box discount.

ORANGES—Present trade is quiet. It is too cold for much to be doing. Receipts are only moderate from California. Boxes, Navels, California fancy, 96s, $2.25@2.50; 126s, $2.50@2.75; smaller sizes, $2.75@3.00; choice and extra choice, 25c per box less.

Heavy Fence
For Economy

WOVEN-WIRE FENCES must be heavy as they have to turn animals by sheer strength of the wire. A fence with barbs is protected from excessive pressure because the animal fears the barbs. Remove the barbs and the greatest strength of the animal is thrown upon the fence. Its wires must be larger and stronger. To have a long-life woven-wire fence the fence must be heavy.

AMERICAN FENCE

is a thoroughly galvanized square mesh fence of weight, strength and durability. Large wires are used and the whole fabric is woven together with the American hinged joint (patented)—the most substantial and flexible union possible. Both wires are positively locked and firmly held against side slip and yet are free to act like a hinge in yielding to pressure, returning quickly to place without bending or injuring the metal.

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FRANK BAACKES, Vice President and General Sales Agent

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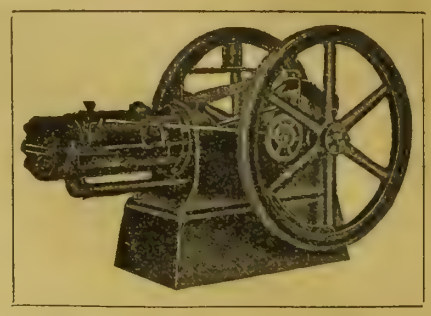

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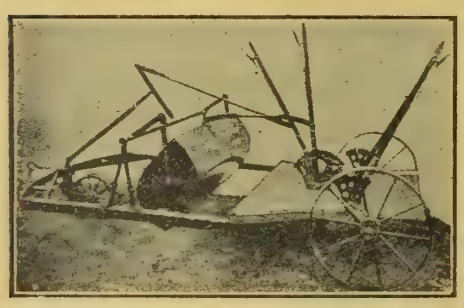

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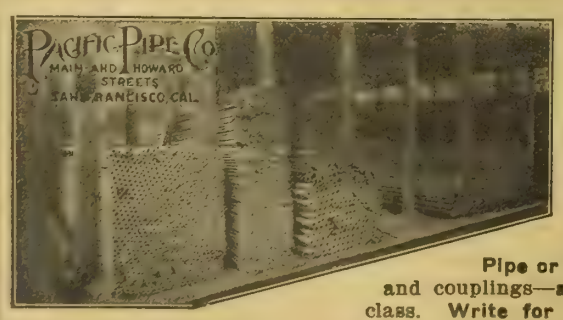

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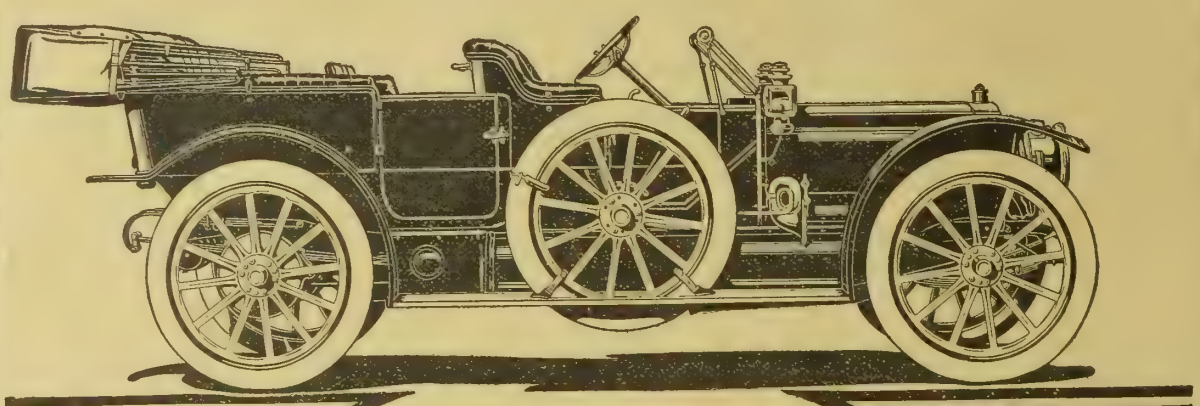

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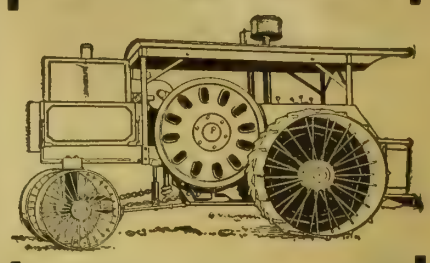

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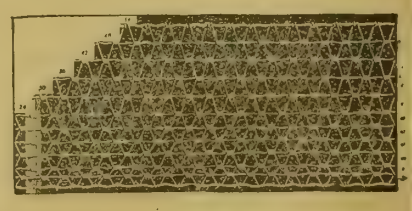

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Vol. XXXVI. No. 3. LOS ANGELES: THURSDAY, JANUARY 19, 1911 One Dollar the Year

The County Fairs as Educators in Agriculture

An Address by J. M. Eddy, Secretary of the San Joaquin county Chamber of Commerce at the State Fruit Growers Convention Dec. 8, 1910.

The State of California, through the generous suffrages of its people, has invested $5,000,000 to encourage and promote the Panama-Pacific Exposition in San Francisco, and it is the conviction of a great majority of the people of the state that such exposition will be the most successful world's fair ever held on this continent, and that the state should reap extensive and permanent benefits from this great enterprise.

But if California is to reap the greatest possible benefits from this exposition, it must be compared, to make a favorable comparison of its vast resources, its varied products, its industries and its progress, with the best that the twentieth century can show from other states and countries of the world. When the world is invited to San Francisco in 1915, it will not only expect to see a city completely rebuilt from the ashes of 1906, but it will expect to witness a reproduction by substantial exhibits of all that California boasts.

If we hope to charm the visitors and induce investment and residence in this state, then we should leave no stone unturned to have a complete and harmonious exhibit of all that the state produces—samples of all its dormant resources as well as of all its active commercial products. To accomplish this, there must be a state-wide spirit developed and a state-wide experience and habit cultivated. Much education is needed to bring the whole state into line and prepare its people and its products for the great affair of 1915.

Fairs are schools of industry and production. They denote by their comparisons what high results can be obtained by science and art when applied to the elements which nature affords. If California, in the exposition year, fails to excel all competitors in the diversity and quality of its products, then it will be a confession that either nature has not endowed this land so richly as we have boasted, or that her inhabitants are not competent to get the highest results from such marvelous resources and varied opportunities.

A world's exposition is a great university of finished products where the rest of the world is entered to outshine the local community or state which is giving the fair. The home state has every advantage of location and convenience, and consequently must make good or suffer by the comparison. But how can California make good in the university of 1915 if it has no elementary schools to feed that university?

What the common schools are to the state university, so are the county or community fairs to the state fair and the great exposition. Yet in only one county in California have there been annual county fairs for the past dozen years. Since state appropriations for district fairs were discontinued, one district after another has dropped out of the running, and today the state is entering upon the promotion of the greatest exposition in the history of the world without any local equipment or local organization of resources on which to base such a great enterprise.

In the judgment of the California County and District Fair Association, recently organized, it is as much the duty of the state to encourage, by appropriations, local fairs to feed the state fair and Panama-Pacific Exposition as it is to provide funds for the larger enterprises. On this belief is based the demand for state aid to county or district fairs.

The aid formerly extended to district fairs was during a period distinguished for cereal production. Except in a few counties, the transition from pasture and grain fields to intensified culture had scarcely begun. It is scarcely to be wondered at, therefore, with the decline in the yield and quality of grain, with the low prices prevailing during the depression, that many of the so-called fairs degenerated into racing meets, and that they were repudiated by public sentiment.

Great development has occurred in the past dozen years, and important agricultural communities have sprung up and become world-famous which were almost unknown in 1896. An inspection of the census returns from Stanislaus, Kings, Tulare, Riverside, San Bernardino and Orange counties is a significant reminder of this. New conditions have developed, and a new spirit has arisen. All over the land the farmer is demanding a new deal and a square deal. He claims that he can "come back," not as the "hayseed" of yore, but as the skilled and scientific producer of the choicest agricultural products.

The county is the unit of our political, financial, educational and social life in California. County lines are arbitrary political lines, yet, because of the government established by our state constitution, each county forms a distinct community by itself. The people mingle in the jury boxes, in the campaigns, before the tax-gatherers, and at the trading centers. The people of a county become familiar in various ways with various localities of the county, its products and its chief producers. In most, if not all, of the agricultural counties the small farmer, without much expense or great inconvenience, places samples of the best he produces in the local market place, or in a fair at the county seat, and can afford to take his family to such places of exhibit to see their own products in competition with those of his neighbors.

Such comparison arouses the spirit of progress, of betterment, and develops the habit of exhibiting the best he can produce, and producing the best that attention and industry will effect. It is distinctly educational—not only towards more perfect and uniform products for the state fair and larger exposition, but towards better commercial results, towards higher standards, choicer products for the market.

Agricultural education is in the air. It promises to become a part of the curriculum of the elementary and intermediate schools. But fairs are themselves object lessons for educational purposes, and I trust that California will not repeat the mistake it made a number of years ago when it tried to establish a great university and failed to provide for the intermediate schools to feed that university. The county fair is as essential to the success of a great exposition as the common schools are to the success of the university.

For the development of the state uniformly, and to encourage industrial effort and intensification under the most diverse conditions, the county fairs, indeed, hold first place in importance, and there is a widespread demand among the farming population that the state extend reasonable aid by appropriations to encourage the holding of such fairs. It is not presumed to be made arbitrary that every county should hold a fair, but there should be encouragement for every county possessing sufficient population and wealth to maintain a fair.

The state aid should not be so liberal as to preclude the necessity for local effort and revenue, but ample to cover the margin between success and failure—enough to minimize the element of risk until the local communities have organized the business capacity to conduct such enterprises successfully without converting them entirely into horse-race entertainments or vaudeville performances.

Ten mining counties, which contributed one and a half billion dollars in gold to the nation's wealth, are shown by the recent census to be losing population. A trip to those counties discloses no substantial improvements as an offset to the wealth they have yielded to the world. The gold taken from their mines has built palaces of marble in San Francisco, New York, London and Paris, but no good roads, no sightly public buildings, no monuments of usefulness in the mountains themselves. Their baser minerals, their timber, their water and their power are now being taken to complete the scheme of centralizing benefits and wealth in the great cities.

Impressed with the fate of mining counties, is it strange that the farmer should be warned to avert the same fate for the agricultural counties? Not only in California, but all over the United States, he is demanding a share in the largesses and patrimony of the state and nation. He refuses to be silenced by a packet of parsnip seed bearing the frank of his congressman. He wants more substantial evidence of his partnership in the affairs of our government. And while he cheerfully votes five millions for an exposition in San Francisco, and a ten-million-dollar tax on his commerce for shipping conveniences in San Francisco, and permits state funds to be used for a $250,000 exposition building in Los Angeles, and liberal endowments for state fairs in Sacramento and Oakland, he should demand, and is demanding, that the community fair, the county fair, be re-established by state aid within reach of his own vine and fig tree.

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NITRATE OF SODA AS A FERTILIZER FOR CITRUS TREES.

By E. O. Essig.

The use of nitrate of soda was somewhat discouraged at the late soil convention held in Los Angeles, it being the general contention that it would in time supply enough black alkali to practically kill the soil. Since this convention there has been much discussion that has given little satisfaction as to the validity of this belief. The following correspondence may be of interest to citrus growers:

"December 10, 1910.

"Dr. Cyril G. Hopkins,
"Agricultural Experiment Station,
"Urbana, Ill.

"Dear Sir: I take the liberty to write you only after being requested to do so by many of the citrus growers of this county, concerning the matter of the use of nitrate of soda as a fertilizer for orchards. Dr. King warned the growers against this practice, but did not make the contention perfectly plain. Since that time, others have taken up the matter and are wont to discredit this advice. At the present time many of the growers are applying all of the fertilizer that the trees will stand (from 500 to 700 pounds per acre; bearing trees). The advice sought is this:

"Will the alkali, formed by such applications, be in quantities sufficiently large to materially injure the soil? Will such injury be great enough to offset the additional cost of more expensive fertilizer (other than nitrate of soda)? How long will it take, under average conditions, to render the soil unfit for citrus culture?

"These questions are to be answered only in a general way. We simply want to know whether to use nitrate of soda or not. If we can, it is much cheaper. If we cannot safely do so, we should know it at once.

"Thanking you for any advice you may give, I am,

"Very truly yours,
"E. O. ESSIG."

"Urbana, Ill., Dec. 27, 1910.

"Mr. E. O. Essig,
"Horticultural Commissioner,
"Santa Paula, Cal.

"Dear Sir: My absence has delayed replying to your letter of December 10.

"The question whether you should continue to use sodium nitrate as a source of nitrogen for the production of citrus fruits involves so many unknown factors that I am sure I could not give you any satisfactory answer of local application with so little available information concerning other factors.

"With our detail soil survey and complete invoice of fertility on hand, taken by chemical analysis, we are rapidly acquiring sufficient information in Illinois to enable us to give very specific advice concerning the necessary treatment for profitable and permanent systems of soil improvement in this state.

"Thus, if a man will tell me in which ten acres of land he is interested, in any one of the Illinois counties where our work is completed, stating the location of his land according to the government survey, then I can tell him what type or types of soil he has, and can also give him the invoice of each type; but I do not understand your state has as yet undertaken to secure information in any such detail.

"In general, I may say that an application of 600 pounds of sodium nitrate will result in increasing the amount of sodium carbonate (black alkali) in the soil to the extent of about 400 pounds per acre, which would amount to a ton per acre in the course of five years, assuming that the sodium nitrate is applied only once each year. A ton per acre corresponds to .1 per cent in 2,000,000 pounds of soil, corresponding to about 7 inches per acre of normal soil.

"Of course, the effect of this addition of alkali upon the crop will depend upon the amount of alkali otherwise contained in the soil. If the soil is already near the danger point, it is possible that this addition might become an important factor of injury.

"It is possible, on the other hand, that some of your soils contain no alkali, but may even be acid in character; and, in such case, sodium nitrate would not only be the cheapest but probably the best form of commercial nitrogen you could use. Long continued agricultural field trials with moderate applications of sodium nitrate, at the Rothamsted Experiment Station, have shown that this material finally induces very bad physical condition, destroying the flocculent or granular character of the soil, so that it puddles easily and becomes less and less pervious to water.

"You may realize, of course, that in the absence of specific information concerning the true invoice of the soil, both with respect to total plant food present and with respect to kind and content of soluble salts, it is impossible to give specific advice concerning any particular field.

"I surely hope that your state will make more adequate provision for soil surveys and soil investigations by your experiment stations.

"Very truly yours,
"CYRIL G. HOPKINS."

THE RATIONAL AND IRRATIONAL USE OF NITRATE OF SODA.

By William S. Myers, New York.

Some time since a convention of horticulturists in Los Angeles discussed the question of the accumulation of Black Akali in the soil.

One speaker made the statement that the use of nitrate of soda would result in such accumulation—stating that in England this had become the case, and that English farmers were avoiding the use of nitrate.

The incorrectness of this latter statement is shown by the fact that the use of nitrate of soda increased last year by ten per cent in England, and its use is constantly growing there; and nitrate is coming to be more and more appreciated there as it is on the continent of Europe.

In fact, everywhere in the world where there is progressive experiment station work, the unique qualities of nitrate of soda are putting it ahead of every other nitrogenous plant food. Nobody who advocates the rational use of fertilizers ever recommends such large quantities of nitrate of soda per acre as would result in any abnormal accumulation of alkali salts. Moreover, the use of acid phosphates, associated as they are frequently with sulphate of lime, converts any alkali residue into harmless forms of soda.

Besides, of the vast majority of soils in the United States, probably ninety-five per cent have a tendency to grow acid rather than to grow alkali; and nitrate of soda is therefore highly beneficial in the majority of such cases.

The use of potash salts tends to leave acid residuals, and when phosphates and potashes are used rationally, and in quantities suitable for normal plant feeding, the question of nitrate of soda leaving an alkali residue becomes a purely fanciful and highly theoretical, rather than a practical one, and is not worth the serious attention of a practical business horticulturist or farmer. Nitrate of soda is needed to help neutralize these residues.

In all of our literature we recommend the rational and not the irrational use of fertilizers; i. e., normal amounts of the three (3) elements of fertility. We never recommend the use of nitrate of soda alone, except at the rate of one hundred or two hundred pounds per acre, which is a trifling aplication; and we always advise, when larger amounts are used, that the horticulturist or farmer use as much or more in quantity of the phosphates and potashes.

On the other hand, in the case of ninety-five per cent of our soils, the use of acid phosphate tends to leave acid residuals; as sometimes do the potash salts. The actual need of nitrate of soda is therefore apparent.

The vast majority of farm lands of our country, where so-called "Complete fertilizers" have been used, have the tendency to become sour and acid; and nitrate of soda not only could be used indefinitely with an extremely beneficial effect for this particular purpose, but there is an immediate need for it.

EXPERIMENTS IN DATE CULTURE.

The work of the Department of Agriculture in the introduction and distribution of dates bears promise of being of great commercial worth to some of the arid sections of the Southwest. The plantings near Tempe, Arizona, under the direction of the Department of Argiculture, with the cooperation of the Arizona Experiment Station, have made an excellent showing this season. The experiment station has sold this year over $1,600 worth of dates, some of the trees showing best of fruit three years from seed planting. It is a peculiarity of the date that these seedlings bear younger than do plants coming from suckers. This allows early determination of the worth of the new plants. The finest fruit has been obtained from the Deglet Noor and some of its seedlings. The effort of those in charge of the experiments has been to secure trees producing only the finest grade of fruit. The ordinary commercial date, such as sells in the market for ten and fifteen cents a pound, is not considered profitable enough to encourage its growth in California and Arizona

Prof. Silas C. Mason, Arboriculturist with the Bureau of Plant Industry of the Department of Agriculture, informs us that the trees near Mecca and Indio, in Riverside county, will make an exceptional showing. This garden has been leased by the government for ninety-nine years. It is the property of the Mecca Townsite Company, but this company is as much interested in the success of the work as any of the department officials. The company has been processing some of the fruit, and finds it shows up remarkably well.

One valuable feature of date growing is the fact that the trees will thrive in and seem to prefer lands strongly permeated with alkali. The highest grade of fruit and the thriftiest trees have grown in soils so strong with salt and alkali that practically all other cultivated plants died in the immediate vicinity. This will make valuable these hitherto undesirable lands.

SUPERPHOSPHATE.

My opinion has been asked from several quarters on the following reference to superphosphate in your issue of December 15, purporting to represent the views of Dr. C. G. Hopkins:

"When you apply phosphorus, don't use small amounts of manufactured, acidulated, high-priced commercial fertilizers, which serve as soil stimulants, and which have been used so extensively in the Eastern states in systems which led only toward ultimate land ruin; but use larger amounts of steamed bone meal in emergencies, or, better still, larger amounts of fine ground natural rock phosphate, neither of which will ever injure any soil."

This implied charge against superphosphate is so unsupported by the all but universal experience that I cannot believe Dr. Hopkins is responsible for even the implication that properly made superphosphate is harmful per se to either soil or crops. It is true that many soils of the Eastern states have been temporarily exhausted, but this was effected by constant demands made upon them without adequate restitution of the elements withdrawn. This depletion would have been averted had sufficient superphosphate and other legitimate fertilizers been meanwhile supplied. The fertility of these lands is now being restored by precisely this means, together with judicious crop rotation.

What say the public guardians of the agricultural interests of these states (who are probably as good authority on agricultural science and practice as is the author of the reference quoted)? In Rhode Island, New York, New Jersey and Ohio, "superphosphate," "acid phosphate," "dissolved bone" and "acidulated bone" function most prominently as fertilizer materials; yet not a word of warning is raised against any one of them. The land is regaining its former productiveness, and I did not see natural rock phosphate once mentioned in any of the bulletins examined.

Aside from this argument, let me state that 1,000 pounds of superphosphate, containing 16 per cent water-soluble phosphoric acid, applied to an acre, would become wholly reverted in the top eight inches of a soil containing but .00483 per cent (48⅓ ten-thousandth, or less than one two-hundredth of 1 per cent) of carbonate of lime, and "reverted phosphoric acid," combined with lime as in this case, is neutral in reaction. Moreover, the carbonates of soda, potash, ammonia and magnesia all act in a like manner on this material, to say nothing of the iron oxide and alumina in practically all soils.

My opinion is therefore unequivocally against such a wild and groundless statement.—R. R. Snowden, Chemist and Soil Engineer, Los Angeles.

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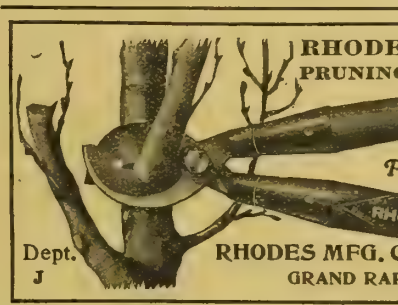

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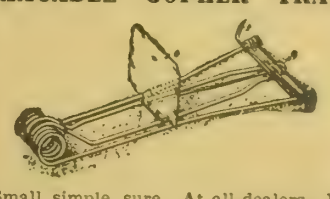

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Deciduous Bush-Tree Fruits

POLLINATION.

Lecture before the Portland Y. M. C. A. Apple Culture Club, by Professor E. J. Krause of the Oregon Agricultu al College.

I am sure that the question of pollination of our orchard fruits will be of immense interest to you, both from the practical standpoint, and from the standpoint of the experimental work which is being carried on at Corvallis. Every orchardist, or every man who expects to become one, should know exactly what he is going to do about the matter of pollination. The reason why he should is this: Some varieties are known as the self-sterile and others as self-fertilized.

Before I come to that I desire to take up some other reasons why fruit trees do not set fruit other than through pollination. We would like to solve, if possible, the whole reason of pollination. If that were possible, we would easily remedy it. That is why so many questions arise from so many places throughout the state. "What is the matter with my trees? The fruit is all falling off." Go and investigate, and nine cases out of ten we can tell very quickly what is the matter.

One of the points, then, which I wish to make other than a matter of pollination is this: A great deal is because of freezing during the winter. There is a severe freeze, and one may think that the trees are not injured, but if we cut open the buds we will think otherwise, and then the flower buds will hardly ever stand late freezing. The posterior of the stamen of the flower is injured in that case. There will be a great many blossoms on your trees, but no fruit. Somehow it cannot set fruit. Another point that I might mention is this. Naturally some varieties will shed their fruit. It is not a matter of pollination in that case. The Spitzenberg is one such variety. I suppose many of you know that the Spitzenberg will thin itself down to one or two clusters? The Comice pear will do the same, that is, thin itself down to one pear. Many who have orchards of Comice pears do not think it necessary to go over their trees to thin them down, and frequently if two do stick they will mature all right, but frequently also the fruit will drop from the cluster. That is to say, you have eight or ten fruit sprigs on a fruit branch. Usually it will thin itself down, do what you will.

Another point in that line is the care of your orchard. If your orchard is in very poor fertility—very poor cultivation—your fruit will have a tendency to fall. Pollination will have nothing to do with it in that case. The same is true if your orchard is in intense cultivation. That is to say, if your trees are growing too fast—are forming too much wood growth. I am sure you have all noticed young trees laden down with bloom set no fruit; instead of maturing fruit, it drops all its blossoms, and you have nothing but the wood growth. As the tree grows older the wood becomes less.

Another point is when your tree is disease infected. If your tree has anthracnose, or any of the other diseases, there will be a tendency toward falling off of bloom. Naturally, a tree in an unhealthy condition will not set as much fruit as otherwise. Pollination has nothing to do in that case.

Now I will come to pollination proper. By the term self-sterile is meant when a variety is planted in large blocks by themselves they are incapable of setting fruit. By self-fertile we mean capable of setting fruit without the intervention of any other variety. Probably some of you would like to know what we mean by pollination. We mean simply the transfer of the pollen, or the male element, to the stamen, or the female element of the plant. That is true pollination. Of course, we have to go a great deal on what is fertilization. You can pollinate until your hair is gray; if your pollination does not occur, you will not have any fruit set on it.

Some of the agencies which effect pollination are these: First of all, insects. That is the primary factor in all of our orchard fruits. Then the other factor is the wind. Certain trees, such as the walnut, depend almost entirely on wind for pollination. All those trees that have a very light, dusty pollen depend on the wind. All trees which have sticky pollen depend on insects, such, as the apple, pear, peach and plum trees.

In order to be sure of pollination I would advise keeping some bees in the orchard. If your neighbor does it for you, so much the better. As probably some of you know, bees do not generally work closely at home, so they will be apt to work in your neighbor's trees as well as yours. You must depend upon insects. Pear blight is carried by insects. The sweet, honey-like liquid, which is simply alive with the bacteria of pear blight, is sought by insects, and right there they spread the disease. The disease runs down the blossom into the branch; down the branch into the trunk, and the tree is gone. It sounds quite simple, but when you lose an orchard tree it is not so funny. You have to depend on domestic bees. You cannot depend on the wild bees. An orchard that is kept in a good state of cultivation should be supplied with a hive of bees.

When we come to consider that we need a pollenizer, the point is what it shall be. Many think it is a good thing to have one variety of trees—that they get better fruit. Or the question is, should I plant a mixed variety? By no means. It is not necessary. If you have two varieties, one being pollinated by the other, that is what we are working to get to find, varieties that have a mutual affinity, as we call it. That is to say, we have Newtowns and Spitzenbergs. The Newtown will pollenize the Spitzenberg.

Before I go any further I had probably better take up some of the effects of pollination. The first one of them is this: If a variety is self-sterile, it becomes fertile, that is to say, it will set fruit with the other pollenates, and the next point is that it is stated in some cases the fruit of the cross pollinated apples is larger. Another point is this: It is stated that it affects the color of one variety. For the last two years I have seen no evidence whatever that would support that statement. It is stated on good authority that such does occur. Some of the Western authorities give that, that is, if a Spitzenberg is pollinated by the Newtown it will be of a poor color.

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I cannot support that statement. The Spitzenberg colors just as well with the Newtowns as it does with the Arkansas Blacks. The Newtown is the same color, and the Spitzenberg is the same color.

In size there is no increase or decrease. I think there has been too little done on this in an experimental way—mostly chance observation. When you get a man who is an observer, rather than an experimenter, he will attribute it to some cause which has absolutely nothing to do with it, but if a man is an experimenter, he will try to discover the cause. Of the commercial varieties grown in Oregon, as far as I know, for the last two years, we have had no evidence to support such a statement that the color of the variety is affected or has been affected in any way—absolutely none.

Another statement is that another effect of pollination is that you get more seeds in the apple. Of course, that has nothing to do with it. It is only of interest in an experimental way. There is this to be taken into consideration. Usually the greater number of seeds the fruit contains, the larger will be the fruit. That is a point worthy of note. The statement is also made that size decreases by pollination. In the case of Bosc pears, when the Bosc was pollinated with Bartlett they were big pears; when pollinated with Comice they were of medium size, and with Winter Nelis they were of small size. On the other hand, when Comice was pollinated with Winter Nelis it gave us the largest pears, so we have got to determine for every variety what pollination will do. You cannot predict what is going to happen. You have got to experiment—not one year, but two or three, and the result that you may attain one year may be contradicted the next. You cannot say, well that is going to come out so and so. It does not work that way.

We have found out that certain of our varieties are better adapted for good pollenizers. First of all we should be sure that the varieties will blossom at the same time, because if one blossoms one week and the other comes into bloom the next, there is no chance for cross pollination. The next point is that they should both be of commercial varieties. No use planting those that are of no commercial use. The next point is that they shall be of mutual affinity; that the one shall be able to fertilize the other—for instance, the Spitzenberg and Newtown. They should be reciprocal. The next point is this—that they should come into bloom about the same day. As you know, some varieties come into bloom much earlier than others. That can be obviated. For instance, a dwarf will come into bearing in about four years and will blossom in the third year. As you all know, dwarf trees are being used for fillers, so you can use dwarf trees which come into full bloom in three years, and in that way not lose your crop, and when you have no further use for them for that purpose, take them out.

Some have recommended that you plant about 10 rows of one and then ten of the other. That is a little too far apart. I believe I would prefer to plant four of one and four of the other. You see that makes it quite convenient in harvesting. I would recommend four rows of Newtowns and then four rows of Spitzenbergs, then four rows of Newtowns and four rows of Spitzenbergs, for they will cross any two rows and that is all the distance they have to go. If you were to use ten and one, as is sometimes recommended, the one row has too much to do with the rows all on one side. If the row you are using as pollenizer is deficient in pollen, it will hardly do. That is certainly all wrong and the bees cannot do their work. They would have a great deal further to go with five rows on one side and five on the other. You would not be as likely to get as good results as if planted two rows apart as described. Then there is the matter of harvesting. You have four rows here and four rows there, so it makes it well worth while to consider. You can well afford to go down through your orchard covering four rows and both being of a commercial variety will make harvesting easier. I have in mind one of the very finest pear orchards in the state, and probably the United States, which is set that way. First it will have four rows of Bartletts, then four rows of Anjours, and so on. Then comes the Winter Nelis and the Comice in the same way. They found it very convenient in harvesting; no more trouble than if they had all been of one kind. In case you have an old orchard I would recommend that instead of going through and grafting a little dab here and there, you go over a whole row of trees at a time.

As a pollenizer the Winter Pearmain is par excellence. At the present time that variety is not used or is not grown much. I understand, however, that that variety is going to be grown much more than it is at this time. For two years it has given us the best of results by far of any we have ever used.

For the Pears.

For the Basc I will recommend Comice; for the Comice, Winter Nelis, and for the Bartlett, Anjou. Winter Nelis and the Comice work magnificently together. We have worked for several years along this line, and we are getting results down now where it is no longer a lot of hot air. We know that we can recommend and recommend definitely what shall be planted of certain varieties. We have experimented for several years and will have to experiment for several years more.

This must be borne in mind: That as a variety is self-sterile in one locality it may be absolutely self-fertile in another. Some pears that are self-sterile in the East are perfectly self-fertile out here. There is no way of accounting for that. As I said before, they are affected by food supply and the state of cultivation of your orchard. In our work we are endeavoring to find out the best pollenizers for our commercial varieties that we can recommend to those that are best suited to various districts. We may find that a variety for the Willamette Valley, for instance, is not adapted to Hood River, and that a variety which is adapted to Hood River is not adapted to the Willamette Valley. All these points have to be taken into consideration.

The matter of pollination really means dollars in a mans' pocket when he stops to consider it seriously. The work in the United States has been going on since 1894, and it is far from solved yet as to why a variety which is self-fertile here is not so in another locality. This is one of the points that we are trying to find out.

There is a bulletin published by the college (No. 104) written by Professor Lewis and Mr. Vincent, on the pollination of the apple. One of the main points of value of this bulletin is that it gives you the time of bloom of the different varieties and which can be used to pollinate. Each bulletin is printed with a plain diagram which you can fully understand.

WIPE OUT THE THRIPS.

Action is being secured in the Santa Clara Valley to reduce the menace of the thrips. We note in dispatches in daily papers the following:

"With Warren Hyde as chairman, and H. H. Wilson as secretary, the farmers of the county effected a temporary organization at Cupertino today looking to the eradication of the thrips and other insect fruit pests which have materially cut into the crops of the valley during the past few years. At a later meeting a permanent organization will be formed and permanent officers elected.

"County Entomologist Earl L. Morris offered, as the result of wide experiment in the fight against thrips, the spraying of trees with lime, while Paul Jones of the United States Department of Agriculture Experiment Station urged the prune growers to spray their trees with crude oil and tobacco, saying that his experiments had proved this method effective in ridding orchards of thrips.

"G. B. Hemphill of Los Gatos, formerly of Hood River, Ore., urged that the farmers try open sacks with torches, at which he believes the insects will singe their wings and become prisoners. Farmers from every section of the valley attended the meeting and all urged the seriousness of the fruit pest situation."

A large capacity air compressor has been received for use in the siphon under the Colorado at the Yuma Dam.

THRIPS, APHIS

and most all other insects in the orchard, garden and field are readily killed by spraying with

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800	Seeds	Cabbage	3	Best Varieties	3 pkts.
2,600	"	Lettuce	4	" "	4 "
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Any one of these packages is worth the price we ask for the whole 10,000 kernels to start with. It is merely our way of letting you test our seed—proving to you how mighty good they are.

Send 16 cents in stamps to-day and we will send you this great collection of seeds by return mail. We'll also mail you absolutely free our great catalog for 1911—all postpaid.

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Aggeler & Musser Seed Co.

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Home Grounds Beautiful

COVERING WITH VINES.

Have you ever seen an ugly girl in her old clothes and the next time you met her did you scarcely know her because she was dressed up? If you have, you understand the decorative value of vines.

The commonplace house, the building of hideous line and ugly coloring is positively transformed by proper vine planting. It has been clearly demonstrated on scientific basis that vines keep the walls of a frame house in better condition than the uncovered sections; while the ivy mantled walls of foreign lands that have stood the test of centuries is the best proof what vine planting will do in the hardening line.

While there are a number of vines, both tender and perennial, that give satisfaction, the number of practical value to the average householder is not large and may be divided into one or two classes. In choosing a vine to plant consider the purpose for which it is wanted, whether for bloom and decorative effect, to cover blank wall spaces and shut out unsightly objects, or to train over trellises, stumps of trees, fences and wires.

There are vines that grow without support and others that demand it, and to make a mistake in your class is to know bitter disappointment. Much as you admire a clematis paniculata if you count on it to cover a blank wall as would an ivy or an ampelopsis that climbs by tendrils or discs, you will not get results. It will more than gratify hope if encouraged by proper support.

Roughly speaking, vines may be classified by their habit of growing as twiners, climbers by tendrils or aerial roots, and those that require support. Another division is the woody climbers or perennials, those that do not die back each year; and the annuals or herbaceous climbers.

The annual vines for temporary use and quick effect are invaluable and include such well-known vines as tendril climbers; Allegheny vine, balloon vine, cobea, gourds, nasturtiums, sweet peas, wild cucumber. Twiners: Cypress vine, flowering bean, moon flowers, morning glory, thunbergia or black-eyed Susan and Japanese hop.

Many of these, like the Allegheny vine, wild cucumber, Japanese hop, morning glories, seed themselves and coming up year after year, are practically perennial. All the other annuals should be started indoors in flats or boxes in February or March to make good growth, the vines are not set out until danger of frost is past. They can be sown in the open in May, but do not make such good growth.

Japanese hop does better for many persons if the seed is sown in the fall where it is to grow as when started in the spring it may not come up until the following year.

Among the best known and most dependable perennial or woody climbers are the tendril growers—Ampelopsis and Virginia creeper, clematis, grapes, greenbrier, trumpet, creeper, ivy, roses. Twiners—Akebia, actinidia, Dutchman's pipe, honeysuckles, wistaria, bitter sweet.

For covering blank walls without support the most common are the ampelopsis or Boston ivy, and English ivy. As the ivy is practically our only evergreen vine—though certain of the honeysuckles hold their leaves well into the winter—it is invaluable to cover big spaces, but as it is a slow grower and apt to winterkill in cold climates, is less used than Virginia creepers and Boston ivy.

Trumpet creeper, or tecoma radicans, or tecoma grandiflora also climbs by aerial roots and is fine to cover high blank walls, though more often confined to the lower floors or for covering tree trunks and unsightly places.

The trumpet vine is perhaps better known as bignonia and should be more grown than it is for decorative purposes, as its orange flowers are very showy. For blooming annual spring pruning is desirable. Wonderful hedges can be made of the trumpet vine and it looks well growing on clothes poles with the tops cut back to make it bushy.

For trellises to cover unsightly places few vines are lovelier than wild cucumber. The most effective use of it I have seen was as a snowy covering of a blank wall that faced a city back yard from the adjoining house. It clambered well to the top and was a mass of bloom in July.

A rapid growing vine for porch use is the Japanese akebia quinata, as it is hardy and does not seem to mind other vines encroaching upon it. Its flowers are less important than its foliage.

Another good vine for a latticed veranda is bitter sweet, or celastrus scandens. Its foliage is lovely, but the berries which in some places stay on most of the winter are lovelier yet.

Perhaps most rapid and most dense shade of all the hardy vines is the Japanese kudzu. It is almost unkillable when once started and will grow fifty or sixty feet in a season.—S. F. Chronicle.

THE QUINCE.

It is not supposed that the quince industry will ever grow to large proportions in the East. In fact, from the very nature of the fruit and its uses there can never be more than a very moderate demand for it. But as a part of the home fruit plantation, or as a modest part of the commercial orchard, it is certainly deserving of more attention than it has received in the past. In fact, even when they are planted, quince trees seem to be more systematically neglected than other fruits, which is certainly stating the case strongly. The quince makes a very attractive little tree, when well cared for, with a handsome blossom, and the fruit, as an article of diet, takes a high place and deserves far more general use than it receives.—Country Gentleman.

Green manuring is necessary if you build up your soil economically. Without a sufficient quantity of vegetable matter in the soil it will not produce good crops no matter how much commercial fertilizer you use. For good crops the soil must be in a good physical condition.

Plants vary; some are more productive than others. If you do not wish to grow plants that produce poor crops, eliminate them by selecting your seed from plants that produce good crops.

Garden and Field Crops

ASPARAGUS.

Asparagus is grown for the tender young shoots which grow in great numbers from the roots early in the spring, and is considered by far the choicest of all early spring vegetables. It is in great demand in all markets, selling at very fancy prices, and is one of the most profitable crops grown. The demand for it is growing faster than the supply. Asparagus growing is still in its infancy. It is being planted only in a limited way and in but few localities. It would be more extensively grown if the proper way of planting, cultivating and marketing were generally known.

Planting can be done any time in the fall, winter or spring, when the ground can be put in proper condition.

The land should be plowed thoroughly and deep and put in good condition with a harrow. Rows should be marked off with a two-horse plow four feet apart, going twice in same furrow, making it as deep as possible. There will be several inches of loose soil in the bottom of the furrow, on which to place the plants, the crowns of which should be five or six inches below the level of the ground. The plants should be set from twelve to eighteen inches apart in the row. They should be covered with about one inch of soil when planted in early fall or spring, and as soon as they commence to grow the dirt can be worked to them with cultivator until the ground is level. If planted in late fall or winter it should be covered with two furrows with a one-horse plow. The ridge thus formed should be worked down very early in the spring with disc or cutaway harrow, going as deep as possible but not deep enough to injure the plants.

One year old roots should be used. The practice of planting two, three or four year old roots should be discouraged, as it has been thoroughly demonstrated that one year old roots are superior to others in starting an asparagus field.

It should do equally as well planted in the fall as the spring. There is an advantage in fall planting from the fact that the ground can be got in better condition and the work is out of the way for spring when everyone is busy. From experience I find September planting very successful. The plants will make considerable growth in the fall, and the following spring every plant will start out strong and thrifty shoots.

I would, however, advise the planting at whatever season best suits the planter. A field when once established will last for years. I know of many fields from which asparagus has been cut for thirty years, and they are still producing good crops.

After the field has been thoroughly worked with disc or harrow in the spring, as described above, use the cultivator as often as necessary to keep the ground in good loose condition, and keep all the weeds out of the rows with a hoe. The cutting season will last about two months, during which time the field should be cultivated often.

Asparagus should be well fed with manure or commercial fertilizer which can be applied at almost any season of the year. Manure is either spread on top of the row late in the fall and covered with a plow, thus leaving a ridge until spring, or is applied in a furrow close to the row, either in spring, summer or fall. This gets the manure close to the roots and is considered the best way to use either manure or commercial fertilizer. Stock peas can also be used to help in fertilization and to keep the soil loose. They can be sowed broadcast when the cutting season is over.

Salt is a good fertilizer for asparagus, and if applied early in the spring will not only assist in fertilizing, but will greatly retard the growth of all other vegetation so that during the cutting season there will be but little growth of weeds or grass. A cheap grade of salt can be obtained for this purpose.

In the fall all the asparagus tops should be mowed and removed from the field. Then take the plow and throw two furrows on the row after applying the manure.

Cutting for market commences one year after planting and as soon as the stalks are a few inches high.

The cutting should be very light the first year, nor should the season be long. The second year, more may be cut, and the season may be longer. By the third year the asparagus field will have reached maturity, and the cutting should include every stalk that puts up, and may continue as long as the market will justify and the weather will permit. The shipping season of the well-matured field will last from six to eight weeks, sometimes longer. It is not advisable to continue cutting after the stalks commence to diminish or spindle.

Keep all the stalks cut during the shipping season, even if some are too small to ship. The cutting should be done every day during the shipping season. The stalks are tied in bunches with tape or rubber bands, each bunch containing a handful of stalks.

They should be graded according to size, making two or more grades, as may be necessary in order to have the stalks uniform in size. The stalks in the center of the bunch should be as large as those on the outside. After the stalks are bunched with a large knife cut the butts of the stalks smooth, leaving the bunch the proper length for the box.

They are packed in sectional boxes, each section holding one bunch, with twenty-four bunches to a box. When packed the box and contents weigh about fifteen pounds.

It is well to make at least two grades of your asparagus, putting nothing but the very best in your first grade. Care should be exercised to have the bunches neat and uniform.

There is always a good profit in asparagus, but strictly fancy stalks always sell for the highest price. To get the best price grow the best asparagus by liberal cultivation and fertilization, and pack it so that it will be attractive.

It is a vegetable that can be made productive of profit to a point in excess of citrus fruits, peaches or trucking.

The average annual profit per acre from asparagus that is thoroughly cultivated and fertilized and properly marketed may be placed anywhere from $200 to $300 per acre. There are instances where the net profit is still larger, and I have heard of one grower who has so thoroughly cultivated and fertilized, and with one of the best markets, that he makes more than three times this amount per acre each year.—W. W. Thomas in Florida Fruit and Produce News.

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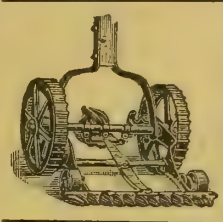

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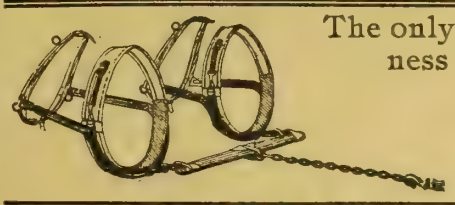

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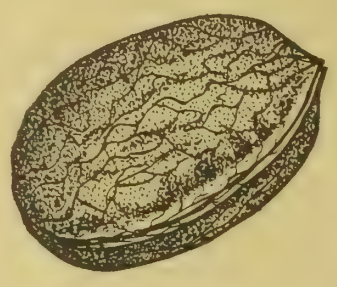

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Entomology and Bees

HOW TO FIND THE QUEEN.

There is no short cut toward finding a queen. You have got to look till you find her. Do not use much smoke, or you will set the bees to running, and then it is very hard to find a queen.

A frightened queen will run from the light and hide in the first crack or dark place she can find.

Care at the start, so as not to stampede the bees, is the great secret of success, and this, coupled with a strong light and knowledge of how any queen behaves under such conditions, gives you the key to the whole matter.

Open the hive slowly, without a jar, and use as little smoke as possible. Be very careful not to kill a single bee, for if bees are killed, the colony is liable to resent it. This causes so much smoke to be used in quieting them that the whole mass is likely to be stampeded.

If care is taken not to disturb the bees and get them to running, there is very little likelihood of the queen leaving the brood combs.

There is no use wasting time in examining frames of honey. The same might be said in a certain degree regarding combs filled solid-full of brood.

As a rule, you will find the queen on a comb or that portion of a comb from which the bees have recently emerged.

During a honey-flow, with a colony not excessively populous, gentle bees clinging to the combs, the simplest way is to take the combs out and examine them.

Put them in the comb-basket, and, if the queen has not been found, look over them again, putting them in another comb-basket. Look in the hive also.

It is necessary to use as little smoke as possible, so as to avoid starting the queen to run and hide.

Always begin at one side, first blowing a little smoke between the comb and the wall of the hive, so as to drive the queen between the combs if she happens to be against the wall.

I then take out only one comb on that side, and begin on the other side, continuing throughout. The object is to prevent the queen from being left on the walls of the hive.

One of the plans is to put the combs in pairs, having the pairs a little distance apart, using an additional hive for the needed room.

After a time the bees without the queen will show signs of uneasiness, and the operator may look for the queen in the brace of combs where the bees are quiet.

If a queen is removed from a hive very carefully, a colony may not discover its loss for some hours, while the loss may be discovered in a less number of minutes if the bees are forcibly thrown from the combs, or if otherwise roughly handled.

You will not be likely to find her on one of the combs that contain unsealed brood. If you do not find her after looking two or three times over the combs, the likelihood is that you will not find her if you keep on for half an hour.

But if you close the hive, and come back in half an hour, you may find her then the first thing.

In favorable circumstances such as are described in the beginning of this article, and if the operator has been careful and has not scared the queen, she will be found on the combs, and often she has not even interrupted her work of laying eggs.

Generally she has retreated from the light and taken refuge between the bottom of the comb and the bottom-bar, if there is space there, as there generally is.

Then, when the operator looks over the comb, there begins a game of hide-and seek. When the operator looks for the queen, he always turns the comb and himself so hat the sun will be at his back and strike on the comb.

As soon as the comb is in that position, the queen skips on the opposite side, remaining near the bottom and among the bees that are there; for the bees, as well as the queen, have retreated to the lower part of the combs, except those that are filling themselves with honey.

Then, when the operator turns the comb over, the queen skips again on the other side; not that she cares for the operator, but to get away from the sun and light.

Some beekeepers, when they desire to find black queens, take all the combs out, take the hive and dump it in front of the entrance, set it back, and clap an entrance guard over the now empty hive.

The bees are all shaken off the combs, and the entrance guard is eagerly scrutinized to see when her majesty strikes the obstruction.

We do not know but, all things considered, this is about as quick a way to find black queens among black bees as to undertake the very uncertain and laborious method I have already described.—Farm World.

SELECTION OF DRONES.

The selection of drones is one of the things in which the vast majority of bee keepers are notoriously careless. Queen breeders will select a breeding queen with great care and allow her progeny to mate with drones from any hive in the apiary, and just as long as this is done there can be no advance in the types. Drones should not be allowed to fly except from colonies where the queens are prolific and the bees good workers, and just as much care should be exercised in the choice of colonies for the production of drones as for breeding queens. The mere fact that mating takes place in the air, out of the control of the bee keeper, is no reason why care should not be taken in the selection of drones which are allowed to fly in the yard. When breeding any race, Italians for example, it is not enough that all the drones be Italians; they should be selected as to honey production of the workers, prolificness of the queen, or any other quality which is considered in choosing a breeding queen.

Selection of drones may be accomplished by the use of drone traps or by cutting out drone comb. For absolute safety the drone trap is preferable, since some drone brood may escape observation. When most colonies are requeened every season, only queens of breeding value should be kept, since old queens produce larger numbers of drones.

The building of the Riverside Creamery at Arlington was burned last week.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

WHOSE LOSS.

(Continuation of Article in Issue of January 5)

By Mrs. Minna E. Sherman.

Now on the other side of this question stands the dairyman with his herd of untested cows. The cows may not be valuable ones and certainly, if they are not tested cows, they are not as valuable as they were a few years ago before the tested animal was in the markets. Now when the cows are tested those that react should be butchered and if on examination not more than two places are affected, one a vital spot, or if the tuberculosis is not of a generalized type, the beef is used for food. The dairyman should then be satisfied with the price he receives for her as beef. She would have grown worse on his hands and died, making a total loss for him. When the cow proves unfit for beef and is sent to the rendering and fertilizer tanks, then the dairyman should have the difference, it is contended, between the beef price and the tankage price made up to him from state funds.

Suggestions.

It is a difficult question to answer, but there is an answer somewhere that is just to everyone concerned. If the press scares the public enough with its cry of "Wolf! Wolf!" it may result in good after all to the persecuted dairyman. At present there are only a few people that will pay the price of certified milk, the average consumer would rather spend the money for hobble skirts or moving picture show tickets. I ran a dairy before the days of certified milk on lines more exacting than those called for by certification. I did not find any one willing to pay more for the milk than they gave dairies that were rankly dirty. The only satisfaction I got was in doing things right for the sake of doing them well. Then when butter making became the business, during the summer the extra cream was sold to the ice cream trade. One man started in to sell away below the then low market. I did not care particularly and said so, for the custom of the ice cream men. After a time the undercutting man found that he was losing money and sent me word he would like to sell out. I went to see his cows and saw one heifer down and two that were coughing. I told him I did not wish them and that his cows were diseased. The next week the herd was sold off at auction after the sick ones were removed, and the trouble was scattered around. At that time there was no health officer and any one would have laughed at the thought that this man did not have the right to sell those cows to any purchaser.

Bovine vs. Human.

In the human family the type of tuberculosis in most cases is not the same as that of cows. About ten per cent only of the cases in babies are of the bovine type and about two per cent in adults. While this is not as serious as we thought a few years ago, still it is serious enough. The contagiousness of the trouble is proved by the way pigs using milk from diseased cows are infected. The great increase of tuberculosis that followed the feeding of the skim milk from the creameries to calves and pigs resulted in the sterilizing of the skim milk by raising it at the creamery to a high temperature before sending it out to the farmers. The infection of the human family with the bovine type of tuberculosis is a fact, but it is surprising that it is not more frequent, when we consider how rapidly the trouble spreads among cattle.

Testing.

It is often said in derision that a small pail will hold the milk from a cow in the certified herd. Testing causes a falling off in condition for a time in the cows that do not react. This may be the result of nervousness. The tuberculin test is applied to the cow by taking her temperature three times, at regular intervals before injecting the serum. This establishes her normal temperature. Then the tuberculin is injected into the side of the neck and after eight hours the temperature is again taken three times and the effect of the tuberculin is seen by a rise of temperature called a reaction if the cow is diseased. If she is healthy no reaction or rise takes place. There are many cows that are weeded out as unprofitable by the dairyman that are really diseased. This has caused an undue amount of diseased cows to appear in the slaughter houses and from that the startling averages to show the number of cows diseased in the country are made up. A diseased cow may appear healthy but is a spasmodic milker, giving a large amount of milk one day and then falling off and running along in an irregular way in the amount of butterfat as well as in the milk. These cows are sent to the butcher naturally by the dairyman and raise the estimate of diseased animals.

City Ordinances.

The illy conducted attempts to suppress this disease among cows furnishing the milk to the city trade have been added to by another example in the city of Portland. The newspapers led in this campaign with hue and cry and the city passed the ordinance to test the cows. Considerable loss was borne by the dairymen at first, until one refused and appealed to the circuit court, when Judge Clelland made the ruling that the city could not go out into the country and test cows. All the city could do was to examine the milk offered for sale and reject it if it was detrimental to health, public morals and welfare. The courts will always be very slow in upholding any ordinance that acts in confiscating private property. Property in the eye of the law is sacred and the owners must not be restrained in any way in its legitimate use. The trouble was not even helped by the destruction of these cows, for the dairyman had to buy others to replace those lost. Where could he find tuberculin tested cows? Until the use is general it is almost useless for one man to clean up his herd and later have to buy untested animals.

In Berkeley the dairymen combined and beat the ordinance that tried to

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

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compel testing the cows. The people of this town are generally considered above the average towns in education and in public spirit, and yet the protection desired could not be secured. The testing and rejecting of a number of cows some years ago around San Jose resulted in their disappearance, and when the authorities went again to see them they had gone. They were sold away and no one had authority to follow them into new districts. The disease was spread into new counties in this way. We often say we are a new country and back East they do things in better ways. I wish it was true, but take the instance of one of the New England states that tried to pay a small bounty on the cows destroyed. The packers from other states found it a convenient market to sell off cows.

National Aid.

If there cannot be found shortly a serum or vaccine to protect the cows from infection, destruction of the diseased ones must come and the question of paying for cows must be met. The serum protection has been secured in a limited degree and may be applied to young animals that are dropped by diseased cows. The Bang system will save the offspring from valuable cows and those who have fine-bred herds will use it. The trouble today is not with the breeder of fine cattle controlling the trouble. He has too much money invested not to safeguard his herd in every way. The trouble lies in the market milkman who buys cows, uses them for a time and then turns them off as beef. The enlightened public opinion must come to force forward the formation of a national department of public health. Then the law and amounts paid could be made uniform. Cows that reacted could at least be branded by the United States as condemned and then the local authorities could see that none were used in milk herds. I should like to see five years given the dairymen to clear their herds and then after that time have the cows that reacted destroyed by government authority without redress. If the matter could be pushed along promptly the herds could have the trouble stamped out in less time. It only needs time enough to secure every calf reaching maturity that has been raised on milk of untested cows. The testing taking place after two years of age may be relied on to show tuberculosis.—M. E. Sherman.

MILCH GOAT ASSOCIATION.

By Miss H. A. Wood, Pasadena.

Perhaps the following extracts from a letter received from a friend of mine in Chicago may interest some of the Cultivator readers.

"On your suggestion I attended the annual meeting of the American Milk Record association and had the pleasure of meeting Mr. W. A. Shafer, the president of the association, and J. C. Darst, the secretary. Mr. Darst is from Dayton, Ohio, and the largest owner of milk goats in the United States.

There were very few in attendance, but I listened to the minutes of the last meeting and what had been accomplished during the past year, with interest. This was the sixth annual meeting and the keeping of this organization in existence seems to have been quite an effort for the reason that there are very few people who make a specialty of keeping milk goats and there are practically no importations of this animal because of the quarantine laws which interfere to a great extent. Furthermore, there seems to be no one who is willing to put up the amount of money to import these goats. The government however, is interested in the proposition and Mr. Shaw and Mr. Bell attended the meeting, representing the department of agriculture. Mr. Shaw made some very interesting remarks.

There are eighty-six members of this association at the present time. The best part of the meeting consisted of an address made by Dr. Hornsby who is superintendent of the Michael Reese hospital here in Chicago. From his talk it seems beyond question that the goat milk is very superior to cow's milk. As a matter of fact he was so strong in his belief that he purchased twenty-five scrub milk goats for use at the hospital and with very good results. It was, however, very difficult for them to keep these goats at the hospital and they had to send them out some twenty miles in the country. It seems important that the milk should be perfectly fresh and if possible shipments at any long distance avoided. He was thoroughly in earnest about the importation of goats, especially for use in connection with hospitals.

The meeting although as above stated not very well attended, was certainly very interesting and I believe that the goat industry has a great future. There was one gentleman at the meeting who has a few goats on the outskirts of the city and he made the statement that he could get fifty cents a quart for all the goat milk he could furnish here in Chicago but the difficulty seems to be in the scarcity of goats."

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THE SHAPE OF HORSES' HOCKS.

Strongly made, well-shaped hock joints admittedly constitute the most important point to be sought for in the conformation of the hind legs of horses of every class, both heavy and light. Indeed, of such importance is this, experienced horsemen see that the hocks are among the first points to which he directs his scrutiny. The reasons to be adduced why so much stress should be laid upon this requirement are as follows: Firstly, because the degree of propelling power developed by the hindquarters depends more than anything on the strength possessed by the hocks. Secondly, because these points are the principal seat of unsoundness and lameness in the hind leg, just as the feet and back tendons are in the case of the fore limb; hence it is most desirable that they should be as strong as possible. And a third reason is because good hocks are essential to satisfactory action behind.

The fact of the hock being strong is mainly indicated by its contours, as well as by its possessing a comparatively long as calcis, which is the bone at the back of the joint, and the upper end of which forms the so-called point of the hock. In judging of the shape of the hock joints, three or four features should primarily be looked for as being the principal desiderata. A large size especially is all-important, for small hocks are never strong; so that horsemen generally regard the expressions, "small hocks" and "weak hocks" as practically synonymous. They are far more liable to suffer from the effects of wear, to become unsound, or to throw out a curb than

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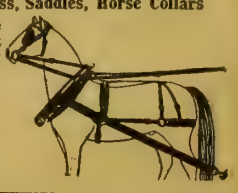

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large-sized ones. A further important requirement in hocks of good shape is that they should be bent at a proper angle in front. It is an objectionable feature if the hock joint is unduly straight, as this involves a grave mechanical disability, in that it prevents the horse from using its hocks to the best advantage, because it cannot straighten them out to the extent as where these joints are more bent in shape. Consequently there is a loss of propelling power; while secondly, hocks of this kind are subjected to more wear than is ordinarily the case, inasmuch as they suffer a great amount of concussion. So-called sickle hocks comprise a fault which is the exact opposite to straight hocks, the joints in this case being bent to an undue extent. This defect is rather unsightly, especially if at all pronounced, and it is certainly a good deal more so than the former, which quite usually entirely escapes the notice of an inexperienced observer. For this reason sickle-shaped hocks are very commonly regarded as constituting a more objectionable failing than straight hocks, but in reality the reverse is the case. A sickle shape of the hock joints, too, means a reduction in the propelling power of the hind legs, yet not nearly so great a one as is entailed when these parts are too straight, while sickle hocks wear much better. Horsemen often speak of coarse hocks. This expression is practically self-explanatory, meaning that the hocks show a want of refinement in their outline, or are not as symmetrical in shape as they might be, there being unduly noticeable prominences. Although they are generally considered an undesirable feature, there is not much to object to in coarse hocks, for hock joints of this kind are usually of large size and that is a valuable attribute. The term "curby hocks," which is frequently used, has a rather indefinite meaning, though it is mostly applied to hocks in which the rear outline is not quite straight (viewing the joint in profile) but somewhat curved outwards, giving the idea of the curb. It is often said that curby hocks are more than ordinarily liable to spring a curb, and they are objected to for that reason, but as often as one finds such hock joints to be quite as strong and no more predisposed to contract unsoundness, than more normally shaped ones. Still, the fact of a horse being curby-hocked must be looked upon as a disadvantage. Sometimes the opposite kind of formation is seen, the hock looked at sideways, showing a more or less concave outline behind. That is practically always an indication that the joint is weak, and this feature is to be strongly objected to.—N. W., Pacific Farmer.

IS TUBERCULIN RELIABLE?

Certain skeptics seem to think that it is very conclusive to constantly assert that the tuberculin test is not reliable. How reliable it is, when intelligently administered, may be gained from reading the address of Dr. H. E. Talbot, of Des Moines, Iowa, before the Iowa Veterinary Association. He reports 1,000 cases of cattle tested, of which 306 reacted, thus showing the presence of the disease. Of these 306 reacting cattle, all were slaughtered at packing establishments and turned over to federal inspectors. According to the report of the United States inspectors, of the 306 slaughtered, 305 showed marked tubercular lesions, proving the test to be 99.9 per cent reliable. It may be fairly pertinent to ask of the skeptics as to how reliable they think the test should be. Of the 306 slaughtered, 76 were consigned to the tank as unfit for food, being 7.6 per cent of the entire number tested, or 24.8 per cent of the reactors.

The Wisconsin station has made interesting tests to prove relative sizes and weights in litters from young and old sows, with astonishing results. In these tests sows weighing an average of 482 pounds at farrowing time produced an average of 9.2 pigs per litter, with a weight per litter of 27 pounds. From sows weighing 307 pounds the average number in the litter was 6.7 pigs, and the weight of the litter was 16 pounds. Where the average weight per sow was 238 pounds the average number in a litter was 5.5 pigs and the average weight of a litter 14 pounds. Sows between the ages of four and five years averaged nine pigs to a litter and a weight per litter of 26 pounds; sows between two and three years old had an average litter of 7.5 pigs, and a litter averaged 19.7 pounds in weight, and sows a year old produced litters of 7.8 pigs, with an average weight of 14.2 pounds per litter.—From Coburn's "Swine in America."

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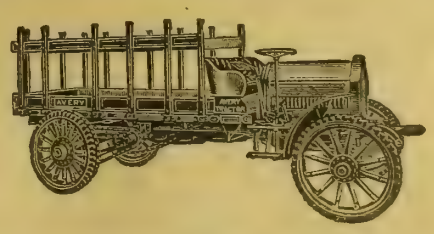

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Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,600 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

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THE NUBBIN IN THE FAIR BIN.

The Pacific Outlook for the current week contains a timely editorial on the present agitation for the revival of the old-time District Fairs from which we quote the following significant paragraphs:

"A determined effort is to be made to induce the present legislature to revive the district fair system. It may not prove an easy thing to do, were legislature and administration ever so willing, for the reason that only omniscience can surely foreknow what the new system of taxation, provided for in the adoption of constitutional amendment number one, is going to produce, and until that fact is known from experience appropriation will have to proceed cautiously.

"But, no matter what the conditions of the state treasury, nothing should be done with relation to reviving the district fair system without first giving the whole subject of fairs careful consideration. * * *

"What with government and state experiment stations, farmers' bulletins, pathological laboratories for the study of diseases of plants and animals; what with agricultural colleges, farming schools and short courses, demonstration trains and a great government devoting something like $20,000,000 a year to agricultural and kindred interests; what with agricultural journals and farmers' institutes with scientific lecturers laying before those who care to listen the ripest knowledge of the age, with all these the educational value of fairs is not what it once was, at least not relatively speaking, although, absolutely, there may still be great gain from fairs if only people will attend them."

The last sentence gives the nub of the whole situation. If the people will give these fixtures a united support; if the fruit growers, the producers of garden and field crops, the raisers of live stock and poultry, will make exhibits worth while, the fairs would be self-sustaining and in no way prove a burden to the taxpayers. Their value, after all, is more along lines of development and social, rather than educational, although as object lessons in an advanced horticultural and agricultural practice, they also possess a value in the dissemination of intelligence. At best, so it seems to us, the state's money, if granted at all, should be safely guarded, to the end that it would in fact as well as in theory foster, promote, protect and develop our rural economy along economic lines. To expend it in any other way would be short of nothing less than a crime.

As between county and district fairs it seems to us that the latter has much the best of the argument. To again quote from our esteemed contemporary:

"If California were to hold one great fair at Oakland or San Francisco and another at Los Angeles the admission fees, etc., would make them self-sustaining after the plants had been set up, a third at Sacramento and a fourth at Fresno would reach about all the people in the state who would care to go to fairs, the cost would be less and such fairs would do more good than to have as many district fairs as counties. Such a system helps them up and holds them down."

This again suggests the pertinent question, "Why is the average California fair a business failure? And if incapable of becoming self-sustaining, why add to the taxpayers' burdens by giving it a subsidy?" Obviously the whole matter simmers down to a question of equities. If one section of the state is to enjoy a fair, why not others? Shall we abolish the whole system, or shall it be a matter of substantial appropriations for district fairs worth while, or a number of small appropriations spread thinly over local or county fairs? That is the nubbin in the bin of Fair corn.

ORCHARD PLANTING IN WASHINGTON.

Our frontispiece illustration this week affords a splendid object lesson in the remarkable development of the deciduous fruit industry in Washington and Oregon—a growth almost without precedent in economic horticulture. The plantings embrace all the standard deciduous fruits of the temperate zone, and are especially strong in apples, pears, the stone fruits, grapes and bush berries. In Eastern Washington and Oregon the cultivated areas in fruit culture are made possible only by splendid systems of irrigation, which makes horticultural practice much the same as in California, only that our practice has become settled, while theirs is still largely in the formative stage. With California experiences to build on, the growers of that region will make more rapid progress than did early California horticulture, due not only to this fact, but also to improvements in harvesting, packing, shipping and marketing. The growth of the fruit business in Washington is somewhat indicated in the fact that of apple trees alone there are single nurseries growing stocks of a million trees at a time. Obviously, when these orchards all come into bearing, economic problems to be solved will naturally present themselves; but let us hope that when that time arrives the matter of getting the fruit into the hands of consumers at a price mutually satisfactory will have been worked out. The thanks of the Cultivator are due to the Western Farmer for the use of the illustration herein referred to.

ORANGES BY PANAMA.

The arrival at New York of the first shipment of California oranges has been awaited with interest and the result is now being studied. The offering of this first shipment which consisted of one car oranges and one car lemons, arrived last week and shows seven per cent decay of oranges and five per cent of lemons. This is to be regretted and is in part due to poor ventilation in the hold of the vessel on the Atlantic side and in part to a three-day delay on the Panama Railway owing to pressure of traffic in canal operations.

The shipment from San Pedro to Panama was on deck with only slight protection, but because of Eastern weather from Florida up, the shipment from Colon had to be in the hold. Both oranges and lemons brought good prices in New York, but not as good as if they had not shown decay.

Manager Woodford of the Fruit Growers' Exchange said: "The shipment went through in better shape than I expected. While it is not satisfactory when decay is shown, yet in consideration of all the conditions in this case, the decay is not exceptional. I doubt if under present conditions it will be possible to send great tonnage by Panama, but when the canal is opened it will be easy to ship fruit by water and have it reach New York as soon as it now goes there by rail. It is probable that 25 per cent of the present orange consumption will be in reach of water transportation, and this will lower prices to consumers."

STATE BEE-KEEPERS MEETING.

The California State Bee-Keepers Association will meet in annual session in the Chamber of Commerce Building, in Los Angeles, on Monday, Tuesday and Wednesday, February 27-March 1. The meeting will open on Monday evening with a preliminary business session, at which minutes, appointing of committees and other routine matters will be taken up. Tuesday morning will begin the interesting program. Secretary Shaffner informs us that an effort has been made to have a large number of short, crisp addresses, rather than any long or labored papers. The three days' session will call forth in the neighborhood of twenty-five of these short papers. Legislative matters pertaining to apiculture may bring forth interesting discussion. The attendance promises to be larger than ever.

CITRUS BREEDERS ASSOCIATION.

Prof. Norton of Riverside has asked the question as to whether it is not wise for California to organize a citrus breeders association. The fascination of plant and animal breeding has appealed to many, and it will appeal to more. The development of the highest type of a species is not only fascinating, but a sure profit to the country at large, if not always to the individual breeder. It costs much effort, time and money to bring out the highest perfection in plant and animal, and the reward is due to the one who accomplishes the results, but too often only fame is the recompense. If the citrus breeders of California could get together, they might succeed in so raising the standard demanded in citrus trees that nurserymen would exercise the greatest care in bud selection. Possibly it might even lead to the production of something even better than the famed Washington Navel.

Mr. Alex. McAdie, Professor of Meteorology, of the Weather Bureau of the Department of Agriculture, and in charge of the station at San Francisco, favors us with Farmers' Bulletin 104, "Notes on Frost." This is a scientific discussion of how frost is formed, seasons of frost, when to expect frost, influence of soil and vegetation on temperature, and dates of early and late frosts. Along more practical lines is an extended discussion of protection from frost. Another pamphlet, a reprint from "Climatology of California" of the Weather Bureau, discusses the situation in California and gives illustrations of various frost protection devices, one being the lath screen at the old Everest place, near Arlington Heights. That was a screen constructed over the entire orchard at great expense, but finally removed as impracticable.

The Council of North American Grain Exchanges holds a meeting in Chicago on February 8th, the entire day to be given up to the discussion of "How to obtain a larger yield of better grain." This is the first time an attempt has been made to unite commercial with agricultural and scientific interests. There will be many prominent men upon the program.

A poultryman at Oregon City, Oregon, claims a net profit of $605.50 from 173 hens.

Agricultural News Notes of the Pacific Coast

Northern California

A bill has been presented in the state legislature calling for regulation of timber cuttings in forest lands.

One hatchery at Santa Rosa recently had an increase in its chicken family to the extent of 6000 in one day.

Santa Rosa members of the Grange are planning for a two-day session of Pomona Grange.

The state legislature is to be asked to appropriate $100,000 to advertise the agricultural possibilities of this state over the East.

The normal rainfall at San Francisco from September 1st to January 1st is 8.29 inches, but this year the precipitation was only 2.91.

The Alameda County Poultry Association has elected Wm. E. Gibson, president, and W. T. Frost, temporary secretary.

The second trip of the demonstration train for this year visited sections of Sacramento, Placer and Eldorado county last week.

The Sutter Drainage District south of Yuba City is making improvements which will call for another assessment during this season.

The board of supervisors of Butte county is having contention with the Butte County Canal Co., because of bad condition of roads through canal work along and across the highways.

The Sacramento Valley Development Association is raising a $10,000 fund to encourage a further experimentation in the culture of rice in the Sacramento Valley.

Several carloads of Oregon nursery stock have been received in Sonoma county, some of which are reported to have been destroyed by the horticultural commissionr because of pests.

State Horticultural Commissioner Jeffrey reports that out of 13,072 cars of green deciduous fruit shipped during 1910, 4910 were inspected and came up to standardization rule.

The horticultural commissioner of Sonoma county reports much pruning and spraying of apple orchards has already been done. More general good care will be given this year than formerly.

Independent rand owners in Glenn and Colusa counties are conferring with the Sacramento Valley Irrigation company hoping to induce the company to resume work on its extensive system in those counties.

From all reports it is evident that wild turkeys will become very common in the national parks and forest reserves of this state. Several bands have been given their liberty within the last few months.

The Sonoma County Farmers Insurance company reports new business for the past year to the extent of $750,494 or a net increase over the preceding year of $283,545. The total insurance in force January 1st was $2,351,520.

The figures of the Merchants Exchange of San Francisco show that since 1905 there has been a material decline in the receipts of butter in that city. The '05 receipts which were the largest ever were 17,419,943 pounds. This decreased until last year there were 13,931,900 pounds.

Central California

Many dogs at Bakersfield and at Hanford have been killed because of hydrophobia which has been prevalent.

The Farmers Union reports that for the year 1911 it will make an effort to teach the farmer a way out of debt.

At a mass meeting of citizens of Tipton Irrigation District, in Tulare county, it was decided to pay off the bonds.

Fresno shippers are making an effort to have the freight rate case reopened to secure readjustment of rates in favor of Fresno.

Raisin packers opened the new year with an offer of 3½ cents for 1911 raisins. They also agreed to contract for three years for three cents.

The federal insecticide act of 1910 went into effect January 1st, and various insecticides may be purchased with reasonable surety of their being pure.

County Horticultural Commissioner Volck of Santa Cruz county, recommends a campaign of instruction of growers and spraying crews in the most satisfactory methods of applying spray.

The big sugar factory at Spreckels has a capacity of 3,000 tons of beets daily, and the valley has 90,000 acres suitable for sugar beet production. Next season's planting will aggregate 25,000 acres.

The Earl Fruit Co. is refitting the large packing house formerly owned by the C. C. U. at Porterville, and the company will make that its central office for its fruit houses in that section of the state.

Several cheers and several tigers were given in honor of the Watsonville Apple Annual at the annual banquet of members last week. The slogan for the coming year is "A greater and grander apple annual in 1911."

Articles were filed last week for the California Raisin Exchange. It is incorporated under the co-operative law. The directors are: W. R. and Myrta L. Nutting of Fresno, M. P. Hopkins, G. C. DeGarmo and E. P. Houghton of Los Angeles.

The demonstration train which toured the northern end of the valley last week and will later make a tour farther south, has an extended exhibit of models of irrigation implements, measuring weirs and photographs illustrating more modern irrigation practice.

To secure more general recognition of the citrus interests of Tulare county by the county board of supervisors citrus growers took them on a trip through the citrus growing sections of Porterville, Lindsay, Strathmore, Exeter and Lemoncove. The immediate object is to secure more liberal appropriation for the horticultural commission.

The horticultural commissioner of Tulare county has been exceptionally active in the suppression of pests and inspection of nursery stock, and the board of supervisors of the county is concerned lest adjoining counties are lax. It was recommended at a recent meeting of the board that the state horticultural commission be appealed to to insist upon enforcement of law in those counties.

Southern California

Decay is showing much earlier in orange shipments than usual.

Present prices of cotton in Imperial Valley are $13.70 to $13.80 cents per pound.

Banning, San Bernardino county, reports a fall of 5½ inches of rain during the last storm.

With potatoes near the $3 mark, those who are holding are jubilant, and extensive planting is planned this spring.

Most orange packing houses are running full handed, and total shipments are now approaching the 200 cars per day mark.

Last week's rain covered all parts of Southern California with from three-quarters of an inch to an inch and a quarter precipitation.

Pizmo Beach, San Luis Obispo county, is making its first shipments of minced clams, the cannery having supplied heretofore only local demand.

Imperial boosters are working for an appropriation of $20,000 for equipment and maintenance of an agricultural experiment station in that county.

The decision of the surveyor general in the case of rich lands near Palo Verde, in Eastern Riverside and Imperial counties, has restored about 60,000 arces to original settlers.

An effort is being made to put the Orange County Poultry, Pigeon and Pet Stock Association in a stronger working position, and to give a poultry show the coming year which will eclipse all past efforts.

The National Orange Company of Riverside has just installed nine patent citrus fruit wagons, provided with special springs built low for orchard work, and with a capacity of forty packed boxes each.

The estimate of the California Fruit Growers Exchange is that the output of citrus fruits from the state will aggregate 48,000 cars. This is 3,000 cars in excess of that made by the Riverside Press a few weeks earlier.

The grand jury of San Bernardino county recently reported: "The horticultural commissioner has accumulated one of the finest and most complete horticultural libraries in the state, also a rare collection of specimens."

The reforestation committee of Riverside, San Bernardino and Orange counties is appealing for aid from the state engineer in the measurement of run-off from the local watersheds in which rise the waters irrigating these counties.

The defunct Alessandro Irrigation District, organized under the Wright Irrigation Act, has been sued for nearly a quarter of a million dollars for bonds purchased in Europe 17 years ago. The original bonds were for $123,400, which is asked together with interest.

Mr. J. W. Gregg, whose ranch is located between Banning and Idlewild, San Bernardino county, is about to plant 1500 apple trees. Mr. Thomas Pierce, in the same section, another 1500. Mr. Hughes, also in the vicinity of Banning, is about to plant 300 acres. This section will soon be known as a large apple producer.

The Coast

Klamath Falls, Oregon, plans for the construction of a beet sugar factory.

Spuds are now selling at Seattle freely at $1.25 to $1.50.

Spokane's first heavy snowfall came at Christmas time and was greatly needed.

A great flood early in December did damage to the extent of 400,000 pesos in the vicinity of Zamboanga, Mindanao, P. I.

The recent poultry show at Spokane claims to have beaten all coast records in a single comb Black Leghorn pullet scoring ninety-seven points.

Wool growers near Salem, Oregon, are circulating a petition asking for repeal of the law which would fine farmers for allowing stock to run at large.

It is reported that sugar cane in the Philippine Islands is allowed to remain in the ground only nine to fourteen months, while in Hawaii from eighteen to twenty-four months.

Irrigators in Oregon are incensed at what they charge is negligence on the part of their senators in not securing a fair share of the $45,000,000 irrigation fund distributed in December.

Estimates of hops now on hand made at Portland, Oregon, are in effect that the supply of unsold hops has not been so small in twenty years as at present.

The Poultry and Pet Stock Association of Whitman county, is exhibiting at Colfax, Washington, a fine line of cups to be given at the show which will begin next Monday.

According to the view of the wool-growing industry presented before the National Wool Growers' Association at Portland, this has been the hardest year in the history of the wool industry.

Northwestern apple growers are figuring that with a shortage of 400,000 barrels of apples reported from the entire country, the few which are held by western growers should bring a stiff price.

As a result of the annual meeting of the Western Live Stock Association held at Grangeville, Idaho, the possibilities of alfalfa were given general discussion during almost the entire session.

The Oregon supreme court has handed down a decision which involves the obligation of railroads to furnish cars to shippers and has sustained judgment in case where damages were allowed for delay.

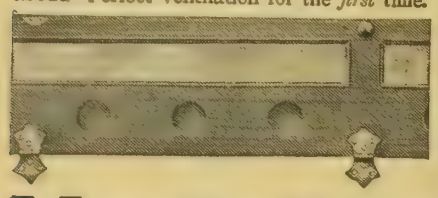
The Seventeenth Annual Convention of the Washington State Bee Keepers Association was held in North Yakima last week, and discussed foul brood and other pests of the industry.

Stockholders of the Farmers Exchange at Phoenix, Arizona, which has given its energies to marketing products of the members, have ruled that hereafter co-operative purchasing shall also be a feature of its work.

Delegates from fruit growers associations of Oregon, Idaho, Washington, Colorado and Utah have been invited to attend a meeting at Portland, January 24, to form a national apple selling agency.

More Inventions by Lee

Here's his new Incubator door all are talking about. Perfect ventilation for the *first* time.



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supply life-giving oxygen freely to the eggs and just as naturally draw off the poisonous gases. The most important step ever taken in incubator ventilation—neither above nor below, but *right at the eggs*—the correct principle, for the new Mandy Lee is making better hatches of *stronger* chicks than any other incubator in the world.

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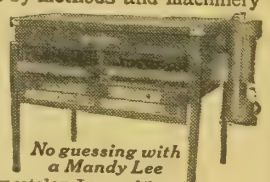

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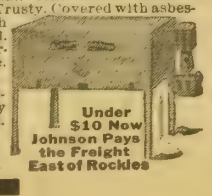

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Practical Poultry Culture

FEEDS FOR POULTRY.

By Prof. M. E. Jaffa, Before Haywards Poultry Association.

Green food is a necessity in order to obtain the best results. The best green food is alfalfa where it can be grown, even under difficulties, and it will more than repay the efforts necessary. Alfalfa is the richest green food you can give poultry, rich in protein, and the more of it you have, the less concentrated food will be required, 5 per cent protein being contained in lean alfalfa, the amount in leaves being considerably more. Any other green food, except peas, contains less. Succulency is what makes the green food necessary, and green alfalfa is the very best. Kale, cabbage and the various other green foods are good.

Any dry hay is not as good as green. You must have the succulent food. Alfalfa meal will not take the place of green food.

Sprouting grain is another method of obtaining green food, and more can be grown on small space than any other way. The Main Agricultural Bulletin No. 179 gives some valuable information on this subject, and can be had for the asking. Sprouting simply makes the grain succulent, there being no more food than in the whole grain, but in better form.

This bulletin also contains details of a lice powder and a cheap spray; however, crude oil with 5 per cent carbolic acid makes as good spray as any you can get. It is better to cut your green food and feed it than to allow the fowls to run out on it, unless allowed to run on it for a few hours only each day.

There is no best grain or grain product. Experiments have proven that just as good results can be obtained from barley as from wheat, and equally as good from corn. When a generous mash is fed, equally good results are obtained from either of the grains. This is of particular value just now, because barley is cheap, and should give just as good results, because nearly alike.

If fowls are accustomed to wheat, and will not eat barley, it only shows they are creatures of habit, and as variety is the spice of life, you will find a varied diet will give better results. Grain alone will not make a profitable food, having too little protein, and it is therefore necessary to feed a mash. There is no best mash, but you should know what the mash contains, and be sure none of the ingredients are injurious. Barley meal is one of the best ingredients. Ordinary barley mashes have the hulls removed, and unless the husks are removed you will have crop-bound fowls. In taking out the husks you take out a good portion of the bran. One of the best ingredients for the mash is bran.

Experiments show organic phosphorus compounds are what make it especially valuable as food. Corn meal contains a small amount of protein, but contains a great deal of phosphorus. Fowls need this phosphorus for bone and shell. When both fowl and eggs are desired, there is very little difference between them, and that is why you should use the same feed to grow fowl as for eggs.

Water not fit for human consumption is not fit for poultry, and the same applies to the container. Of the grains, corn is very rich in nitrogen, and if cheap enough should be used, because it contains 25 per cent protein. Another good meal is bean meal, being twice as rich as other grains. Soy bean meal contains 40 per cent protein, and other meals can be used and are good. Oil cake meal makes a good addition to your mash, but a great deal depends upon the price. Use that which is cheapest, providing it contains nothing injurious. Cocoanut meal is an excellent feed when fresh, but is sometimes rancid. Cocoanut meal forms an extremely desirable addition to the mash; by adding hot water, it will readily mix with the ground meals. Linseed meal does not mix well, but is 50 per cent richer, and also cheaper. The richest meal is cottonseed, and that has been used extensively, but not to any extent for growing chicks. It is sometimes necessary to use one or more of these meals to balance up with. You must get nitrogen.

Animal protein has been proven necessary if good resulis are expected. The best form is fresh meat, but as it cannot always be obtained at reasonable cost, the best substitute is dry beef scrap. There are a good many samples of beef scrap on the market which had better not be used. Beef scrap should mean meat, not hair or bone. The pure food law covers not only food for human, but animal consumption as well, so you can expect to receive what is paid for. By examining the meat scrap closely you can detect any undesirable material, and if there is much hair or bone in the scrap you should not take it. Many of these materials are rich in nitrogen, but the fowls cannot absorb it. Concentrated soup the fowls cannot use, nor beef extracts. Some of these are stimulants, but not food.

Milk, if granulated and powdered, gives just as good results as meat, especially for young fowls. The next best thing is skim milk. Cottage cheese is practically the same as fresh meat, and is a very excellent way to feed skim milk. You must not force fowls to the extent that their digestive organs will be impaired.

Proprietary foods should not be used extensively; some are good, and others not so good. You can make up your own food, and just as good, if proper care is used in its preparation. It is always desirable to know the ingredients. Manufacturers sometimes use one thing, and sometimes another, so that you cannot know the contents of the food. Rice meal and rice bran sometimes contain 40 per cent ash. Cottonseed meal at times is found to contain 26 per cent protein instead of 46 per cent as it should. Oats bring good results when fed to young fowls. Alfalfa meal should contain at least 17 per cent protein, but is found actually to contain but 13 per cent in many samples. Dry blood is not reported on favorably, although some feed with good results. First-class beef scrap is a great deal better. All blood contains a great deal of waste matter, averaging about 84 per cent.

A little salt will give good results, but only in the same proportion as for human food. Pepper the same; fowls like it.

Rolled barley should be fed as a

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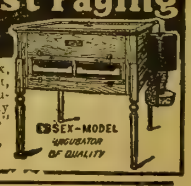

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rain, scattered broadcast. Ground one is an excellent ingredient, fed with less work and just as good or etter results by fixing a trough to ll once or twice a week, and protect- d so that there will be no waste. Cornell Bulletin 282 gives seven methods of feeding young chicks, and t would be well to obtain a copy. Green bone is best; lean meat better han dry scrap; fat is not good, and will advance fat in fowls. The mash ou can get the cheapest, of those hown in experiment bulletin, is the est. Buy chick feed which contains nly grain, no charcoal nor grit, and ny prepared meat scrap should be ept out, so that you can feed what ou want and know the amount. Any hange in feed is bad unless made radually.

There will be a new bulletin published by the California Experiment Station which will be put out in about one month, and will contain a formula for chick feed. This bulletin can be had upon application. Fresh blood is not worth half as much as fresh meat.

ABOUT INCUBATORS.

As soon as a man becomes interested in the breeding of poultry, he will, soner or later, come to the conclusion that successful hatching of the eggs cannot well be done or the business extended very greatly without the aid of the modern incubator. There are a number of reasons for this demand, and chiefest among them is that early in the season eggs may be plenty, but broody hens scarce, and this is particularly so here in the northern states, where the spring season sets in rather late. If the breeder waits till broody hens are plentiful, he might have chicks enough as the season advances, but as the early fall approaches, the late hatched chicks will not mature like the early hatched ones, and this, of course, is serious both to the market poultryman as well as the fancier, as in the case of the first, he must have his chicks out early so as to have them mature to good size when the market is good and to get his pullets out in time for early fall laying, and the latter not only finds the fall laying of importance, but size even more so, as the birds bred for exhibition would be seriously handicapped without the Standard demand in this respect.

Then a number of setting hens and their care during the time of hatching takes considerable time, more than the busy poultryman can well spare, and with more or less loss from broken eggs and hens leaving their nests. We cannot help but feel that though the incubator is not perfect in its construction and incubating power, it is a great time and money-saver, and will, with ordinary care, and a fair amount of common sense in the operator, give as good results, with less care and friction and consequent loss, than by using hens for incubation. We know that a few of the old-time poultrymen still have a strong prejudice against the incubator, for the reason that they think the stock hatched in an incubator is less strong and vigorous than what is hatched by hens, but this has been so fully contradicted by experience, that it hardly needs mention.

Why does the incubator fail in some hands more than others? I might answer this question by one word, and that is "fussing," which includes a good many reasons why some operators fail in succeeding with even the very best incubator on the market. Some people are everlastingly fussing with one thing or another, making an improvement (so-called) here, and another there, until the makers of that same incubator would be absolutely bewildered to understand that even the very slightest success could be obtained. The incubator was made for the purpose of hatching eggs, if those eggs are fertile—not to put brains into the operator, though he generally thinks he has more of the gray matter in place than the inventor of the incubator himself, and when the machine fails, it is always the incubator and the man who made it who are to blame, never the man who did not know enough to follow instructions. Common sense would teach the average intelligence that the inventor of the machine and the firm who send it out have experimented and tested their machines so they will give the highest percentage of usefulness in the incubation and hatching of eggs, if the instructions sent with the machine are followed.

Of course there are rules subject to change according to locality and time of year the incubator is operated, but this is generally stated in the instructions. It is the statement so often made by the inexperienced that causes the most trouble and loss. Sometimes even those supposed to know what they are about will make statements that the experience of any incubator operator would laugh to scorn, simply because he knows better. We have frequently seen it stated, and it is repeated year after year, and which has frequently caused the loss of more than one batch of eggs, and that is simply because in the critical moment they were disturbed by the impatient and inexperienced operator of an incubator with which he is making his first trial. Here is the oft repeated story: "A strong and well ripened embryo is ready for exclusion by the end of the twentieth day, and should be out and dry by the beginning of the twenty-first day." Here we have an unqualified statement that is a complete fallacy if applied to all breeds and under all conditions. Men of practical experience know that the age of eggs used in the incubator has a great deal to do with the length of time it takes to hatch them. Eggs two or three weeks old will not pip the shell until the very last of the twenty-first day, and sometimes longer. So, the heavier breeds, like the Cochins, Plymouth Rocks, etc., will take the full time to successful exclusion of the chick. And why is this? Well, I don't really know; but fact is fact, and is a great deal better for the successful running of an incubator than theory. I read not long since, of a man who at the end of the twenty-first day smashed a whole tray full of live and strong eggs because no sign of pipping had occurred. If this man had known the fact that early in the season one or two more days would have been necessary to complete the hatch, especially as he had run the incubator in a very cold place, and turned them, and cooled them in a very low temperature, such a rash act would have been prevented. I have taken off as fine hatches of chicks as anyone would wish to see, that with a correct hatching temperature had run well into the twenty-second and even the twenty-third day—chicks that grew apace and matured into fine stock, and notwithstanding all the talk that chicks not excluded on time are not worth while raising.

Again we have often heard it said, "A chick that has got to be helped out of the shell is no good." There are, however, circumstances and

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weather conditions where help becomes imperative and ought to be rendered. There have been seasons when it seemed almost impossible to hatch an egg successfully in the incubators, and under the hens as well, and it was not the fault of the breeding stock, as the eggs sent away from home hatched splendidly for others. It seemed that one-half would stick in the shell for no reason whatever, or at least, no known reason. Some of them more than half done with cutting the shell could make no further turn, and there they were imprisoned. I have at times noticed chicks by sheer force to burst the shell, and part of the shell glued to their back, and not because of any abnormal conditions of the fluids contained in the eggs, which still sometimes cause this condition, but only in one or two eggs out of a whole hatch. Now, some will say that this condition was caused because moisture in a sufficient amount was lacking, but this is not the reason, as the same condition would prevail in both incubators, one with applied moisture and one without it. I have sometimes thought that the shell might have lacked the qualities which make it porous enough to absorb the moisture, but it seems to me that would have hindered the embryo from developing as well. But whatever the cause is, it would have been sheer foolishness to have left those chicks to perish, which, without help, would have been the result. Simply clear the machine of the chicks already hatched, and the shells, and immerse the remaining eggs in water at a temperature of 105 degrees, putting them back in the machine dripping wet, and in a short time a lot of them will hatch.

Sometimes a chick will make a wrong turn in the shell and imprison itself, and this takes place in almost every hatch. When clearing out the machine, I have given such unfortunates a little help by locating the trouble under a strong light, and then picking the shell where the head is located, which is generally near the small end, and in this way saved a few that would otherwise have perished. All this may happen to good strong chicks; in fact, they are generally pretty robust and therefore yell for help.

Some of the essentials for a good strong incubator hatch is to have robust, vigorous stock to begin with, birds that will produce eggs with a germ that has a kick in it. Any amount of failure to succeed with an incubator is due to the stock, as there are a number of breeds that have been inbred for generations to such an extent that the stock has been weakened, and it is almost impossible to make their eggs hatch under hens, and it is simply to court complete failure to try them in an incubator, however good the make of it. But where these conditions do not prevail, the incubator at all times of the year will prove satisfactory, and give complete success even in the hands of an inexperienced operator, providing he follows directions, and has some common sense, without which even the directions would be misunderstood. I have, however, known persons who could not get results from an incubator, but their disposition and make-up was the direct cause of the failure.—American Poultry Journal.

IN THE RICH FIELDS OF SAN JOAQUIN COUNTY. Courtesy San Joaquin Co. C. of C.

SUCCESSFUL MATINGS.

The fertility of the eggs from each pen mated is, of course, of great moment, and therefore we will give this matter our first consideration, for however good the birds may be in feather they cannot reproduce themselves except the eggs are full of vitality, for the vitality in the germ is the foundation strength of the growing stock, and the beginning of all successful life both in man and animal.

Now the fertility of eggs depends chiefly on two conditions being observed and neither one can be disregarded: the stock birds must be in good health and the number of females allowed to each male not more than he can manage and keep himself in sexual vigor.

The number of hens that any cock bird may be allowed naturally depends upon the age and vigorous propensities of the bird, and whether he is on free range or in confinement, whether he is of an active or sluggish dispositioned breed and the time of the year in which he is mated to his companions.

For instance, a Leghorn male will very frequently give proper attention to fifteen females in a fair-sized pen, where a Cochin would often times produce a number of infertile eggs mated to half of that number, and if the Leghorn was on free range when spring opens up he would manage from twenty to thirty without the slightest trouble.

To give an exact number for any breed is worse than useless and misleading, but as most of our matings are made up for best results, both as to fertility and strength of the product hatched from the eggs, much must depend on observation, for it is pretty nearly as bad to undermate as to overmate, for in the first case a strong male bird will worry the females till he gets them down on the legs, and in the second instance he will weaken himself.

It is not often mentioned that a male may run with fifty females and yet in some such cases a good proportion of the eggs will be fertile, because he will only give attention to the few hens in the flock that are productive, and the hens themselves will keep out of his way. My reason for mentioning this is because oftentimes the small breeder has only one splendid male bird, and he would like to mate him to as many females as possible and get as many fertile eggs as he can.

Now, early in the season it is not likely that all the females will be laying, but that they will come on, as is always the case, little by little, and at this time it will cause no trouble if a strong male is mated to a greater number of females than is usual, as his attentions will only be given to the layers.

If the whole flock is shelling out eggs as fast as they can, this course cannot be followed, but that is rather the exception than the rule during the months of February and March.

As to health, the birds must be in full possession of it, as no results can be expected where the breeding stock lacks in this respect. The females should be in a good active condition, in good flesh, but not fat; a flock of over-fed lazy hens will not be likely to fill the egg basket, and after having taken on a surplus of fatty matter it is hard to get rid of, as it will cause inactivity, which is sure death to the successful establishment of the breeding pen.

Some of the smaller breeds do not get fat. No matter how much is fed them their active disposition will hinder that condition, but all the larger breeds, including all the American varieties, will fatten easily if over-fed, and as a consequence become useless as breeders. When the stock is in full lay they will not fatten readily if the proper food is given them. The period which needs the most care in this respect is when the stock is ready to lay, yet lingers and sings, as a pullet sometimes will, for several weeks before she lays the first egg.

Too much attention cannot be given to the matter of plenty of good water and green food. I believe that not

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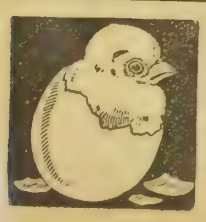

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On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

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only the number of eggs laid, but the fertility of them, largely depends on providing well for the birds in this respect, and observations show how important this matter is.

The largest egg yield is given us early in the spring. Now, all we have to do is to watch our birds, and we will find that they will leave their usual rations and fill themselves full with the first spears of the growing grass, which simply shows that their system craves this food more than any other, however good it may be.

Cabbage is not too dear at any price, as it provides well the craving of nature for green food, and there is nothing better. A few apples will be relished and provide a change. Beets, turnips, carrots, in fact every thing in the way of eatable roots will answer, but the green leaf of the cabbage and the early spears of the grass are most preferred.

Soft food we deprecate in the breeding pen. It is not conducive to exercise and impairs digestion more or less, and is a means of forcing for eggs, which, of course, should never be done where the eggs are to be used for hatching. A natural coming into laying by the females will, when they get started, induce a steady supply, and they will be strongly fertile, with a germ that has a kick in it, and which will produce a chick that comes into the world with a good intention to live and begin life without that tired feeling that generally ends fatally.

Much complaint is heard every season from persons buying eggs for hatching that they have had very poor results, or none at all, which is generally the cause of improper care of the eggs, if previous condition of the stock is all right.

A suitable place should be selected, not too warm and not too cold. If very warm during the day and very cold at night is the condition under which the eggs for hatching are kept, the result most likely will be addled eggs when put under the hen or in the incubator.

An even temperature of from 40 to 50 degrees is the most suitable in which to store eggs for any length of time that are to be used for hatching. and if early in the season eggs should be collected often, in fact before they turn cold, as they chill easily early in the season when it is still freezing weather. Every year we have marked eggs that were very cold to touch with a C, which stood for chilled, and up to date none of them, though the germ would start, ever produced a chick at hatching time.

We have already hinted that close housing is not desirable, even though in some parts of the country cold weather persists during February and March. Give an abundance of fresh air, but remember that fresh air is not drafts going from one end of the house to the other. A yard of strong vigorous birds will want to get out on the coldest day, and they will do very much better for it. Coddling is not conducive to strong fertility, as all it does is to engender laziness, and this last is simply the beginning of the end, the end of eggs in any great numbers, and those gotten will not produce strong chicks.

A hen which has no more ambition than to stand around and shiver with her feathers on end when she ought to be taken out of the pen and kept by herself, and given no other food than she will dig good and hard to get, and this treatment will reduce the flesh, or fat, I should say, and generally succeeds in making a hustler out of a good-for-nothing, and yet the hen is not always to blame for they are very much like humanity in getting as much as they can and for as little hard labor as they can, and many a flock of otherwise good fowls has been made useless by overfeeding and coddling.

Open up the windows, give air, plenty of it. When you do, there will be no wet walls in the poultry house, nor a lot of sneezing hens or hangarounds, but birds that will go singing to their work and look health and activity all over, and that means plenty of eggs, and fertile eggs, and strong chicks.

Whatever system of feeding is employed stick to it, providing it contains all the necessary nutrients for egg production, and if the hens are laying pretty well, whatever you do don't shift from one kind of feeding to another, for you will simply stop the hens from laying.

They do not take readily to a radical change of food, and though I believe in a variety, this can be done by adding a little today and some other little tomorrow, but if you want to try the "dry feed plan" begin it with the chickens and not with a lot of hens, for they will not take to it readily and will certainly leave you without eggs, for a spell at least.

There are so many poultrymen so fond of trying things, but it is unwise to try anything except we try it in the right way, and when eggs are wanted for hatching, and lots of them, that certainly is not the time for experimentation.

As to the ages of the birds, we have something to say which is of vital importance if continued success is to be maintained: Young and immature birds are not fit to breed from. There is no power on earth that can retain the strength, size and vigor in any breed if a succession of cockerel and pullet matings is resorted to.

I always maintained that a pullet would make a breeder if she was hatched late in February or the first day of March of the previous season, that is, when she is a full year old, but pullets younger than that make poor breeders, and how frequently these little runts are used, hatched late and used early, and all the care, and all the choice feeding you may resort to will never make matters right.

Young full-sized hens, one and two years of age, will give results both as to feather and egg production which younger birds will seldom if ever do.

The same holds good with the male bird. Nothing less than a full year old, and not then, except he is well furnished with hackles and sickles, and at least a half spur, the emblems of sexual maturity.—Successful Poultry Journal.

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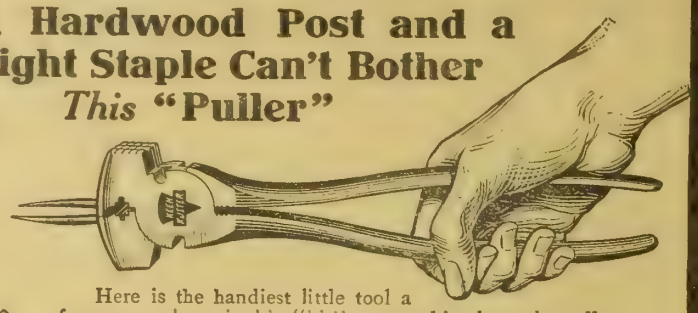

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Irrigation and Forestry

THE CREOSOTING OF FENCE POSTS.

The vast number of fence posts used in the United States every year, and the growing scarcity of hard, durable post timber such as chestnut, black walnut and white oak, as well as the increasing demand for this more valuable timber for other purposes, have in recent years made it more and more necessary for farmers to depend upon softer and more quickly decaying wood for fencing purposes.

As a means of increasing the life of the pine, willow, sycamore, cottonwood and other kinds of soft fence post wood, many up-to-date farmers are employing creosote and other preservative oils with good results. It has been found that the resistance of all treated posts to decay is alike, regardless of the wood used. A pine post treated with creosote will last as long as a chestnut post untreated, which means that it will be good twenty years after being set. And these inferior, soft woods take treatment better than the harder woods, because the soft woods generally have a deeper sapwood, which readily absorbs the preservative oil. This applies especially to water oak, maple, quaking aspen, willow, sycamore and cottonwood.

The best preservative for wood is creosote, or dead oil of coal tar. Another advantage is that the price is reasonable. It can be purchased by the barrel in almost any large city of the United States, but is cheaper in cities near coal mines, or where illuminating gas is being manufactured, when the price may be as low as ten cents per gallon. To obtain creosote the coal is subjected to high heat, without the presence of sufficient air to promote combustion. This process gives two main products—illuminating gas and coal tar. The latter is then distilled and separated into the light oils, the dead oils (creosote) and pitch. The heavier the grade of oil used for creosoting wood the better.

In applying this preservative treatment to fence posts the larger the boiler used the more economical will the process be, because you can treat more posts at a time, which is quite an item, for they should remain in the creosote from two to twelve hours. The boiler should have a flat bottom, with ten or twelve square feet of surface. If creosote is cheap and you wish to treat the entire post the boiler should be about six feet long and probably two and one-half or three feet wide. But very good results may be gained by treating only the butts to at least six inches above the surface of the ground, for it is, of course, much more important that the part coming in contact with the earth be heavily charged with the creosote. Then after the posts have thoroughly dried and are set, the remaining parts may be given a coat of hot creosote with a brush.

The creosote in the boiler or tank should be heated from 180 to 230 degrees F., and the posts should remain in this bath for two to eight hours, depending somewhat on the kind of wood treated, but more upon the dryness of the wood. The hotter the creosote, the further the oil will strike in, but the temperature should never be higher than 250 degrees F. Also the longer the posts remain in the boiler, the better the treatment will be, and the longer will be the life of the post after it is set. Where posts contain much sapwood the oil goes in deep, but heartwood does not absorb the preservative readily. Soft wood like pine, or porous woods like red oak and the poplars, can be treated more easily than dense woods like the oaks, and hence need not be left in the creosote for so long a time.

All the inner bark should first be removed, and after treatment the posts should be stood with the butts up, in order that the free oil may run down over the small end.

The top of the posts should be cut slanting, preferably with an ax, and if only the butts are treated the top of the posts, after being set, should be given two good coats of the hot creosote, or even linseed oil containing a little white paint, in order to form a surface on top of the post impervious to moisture. This is especially important in the case of large grained woods like red oak, for it is here that the moisture gets into the untreated post and starts it to decaying. When posts are cut with a saw the pitch should be still greater.

The top brush painting should be done during warm weather. If done during cold weather the oil hardens on the surface of the post without striking in.

If creosote is expensive, and you cannot afford to treat the tops by brush painting, it will help considerably to give them a heavy coat of linseed oil combined with a very little white paint, giving the top ends two or three coats. The posts should be treated and set in the ground only when thoroughly seasoned, and during dry weather. Wood dries faster in spring and summer, but is more apt to check or crack. The best time to cut fence posts is in the late autumn or early winter, and treat them in the late winter, giving the tops the brush painting on some warm, sunny afternoon.

It is estimated that it costs eighteen cents to buy and set an untreated pine fence post under ordinary conditions, and thirty-three cents for treated posts. The untreated post will last about four years, making the annual cost about five cents, while the treated pine will last at least twenty years, at an annual cost per post of only three cents, so at the end of twenty years you will have saved forty cents on each post by the creosoting process. —Pacific Homestead.

Irrigation consists in diverting water from a natural stream by either ditch or canal and causing it to flow or spread over the land at stated periods.

Irrigation was probably originally resorted to by communities in which people were confined to prescribed limits and who learned the beneficial use of water. Under irrigation there is no failure of crops, and, upon investigation, it is found that it was extensively practiced in times of remote antiquity, as, for instance, in Egypt, where it was practiced over two thousand years before Christ, and the remains of great systems of canals and artificial lakes are found today, showing that irrigation was at one time fully understood, not only in Egypt at that remote period, but in India and China as well, and among the people

of these countries, who have not entirely lost their ancient prosperity, such works still exist in almost their original form.

In many parts of the world the necessity for irrigation is so strongly felt that it is resorted to by comparatively rude tribes, such as was found by the Spaniards to be the case among the Pueblo Indians in Mexico, who were irrigating the thirsty soil as their forefathers had done for centuries before them, and their descendants are still doing so today.

In the desert wastes of the Southwest, Spanish settlements sprang up and were maintained by means of irrigation. There are a few ditches in Southern New Mexico which have an unbroken record of use for over three hundred years. Some plants require a great abundance of water; for example, rice, which is the principal food of many people of the world, especially those of Asia.

Irrigation prevails in the southern portion of Europe, and was extensively practiced by the Romans, and today the greater part of Spain and Italy and the southern part of France are almost entirely subject to irrigation. It is estimated that the river Po irrigates 1,600,000 acres alone.

Irrigation and the conservation of the water of the streams has been and is one of the great problems confronting the people of the arid and semi-arid countries, and under proper attention being given to these problems the most densely populated sections of the globe have existed and do exist.

Agriculture under irrigation in the arid and semi-arid regions of the United States is most favorable as to temperature and sunshine. The soil brings forth crops quickly and abundantly. The arid region of the United States extends from the lower Rio Grande river along the base of the Rocky Mountains and as far north as Edmonton, Canada, and along as much as one-half the western Rocky Mountain base. This region of the United States is estimated to comprise over one and a quarter millions of square miles of territory, and the total reclaimable area in the United States has been estimated by Major Powell as sufficient to form eight states the size of Indiana.

A great deal of attention has been given irrigation in the intermountain country during the past twenty years. Extensive works have been constructed, many are being built, and others are under contemplation, and it may be said that those already completed and those building are largely copied from the ancient works of the same nature in Europe and Asia.

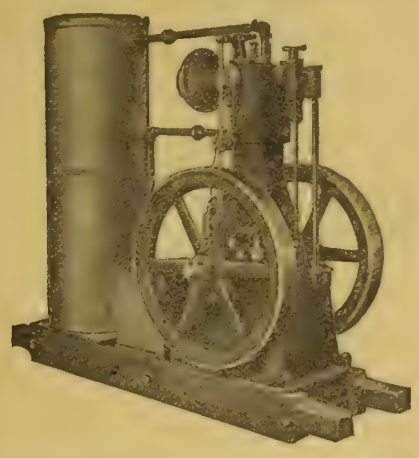
The settlement of Utah in 1849 and the Greeley colony of Colorado were the first people of Anglo-Saxon extraction who adopted this mode of agriculture in the Middle West.

Only during the past few years has any thought been given to the storage of water. In fact, the question of the storage of water is in about as immature a condition right now as was farming here in 1880.—Irrigation Journal.

The water supply is one of the first subjects to be considered by a prospective buyer of irrigated land. That generally comes from the natural watershed of the mountains. The supply depends largely on the snow and the moisture-holding properties of the forests. If the underbrush and grass become wasted for any reason—fire or over-grazing—the snow will disappear early in the spring, and a scarcity of water will follow later in the season. If there is no water in the streams of nature, the owners of irrigation canals cannot deliver water to the farmers.

THIS AD WILL BE READ BY EVERYONE INTERESTED IN A GOOD GAS ENGINE

WE HAVE THE **ALAMO** MADE ESPECIALLY FOR



THE FARMER'S MANY NEEDS

ALL SIZES IN STOCK

BAILIE & BRANDT CO., Inc., Sole Agents

943-945 NORTH MAIN ST. A 1263 PHONES Main 8794 LOS ANGELES

Deep Well Pumping For Irrigation.

The past season has demonstrated more than ever the practicability and superiority of the Pomona Deep Well Pumps. It is fully proven that it is possible to lift large quantities of water from very deep wells with a surprisingly small amount of power. It has usually been considered that a plunger pump is only good for a 35-inch stream on a lift of say 200 feet, but the Pomona Manufacturing Company have demonstrated that it is no longer necessary to use a centrifugal pump, with its wasteful usage of power, to get a large quantity of water out of the ground, as this company is manufacturing extra large size cylinders including 12, 13, 14 and 16 inches in diameter, and capable of lifting from 50 to 100 miner's inches of water. Not only that, but they are prepared to go down after it to depths of 300 and 400 feet if necessary.

They have one plant at Claremont where the water stands 390 feet below the surface and the pump has a total lift of 450 feet, delivering 45 miner's inches of water with 60 H. P. on the motor, and doing it easily. There is another plant in Ontario lifting 60 miner's inches 300 feet with a 60 H. P. engine.

The parts below the surface have been so perfected that they are perfectly reliable and are giving as little trouble as it is possible for a machine to do. Other pump makers, noting the wonderful success of the Pomona Pumps, are trying to imitate them, promising something just as good, but they are only imitators and have not the knowledge or ability to make their claims good.

The Pomona Manufacturing Company has a large plant at Pomona, the only one in Southern California, devoted almost exclusively to manufacturing Plunger Pumps. They are a reliable establishment and are here to stay, to make good their guarantees and to supply your wants in the way of extras or assistance. Their machines and apparatus have been tried out and their value fully demonstrated.

Anyone needing pumping machinery should send to them for catalogs, or visit them in person.

Stockholders of the Apple Annual Association held their annual banquet at the pavilion last Monday night.

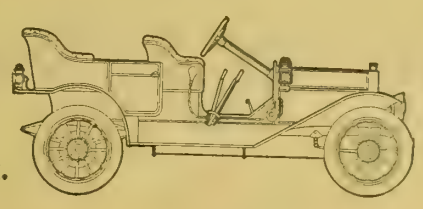
The Rain Will Put Money in the Farmer's Pocket.

Invest It WISELY

BUY John Deere Plows Cultivators and Harrows

We are also agents for Buckeye Fertilizer and Grain Drills, 30 and 40 horse power Flour City Traction Engines, Peter Schuttler Farm Wagons and a full line of high grade Spring Wagons, Buggies and Surries.

At our **Automobile Store** 1114-1116 So. Olive St.



We have the **Oakland Motor Car**

2, 4 and 5 passenger 1911 models. The best pleasure automobile for the money on the market.

HAWLEY KING & CO.

224-226 South Los Angeles St. LOS ANGELES, CAL.

THE BEST IN THE WORLD; HAS NO EQUAL

The Original R.I. Knapp Side-Hill Plow

Orchard and Vineyard Plow received first premium at State Fair.

If you cannot get our plow send us the name of your dealer and we will see that you are supplied. Has given entire satisfaction for over thirty years. Equally as good for valley as hill sides. We manufacture five sizes—from one-horse orchard and vineyard plow, to the strongest grading plow.

SAN JOSE, CALIFORNIA **H. G. KNAPP & SON**

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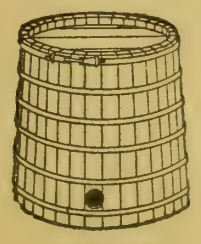

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WINDELER'S PLANING MILL AND COOPERAGE

GEO. WINDELER, Prop.

Water Tanks, Wine Tanks made from carefully selected stock by careful and experienced workmen. "Tanks that are well made last a long time." It will pay you to get my prices before buying.

Geo. Windeler

144-154 Berry St. San Francisco, Cal.

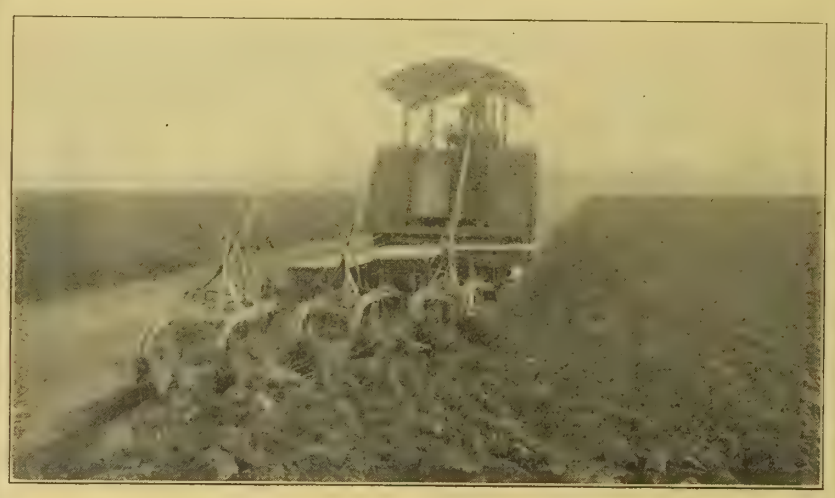
Wine Tank *Water Tank*

This at 4 Miles an Hour

"LET THE HART-PARR DO YOUR WORK"

It is the Modern Farm Horse.

This at 2½ Miles an Hour



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ZIMMERMAN & JONES

877 STEPHENSON AVE., LOS ANGELES

Take Hollenbeck Park Car on East 3rd Street

$25.00 per Acre Irrigated Land

Great Yaqui Valley

(Sonora, Mexico.)

Easy terms.

Wheat yields as high as 45 bushels to the acre—alfalfa 8 to 10 tons.

Railroad transportation—Irrigation system now in operation—Rich level land—Good market for all products at high prices—Fine climate.

The American Farmer's Opportunity.

Write for printed matter.

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General Land Sales Agent

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Villa Anna Nursery

Spineless Cactus as food for farm animals and poultry a special culture.

ASK FOR FREE INFORMATION.

Santa Rosa California.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Ground Squirrel Eradication.

Kindly inform me how to proceed after land owners have refused to eradicate squirrels. They now refuse to do anything.—Reader, Lindsay.

This question was submitted to Surgeon Rupert Blue of the Marine Hospital Service and he writes in effect that "Delinquents should be reported to the Secretary of the State Board of Health at Sacramento. After the counties have been organized and the inspection service established, complaints may be made direct to the chief inspector at the county seat."

State Commissioner Jeffrey writes more fully as follows:

"The squirrel law is at present in a very chaotic condition. In the first place nearly all the old laws requiring the extirpation of squirrels in certain counties named in the legislative acts have been repealed, and in those counties in which the legislature has not repealed the law it is a dead letter. There is a general power delegated to the board of supervisors of the state authorizing these boards to exterminate these pests, but it is rarely if ever invoked. This is the law under which Santa Clara and two or three other counties appointed the so-called 'county entomologist,' as the general power referred to above included insect pests, as well as squirrels, gophers, etc.

"It is true then that all our old laws relating to the squirrel pest are either obsolete, repealed or left to the supervisors to initiate enforcement. There was then, up to March 13, 1909, no effective power to whom one could appeal for enforcing the destruction of squirrels, and the law of 1909, I fear, will be as abortive as previous measures, though it will have behind it some power from the State Board of Health, but not enough to compel observance. Briefly, the new law declares it to be the duty of every one harboring squirrels, rats, mice, gophers or ground squirrels to destroy these pests; it authorizes state and county boards of health or their inspectors to enter all premises for the purpose of determining if the pests abound; the boards of supervisors or city councils, when they deem it necessary for the preservation of health or the protection of crops, 'may' by resolution appropriate money with which to buy traps or poisons, and with which to employ inspectors and otherwise prosecute the extermination of these pests, all under supervision of the board of health; whenever persons harboring these animal pests shall refuse to abate these nuisances the inspectors shall cause the work to be done and the expense shall be a charge against the county or the city, and the expense may be recovered by lien as is done in the extermination of fruit pests.

"If the State Board of Health carries out its present plans the law will not be abortive, though no enforcement of the act has as yet been attempted. The State Board has already requested the supervisors of the state to fully notify all interested parties that the law will be enforced; expert advice as to the best means of killing squirrels will be given by the federal and state health authorities; property owners have been given time expiring 31st January this year in which to exterminate; upon that date all property owners who have not exterminated the pests will be warned by the supervisors or councilmen and given one month in which to complete the task; on February 1 final inspection will begin, and all property found infested will be condemned as orchard infection is now condemned under another law; the final work upon these properties will be done by the county or state health officials and made a lien collectable as all liens are collectable.

"In answer to your question as to whom complaint shall be made by one whose neighbors have not complied with the law, the complaint should be filed with the State Board of Health, at Sacramento, or with any county health officer under the jurisdiction of the State Board."

Eucalyptus for Malaria.

If it is true that planting eucalyptus trees around buildings will prevent malaria, what kind is best? Also which is best for posts and fuel?—New Subscriber, Patterson.

It is not true that eucalypts prevent malaria. Our scientists inform us that malaria is caused by infection through bites of a certain mosquito, and unless the eucalypts absorb moisture from stagnant water in which the mosquitoes might breed, they would be of no benefit. There is a very general opinion, however, that eucalypts do aid in creating healthful conditions. We would not plant too close to the house where the shade would be too dense. So far as we have heard expression, the blue gum is given the preference. It is the richest in eucalyptus oil, which is a perfect antiseptic. For fuel the blue gum is also to be preferred, principally because of its rapid growth. In your section of the San Joaquin Valley it is possible the temperature might be too low for the blue gums to do well. In such a case we would plant the red gum, rostrata. Neither of these varieties is ideal for posts, but if cut in the fall and allowed to season, then treated with creosote, they do very well.

Poison for Ground Squirrels.

What is the best way to kill ground squirrels? Will they eat wheat soaked in strychnine?—Subscriber, Patterson.

The best treatment for ground squirrels may be found described on page 584 of the Cultivator of December 8th. This article gives the formula by the Public Health and Marine Hospital Service.

Hens vs. Ducks.

Which is considered most profitable, raising hens for eggs or ducks for market? What strain of ducks is best for eggs and how do they compare with a laying strain of hens as to number of eggs per season?—A. W. M., Durham, Butte Co.

The profit in either case would depend upon the market and other conditions, more perhaps upon the preferences of the man or woman entering into the business, but in a general way we would say that the duck business would be more satisfactory where the ranch was near a large market. It would seem to me that

Butte county was too far removed to promise greatest success. Express charges and loss in transit would handicap the producer. This would not be so pronounced with shipping of eggs. The best laying strain of ducks is the Indian Runner, sometimes called the Leghorns of the duck family. We do not think they will average the number of eggs that the best hens will, and some markets discount them, though they are a large egg.

Rheumatism.

I have a hen about one year old that seems unable to use her legs. She eats well and seems fairly well. She started in by stumbling about two weeks ago, but now she can hardly stand at all. I have others that are all right. I feed bran with table scraps in the morning and wheat or grain at night. They have plenty of green food. If you can assist me with information I will be very much obliged.—H. T. B., Los Angeles.

Hen is suffering from rheumatism, and Mrs. Basley recommends a liniment composed of one teacup turpentine, one of vinegar and a tablespoon of saltpeter. A neighbor has used it for a hen suffering as yours does, and she was helped.—Mrs. Frank Metcalf.

Barrenness.

We have purhcased a heifer calf from a most valuable cow, and we had hoped to raise her and keep her for our own use. The calf is a twin, and we are told she will never become fresh.—Subscriber, Kingsburg.

This belief in the barrenness of twins seems to be general, but we have heard old stock growers say that they would give much to know of one authentic case where twins failed to make good producing cows simply because of that fact. Of course, any animal may be so affected, and it is possible that one of twins might be, the same as any other animal.

Temperature for Guavas.

Kindly let me know how low a temperature guavas will stand. Where may plants be bought?—Subscriber, Yucaipe.

The guava is a tropical fruit, and will stand but little frost; when the plants are young, practically none—that is, they should be protected for the first year or two. After they are well established they will stand practically the same as an orange tree. We have known of the plants doing fairly well in sections where the temperature has been known to go as low as fourteen degrees, but such a condition is not ideal for the plant. Your local nurseryman should be able to supply you. If not, apply to nurserymen advertising in The Cultivator.

Alfalfa for Poultry.

Please give balanced ration for poultry in which alfalfa meal forms a part. Is it desirable feed for poultry?—Subscriber.

From the circular of an alfalfa meal manufacturer, we give the following formula for laying hens. Alfalfa meal is rich in protein, and does make an economical feed in California:

5 lbs. alfalfa meal (coarse).
4 lbs. barley (rolled).
7 lbs. wheat (cracked).
1 lb. meat meal.
2 lbs. cocoanut oilcake meal.

Olive Cuttings.

Please give me directions for starting olives from cuttings. Can cuttings in nursery row be put out in spring?—Subscriber, Fresno.

There are two forms of cuttings from olives. The tender herbaceous tips should be taken in the spring-time, when the trees are growing thriftily. These are cut a couple of inches or longer, and buried in sand. With under heat in the glass house they will soon granulate and send out little rootlets, when they may be planted in nursery row. Then, after one summer's growth in nursery row, they may be set in orchard form, but many prefer them to have two seasons' growth. The other form of cutting is the hardened wood, which may be cut at this time of the year. Such cuttings may be the size of a lead pencil or larger, and ten to fourteen inches long. Bury two-thirds of cutting in sandy soil, rows far enough apart to allow of cultivation, and a few inches apart in the row. One or two summers' growth in the nursery row will precede orchard planting.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Swelling—Brittle Hoof.

My horse has a swelling on his chest. There is a small scratch on the surface. Probably bruised by reaching over the manger. Another horse has brittle hoofs.—Subscriber, Delano.

Change to a stall where the breast will not come in contact with the manger while the horse is eating. Horses sometimes injure the windpipe or the breast by resting the parts against a high manger. Paint the swollen part with tincture of iodine three days in succession, skip three days and repeat. Nothing is better for brittle hoofs than to allow the horse to go without shoes for a few weeks in wet weather. If this is not practicable, a good hoof liniment may be made by mixing melted lard four parts with pine tar one part. After cleaning, paint the hoof—shell and bottom—every third day with the ointment.

Scirrhus Cord.

Several shoats have tumors as large as cocoanuts which appeared after castration. They are not ruptures, though they have that appearance. What is the cause, cure and preventive, if there is any?—Subscriber, Kerman.

Examine each enlargement carefully by having an assistant elevate the rear end of the pig while you press upon the tumor with the thumbs. If the tumor disappears, wholly or in part, it is probably a rupture, but if it remains hard and prominent, it is a disease of the cord due to the growth of a mould-like microbe in the castration wound. In that instance your only recourse would be to remove the tumors by surgical operation. Since you have a number of these cases, and also considering the liability of rupture complications, it would be well to employ a veterinary surgeon to do the operating.

Castration performed under proper precautions of cleanliness and with the use of suitable antiseptics, is seldom followed by such growths. Either the castration operations were improperly performed or the infection exists in abundance on your premises.

It is reported that Santa Cruz county is beginning a new era of tree planting which local nurserymen are planning to supply. One nurseryman is now grafting 175,000 seedlings.

EVERYBODY KNOWS

That the "SUCCESS" Incubators and Brooders are sold for many dollars less than other companies can afford to sell at.

THE REASON? We do not own a $50,000 plant; we hire no useless office officials, everybody works, we sell on a close profit, buy everything for spot cash, own the Pioneer Hatchery Company, the largest hatchery concern of its kind in the world. Own our own building, pay no rent, have no partners and have to pay no dividends to any one.

WE SELL DIRECT to you at wholesale prices. We do not sell on credit to any concern whatsoever. Can redwood be shipped east and then reshipped back again to California and sold to you in Incubators unless they make a big profit on the deal? Think it over. I am willing to sell at a close price. I also pay the freight. Every Incubator I sell is sold on our

FREE TRIAL OFFER—30, 60 or 90 days.

Get the 1911 illustrated book today; contains 48 pages, and the most interesting book of its kind ever written.

EXPERIENCE. We certainly know how to make good Incubators; we incubate thousands and thousands of eggs year after year. Machines we offer are not new, untried experiments. I make four sizes: 60 Egg, $9.00; 130 Egg, $14.00; 360 Egg, $25.00; 612 Egg, $40.00.

I PAY THE FREIGHT.

THE LARGEST SALE OF INCUBATORS EVER MADE at one time to a customer in Los Angeles was made by us when we sold Carl Matson his large number of 612 egg size Success Incubators for his hatchery.

INVESTIGATION is all I ask. If my book can't show you plainly why I can sell you the best Incubator for the least money—then no harm is done.

FIRELESS BROODERS—75 Chick, $3.00; 150 Chick, $5.00; 150 OUTDOOR style, $6.50. We pay the freight.

Send for the book today. Send your neighbors' names.

E. E. McCLANAHAN

108-110-112-114-116-118 East 8th St. - - - Los Angeles, Cal.

MAKE YOUR SOIL PRODUCE MORE MONEY

By Using the Right Kind of

FERTILIZER

Buy NOW for your Spring Application

NITRAT OF SODA, TANKAGE, BLOOD, BONE MEAL
BONEL FLOUR, NITRATE OF LIME, GYPSUM,
GUANO, SULPHATE POTASH, ETC.

BRAUN CHEMICAL COMPANY

906-910 East Third St. LOS ANGELES,

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Warehouses in every Principal Town in the Citrus Belt.

The Largest Chick Book Ever Printed---IT'S FREE

The New 1911 64-Page Book of the Pioneer Hatchery Co., the largest dealers in Baby Chicks and Thoroughbred Poultry in the world. Ready for mailing this week. Contains descriptions and illustrations of every kind of chicken, duck, turkey and goose, etc. that we sell. We want to mail a copy to every poultryman in California. We have thousands of books ready. Send your name and names of your friends that are interested today.

We can supply Barred Rocks, Reds, Orpingtons, White Rocks, White and Brown Leghorns, and other kinds of chicks every week at present. Write today.

The Pioneer Hatchery Co.

108-118 East Eighth St. Los Angeles, Cal.

"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gang-plow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

BOESCH LAMP COMPANY

ESTABLISHED 1869. INCORPORATED 1892.

1135 Mission Street San Francisco, Cal.

SEED

Barley—Good Clean Stock.

Oats—Imported Texas Red, also local grown.

Wheat—Clean California Seed.

Burr Clover for late cover crops.

Fancy Utah Alfalfa Seed.

Advise us of the quantities you need and we will quote you attractive prices.

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MORRIS & SNOW SEED CO. 425 So. Main Street Los Angeles, Cal.

If you want the best Nursery Stock, put up in the Best Manner and at a Fair Price,

SEND US A LIST OF YOUR WANTS AND WE WILL GLADLY QUOTE YOU

EUCALYPTUS

in any quantity, as well as a first-class line of General Nursery Stock.

MARSHALL NURSERIES

Box 652 Fresno, California

Are Your PROFITS DRYING UP?
FOR THE "LAND'S SAKE" Why Don't You Irrigate That Farm of Yours?
You don't need a Surveyor. Get a Bostrom Improved Farm Level and do the work yourself.
THIS LEVEL IS NO MAKESHIFT. The outfit includes Level, Telescope with magnifying glasses enabling you to read the target a quarter of a mile away; Tripod, Graduated Rod, Target, and Bostrom's 70 page book—"Soil Salvation"—giving the cream of 25 years practical experience in Irrigating, Draining and Terracing, with full instructions how to use the Level. Simplicity, Accuracy, Durability Guaranteed. Used and endorsed in every State in the Union, also Canada and Mexico. Price $15.00.
If not on sale by your local merchant, he will order for you; or you can write either of the following jobbers direct, who will see that you are supplied. Pacific Hardware & Steel Co., San Francisco or Los Angeles; The Thomson-Diggs Co., Sacramento; Hazard, Could & Co., San Diego.
Shipping Weight 15 Lbs.

Ruehl-Wheeler Nursery

Office and Sales Yard: 121 W. San Fernando St., San Jose, Cal. Box 826

Fruit and Ornamental Trees.

Nurseries: 90 Acres, Monterey Road, Near Edenvale. 25 Acres, Center Road, South of Tully Road. 16 Acres, East San Jose, Alum Rock Ave.

Send for Free Price List.

Western Machinery Company

Fourth and Brannan Sts., San Francisco

We sell all kinds of **Second Hand Pumps, Std. Pipe and Screw Casing, Anvils, Forges, Rubber and Leather Belting, Wood and Iron Working Machinery.**

Write for catalogue and prices.

Timely Ranch Suggestions

BROOM CORN.

The price of broom corn has been so high the past few years that it has become a very profitable crop to grow. Missouri has never produced a great deal of broom corn, but in a few counties it has been grown in considerable quantities. Henry county has usually held the banner in broom corn growing, having to her credit 1,375,000 pounds surplus in 1908 which was about 80 per cent of the crop in the state. Oklahoma is becoming one of the leading broom corn states and we reproduce for the benefit of our readers what the Oklahoma Station has to say about the best methods of growing and harvesting the crop:

"There are two recognized types of broom corn grown in Oklahoma: the dwarf and the standard.

Dwarf.

The dwarf is recommended for the general market and for Oklahoma conditions. It grows four to six feet high, with a brush twelve to twenty inches long. This type is best suited to the semi-arid region or to the upland of the broom corn section of the Southwest.

Standard.

The standard grows to a height of from seven to twelve feet and is adapted to the more productive soils such as bottom land.

Preparation of Seed Bed.

The soil should be plowed in the fall or early in the winter so that it will retain as much moisture as possible. About two weeks before planting the land should be disked and harrowed, and if necessary, harrowed a second time before planting. Broom corn is a good sod crop. It is very largely raised on the new land of Western Oklahoma and makes profitable yields.

Time.

Broom corn plants are very tender and make the most rapid growth in warm weather. They will not stand the cold of early spring like corn. The seed will rot before germinating, or if the plant germinates the growth will be retarded by continued cold. The climatic conditions of Oklahoma are such that planting in May will usually give the best results. When large areas are planted the most convenient way is to divide the field into sections of about ten acres each and plant at intervals of about a week. The crop demands prompt attention, and if this system of planting is followed, there is not so much danger of damage to the brush from rain, or becoming too ripe. In case farm hands are scarce the scarcity is not so keenly felt, for there is not a very large crop that demands attention within a period of a few days. A few hands can take care of comparatively large fields, and it is much more convenient than to plant the whole field on a single date.

Methods.

The method for planting is about the same as for kaffir. Plant in rows about three feet apart, and four to five inches apart in the row. The standard, due to its large growth, is planted in rows about three and a half feet apart.

Amount of Seed.

Selecting good seed is very important. Good seed should give a germination of 90 to 95 per cent and seed should not be used that falls much below this standard. By using seed that gives a germination test above 90 per cent, one bushel is sufficient to plant twenty acres, or two quarts of seed will plant an acre.

Cultivation.

The soil should be in good condition when seeded, then the cultivation should begin early and be repeated frequently to prevent the weeds from getting a start of the slow growing plants. A sharp tooth harrow is sometimes used just as the plants are coming up. After one good harrowing the field should receive about two cultivations of medium depth, then the rest of the cultivation should be shallow so as not to injure the root system. In this way the soil is finely pulverized, forming a dust blanket, which aids in the conservation of moisture.

Harvesting.

Broom corn is a crop that will not stand in the field without great damage when it is ready to harvest. It should be harvested just as the plants are coming into full bloom, or when the anthers are falling from the head.

Dwarf.

The head of the dwarf is inclosed in a sheath or "boot." It is more convenient to pull the head than to cut it, after which the boot is removed. The heads are usually pulled and piled in bunches along the row. The brush from three or four rows is piled together, and after drying for two or three days, is gathered and stacked in small ricks.

Standard.

Because of the greater height of the standard broom corn, it is necessary to bend the heads over to make them easy to cut. The stalks are bent at a height of about three feet. Two adjacent rows are bent diagonally across the intervening space so that the portion of the stalks above the sharp bend is supported in a horizontal position with the seed heads of one row extending about two feet beyond the opposite row. This method is called "tabling." One man can table as fast as two can cut. In cutting the operator walks along the space between the tables and cuts the heads six or eight inches below the attachment of the straws. The brush as cut is laid by handfuls upon every second table, making it very convenient for loading on a wagon.

Curing.

After drying, the brush should still retain the greenish color. To accomplish this it cannot be dried in the sun as it will be bleached to a light brown color. By curing in sheds the original green color can be retained to a large extent, and as a result the brush will command a much better price. The average time of drying is about thirty days. It is then thrashed and baled.

Yield and Value.

The average yield of the dwarf is about 1-5 ton an acre. The standard yields slightly more than the dwarf, the average being 1-3 of a ton to the acre.

The price per ton usually ranges from $50 for the lower grades and that damaged by the weather, to $200 for the very select. The 1910 quotations range from $140 to $190 a ton.

Feeding Value.

Sometimes the crop becomes ripe enough to form some grain which has a fair feeding value. Broom corn be-

longs to the non-saccharine group, and cha[illegible]good pasturage, if the ordinary prehandica[illegible]s are used. It is becoming more not b[illegible]tant as a forage, and the grower of [illegible]beginning to realize this and use d[illegible]as a forage crop after the brush tir[illegible]ds been removed.—Missouri Farmer.

BUYING ALFALFA SEED.

Farmers should take more than ordinary precautions in purchasing alfalfa seed to ascertain what they are getting. Alfalfa seed is subject to adulteration with cheaper seeds closely resembling it, and the great danger lies in the fact that with the adulterants some noxious weeds may be introduced, which will cause endless trouble and work in the future. It is almost impossible for the average individual to tell the differences between alfalfa, yellow trefoil, and sweet and red clover seeds. Alfalfa is frequently adulterated with these seeds by unscrupulous dealers, who, owing to the great demand for the seed, cannot resist the temptation. Good alfalfa seeds are of an obscure greenish or reddish yellow color, while the defective or immature seeds are usually brown and generally shriveled. The shape varies, but the majority of the seeds are kidney shaped.

Every farmer should know something about the history of the seed which he contemplates buying. It is an excellent idea to test the seed for vitality and purity; oftentimes seed is low in vitality and has as high as 15 to 25 per cent of weed seed. Such seed is usually offered at 10 to 15 per cent below market quotations and is likely to be more expensive than the higher priced, pure seed.

It is a simple matter to make a germination test. Count out 50 or 100 seeds of the kind to be tested and place them in a plate between two pieces of moistened flannel cloth. On a slip of paper record the variety, the number of seeds, and the date. Place the slip on the edge of the plate. Cover the whole with another plate, which is inverted. Keep the plate at room temperature for several days. Examine the seeds daily, and if the cloths become dry, sprinkle a little water on them. At the end of several days count the sprouted seeds, and from them determine what percentage of the whole number of seeds is good. —James D. Marshall, Colorado Agricultural College.

FLY CATCHERS.

When the government of Mexico decided to drain Lake Texcoco, in order to lessen the danger of floods during the rainy season, and also to get at the rich soda deposits in the bed of the lake, it sounded the doom of one of the queerest and most ancient industries in the New World, that of catching flies for market.

Since the days of the Aztec lords of Mexico, a small band of natives has made a comfortable living out of the business of supplying the canaries and other pet birds and fine poultry of the United States and Mexico with the delicacy of dry salted flies. Now the lake is drying up, the flies have disappeared, the birds are to go hungry and the fly catchers have abandoned their pleasant vocation for the drudgery of digging soda from the bottom of a smelly lake.

Catching flies for market on the shores of Lake Texcoco has been a profitable industry since the days of the Aztecs. Until recent years the annual production of dried insects was measured in tons, and until this year was sufficient to afford a means of livelihood to a small colony of native fly catchers.

These market flies are a little smaller than the ordinary house fly. Preserved in the natural salts, they were found to be an excellent food for caged birds and chickens, and hundreds of sacks were shipped annually to bird dealers in the United States and Germany.

The insects are caught in nets as they swarm near the lake's surface, killed by drowning in the water and immediately spread out on sheets to dry. After this simple curing process they are sacked up and are then ready for market.

The profession of fly catching and fly preserving has been handed down from father to son in a few families who have held a monopoly on the industry since the days of Netzahualcoyotl, when that monarch signed a treaty with the Casique Chimalpopoca of Tenochtitlan, whereby a number of Tencans received a concession to gather flies in the former's realm to feed the sacred quetzals in the great teocalli.—Maine Farmer.

The Calfalfa Mill at Kerman has just begun its regular winter run.

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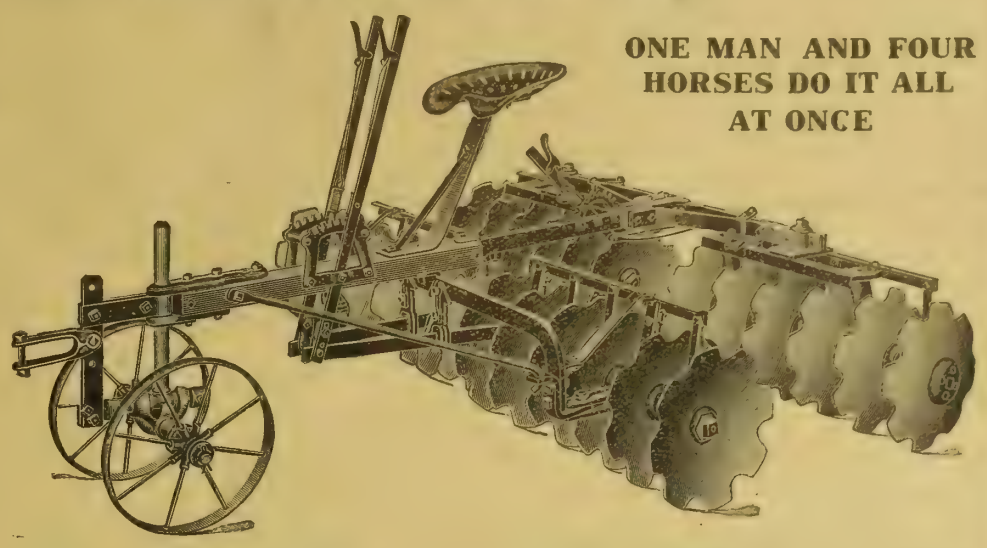

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For Sale—Baby chicks. White Rocks, Barred Rocks and Rhode Island Reds. Am now booking orders. J. W. Lyon, Gardena, Cal.

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For Sale—Second-hand windmills, tanks, pumps, engines, farm machinery that will do the same work as new at half price. Finest and largest stock of tanks we have ever had. We are overstocked on tanks and are selling them at cut prices. Especially fine 2,000 gal. redwood tanks at $19.50. Some 8,000 and 10,000 gal. brand new, never been put up, at half price. Round stock tanks 2x8 ft. for $10. Wine tanks, water tanks, oil tanks, pickle tanks, spray tanks.

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For Sale—Young Mammoth White Holland Turkey Toms. Fine large birds of the celebrated J. C. Fischel Strain. None better as thoroughbreds, also excellent to cross with the Bronze for the market. Price $8.00 to $10.00 each. Foreman Bros., Box 213, Corning, Cal.

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For Sale—Few fine Mammoth Bronze Turkey Toms, standard weight. No eggs or hens at present. Mrs. A. C. Wisegarver, San Fernando, Cal.

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IN THE JANUARY CENTURY.

The important and valuable work being carried on by "an Iowa plant breeder," Mr. Charles G. Patten, of Chester City, Iowa, is the subject of a paper in the January Century, describing new methods in plant production as contrasted with old. It is by L. H. Bailey, director of the College of Agriculture, Cornell University, and the chairman of the Commission on Country Life in President Roosevelt's administration. It is Prof. Bailey's contention that the rational breeding of plants is to be a necessary part of the agriculture of the future, and that we are to look to this work for help in feeding and clothing the race.

General Household Notes

BY THE BEAUTIFUL BLUE DANUBE.

Calmly roll on, O Danube, roll!
Thy story is known from pole to pole.
In forest-clad hills rise silv-ry rills,
That grow as they go, and grandly flow
Past castle and town of high renown,
Where many a son hath glory won;
And great is the fame of the name
That thy bards have handed down.

Yet 'tis not the trill
Of the tinkling rill,
Nor the story
Of thy glory,
Makes our voices ring
When thy song we sing,
Tho' thy praises sound
Where hearts are found.

'Tis a strain we hear,
Mystic, quaint and clear,
Elf-enchanted,
Mem'ry-haunted,
In our heart-land where,
Like the childhood's air
Of a strong old song,
'Tis borne along.

My rippling waters call
To my children one and all;
Tho' in distant lands they roam,
On wings of the wind come songs of home.
And thro' the passing years,
With their joys, their hopes, their fears,
Shall my swell, my sweep, my sound
In the heart of their hearts' deep mem'ries be wound.

Treasure the days of thy youth,
Hear ye my waves complain,
Their waters once fled, of a truth,
Flow not back again;
But youth is rash and gay,
And will dash, and splash, and play
With the world, as tho' to say:
"I'll laugh, love and live for ever and a day."

In spring my flow halts a little at first,
The ice-bridge binds before it is burst;
Press warm, then, by night and by day,
It soon will melt away.
With melting glance must a maiden be pressed;
Woo warmly, then, and give her no rest;
Tho' oft-times her lips may say nay,
She will at last give way.

Walk with me, talk with me,
You like me, don't you dear?
Laugh with me, chaff with me,
You miss me, don't you, dear?
Sigh with me, cry with me,
You'll kiss me, won't you, dear?
Play with me, stay with me,
The live-long day!

The streamlets clear in the woods are so shy,
Say to me, "Why! marry, not I!"
Yet soon you'll see, they'll run gaily with me
Far, far away to the sea.
Ah, maiden dear, true and gentle thou art,
Yield him thy heart, till death you do part!
How long has he lov'd thee! Oh, answer him,
Say, he may love thee for aye!

Maidens, heed! Hark, the vespers ring!
Time is on the wing!
Beauty flies! Passion dies!
Seize the hour while now the whole world yet before you lies,
Lovers, plead! There their troth they plight,
All will now come right!
I must on, hurry on,
Other hearts there are that still are parted from their own.

Ding, dong, ding, dong!
Hear those bells!
They're wedding bells!
Hark! Hark!

Yes, I'll find some as I roll on my way
That are going to be married today;
And if some must wait for a year,
They will find me here.
For to your fathers and mothers sang I,
To your children I'll sing by and by;
When a thousand years shall be gone,
I'll be singing on.

Men must work
In their joy and woe,
And a maid must weep;
It is sad, it is so!
Laugh, love and live,
As I joyous flow,
Take what life can give,
And be cheerfully ready to go!
—Henry Grafton Chapman.

REFORMING A MAN.

"Any papers or messages you'd like to have taken to the office before you come down, Mr. Meadowcroft?" asked a pleasant voice through the telephone.

Meadowcroft hesitated. The voice belonged to his stenographer, who lived with her mother in a little flat a block from his home. She was a fine girl—came from the town where he had grown up. The relations between their two households were scarcely the usual ones of employer and employe. Perhaps it was on this account that he hesitated.

"Well, Miss Neltner," he said, "you know I have to go away out to the hospital to see Smith the first thing this morning, and I'm on the committee to meet those senators at the 11 o'clock train, and I don't know how I'm to get my silk hat ironed before that."

"Oh!" The voice was tentative now. Miss Neltner was wondering if he thought she could iron silk hats.

"I hate to ask you," he went on, "but do you suppose you could leave it at Dreer's—my tailor's—for me?" He'd fix it, and I could stop for it when I came down."

"Certainly," said Miss Neltner.

Twenty minutes later, Miss Neltner received the hat from the hands of her employer at the entrance of her own flat. Smilingly she closed the door behind him. Then she called, tragically: "Mother, look!"

A sympathetic face appeared in the doorway. "He's brought it in this big leather hatbox. And you ought to have seen his face! Its expression said: 'There! Any woman would be proud to carry a $12 hatbox like that!' What shall I do "

"Take the hat out and make a parcel of it."

"But it might get rumpled. Besides, he thinks he's brought me the grandest thing in the world to carry it in, and he's so kind I'd hate to have him know how I feel about it."

The end of it was that Miss Neltner boarded the car for downtown with a huge, misshapen, shawl-strap bundle hanging from her neatly-gloved hand. Her own steamer rug, folded around the hatbox, had solved the problem. It was bulky, but it had a feminine appearance at least.

"Hello! Where's the shawl strap going with you, Miss Neltner? I thought your vacation was done." The voice had never been unwelcome until that minute. Howard Thomas settled into a seat beside her, possessing himself of her luggage as a matter of course.

"I'm not going anywhere," she said hastily. But she saw no reason for explaining that her employer's hatbox was concealed inside that rug, so she changed the subject, and chattered all the way downtown, only losing her

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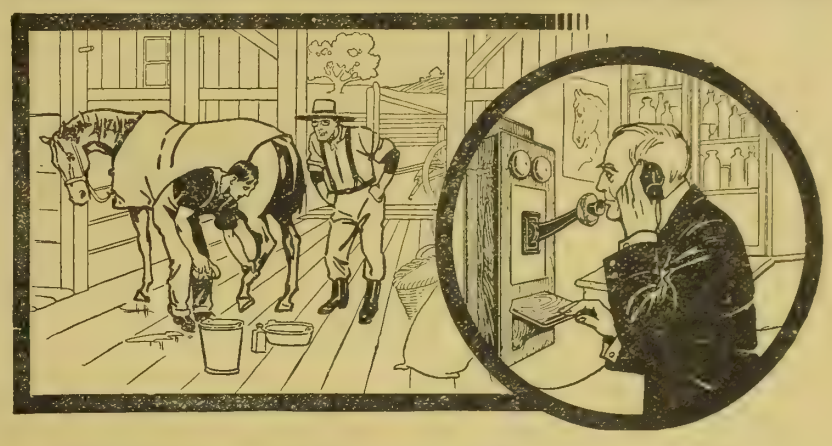

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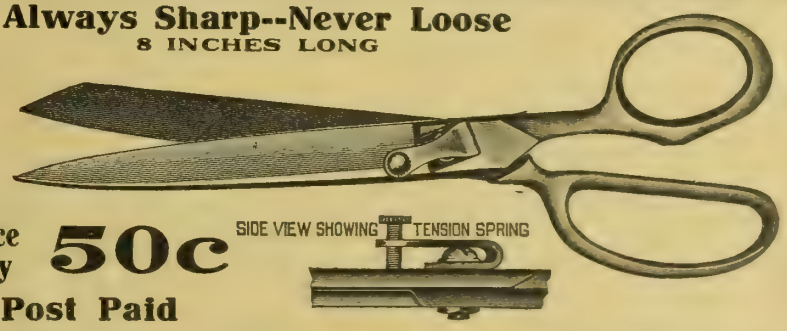

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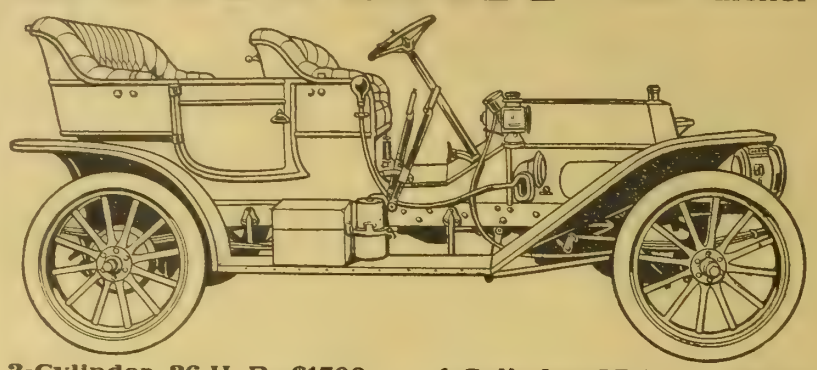

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spirits when the young man insisted on carrying the shawl strap to her destination. Conversation ceased entirely just before they reached the tailor's door, and when her companion yielded up the shawl strap there, she went into the building with the unhappy conviction that he thought her queer.

There was no time to nurse this conviction, however. Her explanation to the tailor kept her too busy.

"I understand!" Dreer laughed, as he shook the hatbox out of the steamer rug. "I'll have it ready when he calls. You're Mr. Meadowcroft's sister, aren't you?"

"Oh, no! I—I'm his stenographer," Miss Neltner stammered. Then she flushed because she had stammered—and immediately became scarlet with annoyance because she had flushed.

"Certainly. That's all right," Dreer assured her. But the more comforting he was, the less she liked it; so she got away as quickly as she could.

Arrived at her employer's office, she found an excellent chance to cry, but Miss Neltner is not that kind. Instead of wasting tears, she plans reforms. Meadowcroft, she reflected, was too good a man to go on making such mistakes. The thing to do was to teach him tactfully that there was a difference between proper masculine and feminine luggage.

Gradually a plan evolved itself. She would accomplish her end by an object lesson. Mrs. Meadowcroft was still in the country, where Meadowcroft went to pass Sunday with her every week. Miss Neltner had been knitting a voluminous pink wool wrap for Mrs. Meadowcroft. It was large and triangular, with long ribbon streamers. Instead of packing this in a box, she would thrust it, unwrapped, into Meadowcroft's arms, just as he was leaving for the country, and surely, before he got to his journey's end with that thing on his hands, it must occur to him that a man's hatbox might not be the most appropriate thing for a woman to carry, either.

Accordingly, just as he was boarding the train on Saturday night, she flashed into view. "Oh, Mr. Meadowcroft, I was afrad I'd be too late," she said. "Will you take this out to Mrs. Meadowcroft, with my love?"

"Oh, here," he cried, wildly rolling the thing together and throwing it back to her as he stepped on the moving train. "You'll have to wrap it up and let me take it out next week. Good-bye!"

"Kind-hearted little creature, it's too bad," he added to himself, seeing her look of disappointment. "But she must be crazy to expect a man to carry a thing like that around on his arm. Well, anyhow, she's learned a lesson."—Riverside Press.

"OH SAY" AND "OH SAID."

There once lived in Carson City, Nevada, a teamster known to the old community as "Oh Say." He was not a Chinaman, as one might think, but a German, and secured his name from ejaculating "Oh, Say," whenever he spoke to a person.

When the mines of the Comstock lode were opened, "Oh Say" drove a mule team from the shaft down to the crushing mill, and later on his mules were bought by the owners of the mine, and used for some years thereafter.

"Oh Say" got other mules, but always had deep regard for the first mules he ever owned, which went down into that mine to drag cars from the facing.

They were named "Oh Say" and "Oh Said," and for forty years they dragged ore on the lower level of Comstock mine, never coming to the surface, nor issuing in the open air.

But every holiday "Oh Say," the man, went through the Sutro tunnel to visit his old mules in the bowels of the earth.

He carried them carrots and other delicacies for a mule's palate, and returned with curious stories of their affectionate recognition.

In the long interval the teamster had become a freighter, and from that had drifted into the most important business of the state. Only his intimate friends recalled him as "Oh Say," but others spoke of his as the "Hon. William Keyser," and Mr. Keyser never forgot his mules down on the last level of the Comstock mine, where they dragged ore through the long, dripping culvert called "Sutro tunnel." The managers of Comstock mine finally introduced machinery to haul out to the dumps, and the twenty or thirty mules were out of the job.

The Hon. Wm. Keyser promptly bought his mules, "Oh Say" and "Oh Said," and brought them to the surface of the earth, where they met the sunlight for the first time in nearly half a century. He turned them into the rich pasturage which formed the lawn about his fine home in Carson City.

There they lived in clover the short period of two weeks, and there they were both found dead one morning, cradled in alfalfa, which had once been a great joy to them, but from eating too much had caused their death.

The Hon. William Keyser buried them where they died, and reared over their tomb a carved stone which bears this inscription:

"OH SAY" AND "OH SAID"

Two Mules Who Contributed More to the Prosperity of Nevada Than the Silver King

They worked in the Comstock for forty years. They never took a dollar out of the state, but they moved millions of the values of its treasures. This stone is raised by their old friend, who seeks no higher reward than to rest beside them.—Dumb Animals.

RABBIT RECIPES.

Barbecued Rabbit.

Wash a nice young rabbit carefully; lay it in salt water half an hour. Place it in a broiler, cook quickly, basting with butter two or three times to keep from getting dry. When tender and nicely browned, place it in a pan, season with butter, pepper and salt; set it in the oven, let it remain for ten minutes, turning it constantly that it may soak up the dressing. Heat thoroughly two tablespoonsful of vinegar or tomato catsup and one teaspoonful of made mustard; pour it over the rabbit, baste well, let it stand a moment. Serve hot. (An old Southern recipe.)

Creole Rabbit.

Cleanse well and joint a young rabbit. Dip in melted butter, then in crumbs, and fry brown in one tablespoonful of butter and lard mixed (bacon fryings if at hand). Add two sliced onions and fry all together; add a cupful of tomatoes, sprig of parsley, thyme and bay leaf finely minced; cover and let simmer over a slow fire, stirring occasionally, until nicely browned. Add a cupful of soup stock, if you have it; if not, a cupful of water; season with a teaspoonful of salt and one-fourth saltspoonful of

Figure on Painting This Spring

A second short flax crop keeps linseed oil up, but the increase in price in pure white lead paint is not so great as you may fear.

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paprika. Cover closely and let simmer one hour.

Baked Rabbit.

Use two rabbits, and place back up in a baking pan. Arrange around them five medium-sized sweet potatoes (peeled). Allow one cupful of crushed, roasted peanuts to three cupfuls of dried bread crumbs. Mix with the crumbs two tablespoonfuls of butter, then add the nuts. Pile this mixture in one end of the baking pan. Chop three onions. To these add one-half a cup of butter, four teaspoonfuls of chili sauce and two of salt. Mix thoroughly and spread evenly over the rabbits, potato and dressing. Pour into the pan one cupful of sweet milk, and with this baste the contents of the pan every ten minutes, adding more milk as the baking causes the first to evaporate. Allow from one to one and a half hours for baking.

Rabbit en Casserole.

Wash and cut into pieces two young rabbits. Soak in salted water an hour to sweeten them, and to remove any clots of blood that may be found where the rabbits have been shot. Cut two small onions in slices, also two small carrots and two or three stalks of celery. Saute in a tablespoonful of bacon fat until browned, and add a cupful and a half boiling water or stock, pour over the rabbit in the casserole, cover and place in the oven to cook. When half done, sprinkle with a teaspoonful and a half of salt, two shakes of paprika. Make a sauce from juices in pan and serve in a sauce boat.—Rural New Yorker.

HOMELY HINTS.

Molasses will remove grass stains. Dip ink spots in hot tallow, let the cloth cool, then wash.

Remove coffee stains with a mixture of yolk of egg and luke warm water; use as you would soap.

A sewing teacher gave the length of the thread (to make time) from the finger tip to elbow.

When cleaning fish, use a pair of old scissors for cutting off fins, tail and slitting; save time and your nerves.

Add a little borax to starch, a teaspoonful to three quarts of starch; makes the clothes stiffer and more glossy.

If baby's cap is dried on an inverted bowl it is not necessary to iron.

Camphor will remove fruit stains from most garments without taking out color.

If you stumble over a stone use it for a stepping stone next time you pass that way.—Uncle By.

A man who loses wealth loses much.
A man who loses a friend loses more.
A man who loses courage loses all.

Recipe for securing love: Give love.—Tulsa Post.

CONTENTMENT.

Let us learn to be content with what we have; let us get rid of our false estimates, set up all the higher ideals—a quiet home; vines of our own planting; a few books full of the inspiration of a genius; a few friends worthy of being loved and able to love us in return; a hundred innocent pleasures that bring no pain or remorse; a devotion to the right that will never swerve; a simple religion empty of all bigotry, full of trust and hope and love—and to such a philosophy this world will give up all the empty joy it has.—David Swing.

BE OF GOOD CHEER.

Be of good cheer, brave spirit; steadfastly serve that low whisper thou hast heard; for know, God hath a select family of sons now scattered wide through earth, and each alone, who are thy spiritual kindred, and each one by constant service to that inward law, is weaving the sublime proportions of a true monarch's soul. Beauty and strength, the riches of a spotless memory, the eloquence of truth, the wisdom got by searching of a clear and loving eye that seeth as God seeth. These are their gifts, and Time, who keeps God's word, brings on the day to seal the marriage of these minds with thine, thine everlasting lovers. Ye shall be the salt of all the elments, world of the world.—Ralph Waldo Emerson.

THE TOUR OF A SMILE.

My papa smiled this morning when
He came downstairs, you see
At mamma; and when he smiled then
She turned and smiled at me;
And when she smiled at me I went
And smiled at Mary Ann
Out in the kitchen, and she lent
It to the hired man.

So then he smiled at some one who
He saw when going by,
Who also smiled and ere he knew
Had twinkles in his eye;
So he went to his office then
And smiled right at his clerk,
Who put some more ink on his pen
And smiled back from his work.

So when the clerk went home he smiled
Right at his wife, and she
Smiled over at their little child
As happy as could be,
And then their little child, she took
The smile to school, and when
She smiled at teacher from her book
Teacher smiled back again.

And when the teacher passed on one
To little James McBride,
Who couldn't get his lessons done,
No matter how he tried;
And Jamesy took it home and told
How teacher smiled at him
When he was tired, and didn't scold.
But said: "Don't worry, Jim!"

And when I happened to be there
That very night to play
His mother had a smile to spare
Which came across my way;
And then I took it after while
Back home, and mamma said:
"Here is that very selfsame smile
Come back with us to bed!"
—Woman's Home Companion.

BE FRIENDLY ON THE WAY.

I have journeyed on life's highway till the dial points to noon,
And I've learned some useful lessons on the way;
I have proved them o'er and o'er, and I prize them more and more,
And I think you can depend on what I say.
You may hold yourself aloof, and may think it is a proof
That you're made of some superior sort of clay;
But you'll always find it pays in many different ways
To be friendly to the people on the way.
—Wisconsin Farm.

THE HARVEST.

What hast thou for thy scattered seed,
O Sower of the plain?
Where are the many gathered sheaves
Thy hope should bring again?
The only record of my work
Lies in the buried grain.

What is the harvest of thy saints,
O God! who dost abide?
Where grow the garlands of thy chiefs
In blood and sorrow dyed?
What have thy servants for their pains?
This only—to have tried.
—Julia Ward Howe.

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Can be drilled with the right machine. In buying a Drilling Machine, the first vital point is to be sure it will yield you the greatest possible service—and hence the greatest possible profits. You *must* know.

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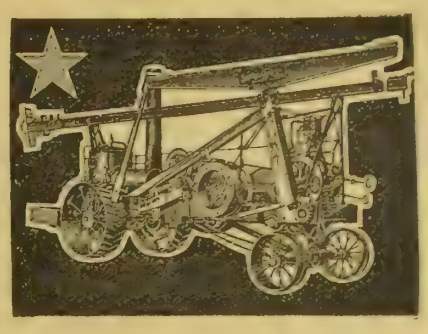

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Blue, Red, Gray, Manna, Desert, Swamp Gums and many others. Tough, hardy trees, selected rapid growers, thrifty and even in size, large or small as desired, for fall or winter planting. Guaranteed true to name and full count. Price right. Illustrated descriptive booklet and questions answered free on request. Write now.
LLOYD R. TAYLOR, Modesto, Cal.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Jan. 18, 1911.

Butter.

The butter market is featureless, with a cent and a half decline made the last of the week. Demand nominal.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	33½
Firsts	32½
Cooking	25

Cheese.

Local	18
Northern, fresh	18@18½
Oregon Daisy	18@18½
Imported Swiss	32
Domestic Swiss	21@24

Eggs and Poultry.

The situation in San Francisco has Los Angeles dealers queered, and no knowledge of which way the market will go is obtainable. A four-cent decline is noted. Market not firm.

Paying price f. o. b. Los Angeles is:

Local ranch candled	36
Case count buying price	32
Northern and Imperial	30@34
Eastern fresh	30
Eastern storage	28
Firsts	26

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	15@17
Roosters	9
Spring	17@21
Turkeys	20@22
Ducks	17
Geese	12
Squabs, per doz	1.75

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	2.20@2.25
Salinas	2.25@2.35
Lompoc	2.25@2.35
Oregon, Early Rose	2.00@2.10
Idaho, Rurals	2.00
White Rose, local	2.00
Sweets, yellow, per ctl	3.25@3.50

Onions.

Wholesale quotations:

Oregons	2.00
Australian browns	2.00
Nevadas	2.25
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Asparagus, lb	15
Beets, sack	90
Beans, Lima	10
Beans, green	12@15
Beans, wax	12@15
Brussels sprouts	6
Bell peppers, lb	8@12
Green chilis	3@4
Cucumbers, box	1.25@1.50
Cabbage, sack	75
Celery, crate	2.25@2.50
Cauliflower, crate	1.00@1.50
Carrots, per sack	90
Egg plant, lb	8@10
Horseradish	12½
Onions, green, doz bunches	25
Leeks, per doz	30@35
Lettuce, crate	40@65
Oyster plant, doz	40
Okra, lb	10
Peas, lb	7@8
Parsley, doz bunches	25
Parsnips, doz bunches	25@30
Pumpkins, lb	1@2
Radishes, doz. bunches	20@25
Rhubarb, No. Strawberry	1.75
Rhubarb, Crim. Winter, box	1.00@1.25
Spinach, doz	20
Spinach, doz	20@25
Hubbard squash, lb	1½
Tomatoes, crate	1.25@1.50
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.75@2.25
Grapefruit	2.00@3.00
Lemons	1.50@2.75
Tangerines	1.50@1.75

Fresh Fruits.

Wholesale prices on the market are:

Limes, per 100	1.25@1.50
Alligator Pears	3.50@4.00
Apples, Bellflower	1.25
Spitzenbergs	1.75@2.50
Jonathans	2.25@2.35
Greenings	1.25
Pearmains	1.25
Fall Pippins	1.25
Pineapples	6@8
Mangoes, doz	1.75
Persimmons, lb	7
Pomegranates, lug	1.00
Pears, lb	5
Bartletts, lb	8@10
Winter Nelis	2.50
Strawberries	10@15
Blackberries	8@10
Raspberries	12@15

Dried Fruits.

Wholesale prices are:

Apricots	13
Evap. Apples, fancy, lb	11½@12½
Figs, box	1.75
Peaches	6¾@8½
Nectarines	9@10
Pears	11@12½
Prunes	7@12
Plums	11

Beans, Dried.

Wholesale quotations:

Limas	5.00@5.50
Black eyes	5.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Lentils	7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb, new	14½
Pecans, polished	15@16
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10
Extracted light amber	9½
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	13.00@14.00
Wheat hay	14.00@15.00
Tame oat	14.00@16.00
Alfalfa	13.00@14.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, ctl	1.75@1.85
Corn	1.60@1.70
Popcorn	3.75@4.00
Egyptian corn	1.75
White oats	1.80
Rye seed	2.00
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.65
Cracked wheat	1.95
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed meal	1.65@1.70
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Jan. 17, 1911.

Butter.

Butter took a sharp advance early last week, rising to present quotations on Saturday, or an advance of seven cents during the week. Buyers are slow in taking more than actually needed.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	35
California firsts	27
Seconds	25

Cheese.

California flats, new	13@16½
Cal. Young America, fy, new	15½@16
Oregon, fancy	15½

Eggs and Poultry.

Eggs are decidedly higher, but present quotations are not supported by strong buying.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	33
Firsts	30
Seconds	27
Hens, doz	5.00@10.00
Fryers, doz	5.50@6.50
Ducks	6.00@10.00
Broilers	3.00@4.50
Roosters, doz	4.00@7.50
Turkeys	22@25
Geese	2.50
Pigeons	1.50@2.50
Squabs	3.00@4.00

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	4½@6¼
Hogs	5½@8¼
Milk lambs, unshorn	5½@6
Wethers, No. 1	4½@5
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.60@1.80
Salinas Burbanks, cwt	2.00@2.10
Oregon Burbanks, cwt	1.85@2.00
Lompocs	2.00@2.10
Sweets, ctl	3.00@3.25

Onions.

Onions, California, sack	1.60@1.75
Onions, Oregons	1.75@1.85

Vegetables.

Wholesale quotations:

Artichokes	25@40
Beans, string, lb	12½@15
Beans, Lima	8@10
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	75@1.00
Celery, crate	65@1.75
Bell peppers	8@10
Chili peppers, lb	4@6
Egg plant, lb	10@15
Mushrooms	50@1.50
Okra, box	40@60
Peas, lb	5@8
Summer squash, box	1.50@1.75
Rhubarb, box	1.00@1.50
Tomatoes	75@1.25
Turnips	65
Garlic, lb	2½@3

Citrus Fruits.

Navels, new	1.50@2.75
Grapefruit	1.50@3.00
Lemons	1.50@2.75
Limes	3.00@4.00
Seedlings	1.50@2.00
Tangerines	50@1.50

Fresh Fruits.

Apples, box	75@1.00
Apples, Belleflowers	75@1.00
Newtowns	90@1.25
Spitzenberg	1.75@2.25
Bananas, Hawaiian	75@1.25
Pears, Bartletts	1.50@2.00
Winter varieties	1.00@1.25
Persimmons, box	50@75
Pineapples, Hawaiian	2.00@3.50
Pomegranates	50@1.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.: Apples, 9¾@11c; apricots, 10¾@13c; do, Moorparks, 14c; peaches, 6@7¼c; with a premium of ⅛@¼c on Muirs; prunes, bulk basis, Santa Claras, 6⅜@7c, with ¼c premium on 60s to 90s; outsides, 6@6¼c; figs, 6¼@7½c for white, and 5@5½c for black; pears, 9¾@13c.

RAISINS—1910 crop: London layers, in 20-lb. boxes—6-crown clusters, $2.50; do, 5-crown, $1.75@2; 4-crown, $1.30@1.40; 3-crown layers, $1@1.10; do, 2-crown, 95c@$1. Seeded, per pkg.—Fancy, No. 16, 5½@5¾c; choice No. 16, 5@5¼c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 4¾c; do, 3-crown, 4@4¼c; do, 2-crown, 3½@3¾c. Dried grapes, 3c. Seedless—Muscatels, 3¾c; Sultanas, 4¾c; Thompson's, 5@5¼c.

Nuts.

Walnuts, No. 1 soft shell	15
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15
Almonds, '10 I X L	14½
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	5.25
Pink	5.50@5.60
Black eyes	5.50@5.65
Small white	3.50@3.55
Large white	3.50@3.55
Kidneys	5.75
Garvanzas	2.90@3.25
Bayo	5.15
Horse beans	2.50@2.75
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	19@21
Hops, 1909	12@15
Hops, Oregon	12@15

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Scott, Magner & Miller say:

Arrivals of hay on the San Francisco market for the week ending today have amounted to 2850 tons.

We are much gratified at the splendid lot of rain that we have had throughout the entire week. It has relieved the tension completely, and reestablished confidence in the business situation throughout the entire state. The feeling of uneasiness that was felt by farmers, merchants and all the business interests on account of the lack of rains has been thoroughly quieted by this storm, and as soon as it is over, work will again proceed satisfactorily throughout our entire sections. This has been a wonderfully satisfactory cause for gratification to everybody concerned, and a benefit to every industry in our state.

The demand for hay for shiping purposes has been a trifle better recently, and while no large orders have been placed from along the coast, yet the aggregate of the hay leaving this port has been a little better than usual.

Alfalfa hay has been looking up a trifle, for the reason that there has been some purchasing made in the interior which has caused a little ripple in the market, although the demand in San Francisco and in Oakland for alfalfa hay of late has been rather quiet.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	13.50@14.00
No. 1 wheat or wh and oat	11.50@13.50
No. 2 wheat or wh and oat	10.00@11.00
Choice tame oat	12.00@12.50
Other tame oat	9.00@11.00
Wild oat	8.00@10.50
Stock hay	6.00@7.00
Alfalfa, ton	9.00@12.00
Straw	40@50

Grain.

Wheat, No. 1	1.47½@1.55
Barley, fancy	117½@1.18¾
Barley, good to choice	1.13¾@1.16¼
Barley, poor to fair	1.10@1.12½
Oats, white	1.45@1.55

Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	2½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Bran, ton	29.00@30.00
Feed cornmeal, ton	34.00@35.00
Cracked corn	34.00@35.00
Ground barley, ton	23.00@24.00
Rolled oats, ton	29.00@31.00
Middlings	34.00@36.50
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	24.50@25.50
Mixed feed, ton	25.00@27.00
Shorts	29.00@31.00

Citrus Fruit Market

LOS ANGELES, Jan. 18, 1911.

An unfortunate defect is developing in many shipments of oranges in the specking or spotting of the skin. This does not affect the real quality of the fruit, but does affect its appearance so that selling at the most satisfactory prices is prevented. It is far less disastrous than actual decay, and it is hoped the matter will be overcome in a short time. The auction reports given below average much lower than other markets, because much of this unsatisfactory fruit has been passed on and disposed of there.

Lemons are being better received than formerly, from 25 cents to 35 cents above last week's quotations being commanded at this time. The fruit is excellent, and much of that which is being cut at this time is being stored for later delivery.

Shipments.

Shipments of oranges from November 1, 1910: 4970 cars, lemons 843 cars, total of citrus fruits 5813 cars. To same date last season, oranges 2515 cars, lemons 793 cars, total 3308.

NEW YORK, Friday, Jan. 13.—Nine cars navels, one car lemons sold. Unchanged oranges and lemons. Raining.

NAVELS—	Avge.
Independent, Growers F Co	2.30
Constitution, Cleghorn Bros	2.10
Covina Beauties	2.15
Gold Buckle, R H, E Highland	2.85
Glendora Heights, A C G Ex	2.50
Golden Orange, Riv Ex, Imp	2.55
Pine Cone, S B, Highland	2.90
Planet, S S Ex	1.70
Camellia, xf, Red M O Co	2.45
Highlander, xf, Highland F G A	2.45

LEMONS—Liberty, $2.35; El Dorado, $2.30.

CHICAGO, Friday, Jan. 13.—Lemons rule quiet; boxes California fancy 300s, $3.00 asked; 360s, $3.00 asked; off sizes, $2.25@2.50.

ORANGES—State of the market about same as lately quoted. For California navels there is about enough demand to take all arriving. Boxes, navels, California fancy, 96s, $2.25 asked; 126s, $2.50 asked; smaller sizes all out.

ST. LOUIS, Friday, Jan. 13.—Cloudy, cold. Market weak on account of weather. Three cars navels sold.

NAVELS—	Avge.
Honest Pack, xc, Tustin P Co	2.00
Lone Palm, xc, McG & W	1.70
Lucky Sd, Tustin P Co	1.95

LEMONS—Mountain Creek, S A Ex, $1.70.

PITTSBURG, Friday, Jan. 13.—Four cars sold. Steady oranges and lemons. Cloudy, moderate.

NAVELS—	Avge.
Pepitia, T C C, Sanger	1.65
Pointer, A C G, Charter Oak	1.75
George Washington, S S, Tustin	1.65
Pride of West, Pioneer F Co	1.90
Oakleaf, T C C, Sanger	1.50
Hunter, A C G, Charter Oak	1.55

LEMONS—Serenade, T C C, Sanger, $2.40.

BOSTON, Friday, Jan. 13.—Eight cars sold. Cool, cloudy. Market easier.

NAVELS—	Avge.
Tally-Ho, S B, Rialto	1.45
Yankee Doodle, A F, Highland	1.50
Yankee Doodle, A F, Highland	1.55
Robusta, A H, Pach	2.50
Gold Buckle, R H, E Highland	2.65
Canna, S B, Yerkes Spur	2.30
Pioneer Special, Pioneer F Co	2.60

CLEVELAND, Friday, Jan. 13.—Four cars navels sold. Market earier. Raining.

NAVELS—	Avge.
Planet, S S, Orange	2.05
Oakleaf, T C C, Porterville	2.15
Valley, T C C, Porterville	2.05
Royal Knight, R H, Redlands	2.30
Newsboy, R H, Redlands	2.10
Glendora Heights, A C G Con	2.25
Fullvalue, T C C, Porterville	1.70
Snowflower, T C C, Porterville	1.95
Ben Hur, R H, Redlands	2.35

PHILADELPHIA, Friday, Jan. 13.—Five cars navels, one mixed car and one car lemons sold; also twenty cars Floridas. Floridas, $1.55@3.70; average, $1.65. Grapefruit, $1.55@3.15; average, $2.50. Tangerines, $1.10@2.10; average, $1.60. Market slightly higher.

NAVELS—	Avge.
Planet, S S, Orange	1.40
Pointer, A C G, Glendora	2.35
Lone Palm, xc, McG & W	1.80
Mars, xc, E Peycke Co	1.40
Stag, A C G, Glendora	2.60
Brownie, fy, Rialto F Co	2.40
LEMONS—	Avge.
Excellent, Santa Paula C F A	2.90
Cosmos, S B, Yerkes Spur	3.15
Sunside, Santa Paula C F A	2.40
Coral, S B, Yerkes Spur	2.65

NEW YORK, Monday, Jan. 16.—Thirty-one cars navels, one Parson Brown and three cars lemons sold. Market lower on oranges; 300s size lemons lower; 360s size higher. Fair and cold.

NAVELS—	Avge.
Titus Ranch, fy, S Marino G P A	1.95
Highlander, xf, Highland F G A	2.50
Camellia, xf, Redlands M O Co	2.40
Sugar Loaf, Sugar Loaf O G A	2.10
Highgrove, Sugar Loaf O G A	1.80
Highlander, xf, Highland F G A	2.35
Mallard, fy, Randolph F Co	1.90
Mallard, fy, Randolph F Co	1.95
Diamond Mtn, fy, Randolph F Co	1.85
Old Mission, fy, Chapman	2.65
Old Mission, ch, Chapman	2.20
Golden Eagle, Sd, Chapman	1.90
Mt, Harrison, Imp, fy, F L Sewell	2.65
Mt. Harrison, Imp, ch, F L Sewell	2.30
Redlands Best, xf, M O Dis	2.10
Redlands Pride, xc, M O Dis	1.95
Covina Beauties	2.00
Sweet Pea	1.80
San Rafael, fy, H W Bailey	1.95
San Pasqual, ch, H W Bailey	1.70
A One, xc, E Peycke Co	1.60
Orchard, Or, National O Co	2.65
Standard, Sd, National O Co	2.20
Orchard, Or, National O Co	3.10
Standard, Sd, National O Co	2.20
Gold Buckle, R H, E Highland	2.75
Sweetheart, A F Ex, Highland	2.55
Tally-Ho	2.30
Gold Buckle, R H, E Highland	2.75
Lochinvar, R H, E Highland	2.30
Belt, R H Ex	1.95
Lochinvar, Imp, P H Ex	2.35
Belt, Imp, R H Ex	2.00
La Mesa, Riverside Ex	2.15
Golden Rule, Riverside Ex	1.90
Iris, D M Ex	2.20
Homer, Q C Ex	2.20
Camel, Q C Ex	1.80
Royal Knight, R H Ex	2.15
Blue C, Imp, Covina Ex	2.40
Red C, Imp, Covina Ex	2.15
Blue C, Covina Ex	2.05
Red C, Covina Ex	1.95
Palermo, Bates & Boalt	1.65
George Washington, S B Ex	1.60
Whittier, S T Ex	1.70
Rooster, Santiago O G A	1.85
Pointer, A C G Ex	1.70
Red C, Covina Ex	1.70
Cougar, Covina Ex	1.70
LEMONS—	Avge.
Mallard	2.20
Mallard	2.30
Lotengo	2.95
Crackshot	2.50
Moose	2.55
Pronghorn	2.25
Arab	2.05
Duck	1.00

PITTSBURG, Monday, Jan. 16.—Seven cars sold. Market steady on oranges and lemons. Cold.

NAVELS—	Avge.
Orchard, Or, National O Co	2.50
Pointer, A C G, Charter Oak	2.15
O I C, Q C, Corona	1.85
Coyote, O K Ex	1.90
Searchlight, S S, Orange	1.85
Standard, Sd, National O Co	1.85
Laurel, Q C, Corona	2.05
Quail, O K Ex	2.25
Iris, D M, Duarte	2.45
LEMONS—	Avge.
Star, xc	2.90
Crackshot, Or, Sparr F Co	2.65
Moon, ch, Sparr F Co	2.20
Crackshot, Or, Sparr F Co	2.90

PHILADELPHIA, Monday, Jan. 16.—Four cars navels and one car lemons sold; also twenty-eight cars Floridas. Oranges, 90c@$3.70; average, $1.60. Grapefruit, $1.50@3.10; average, $2.25. Tangerines, 65c@$1.50; average, $1.00. Market is unchanged.

NAVELS—	Avge.
Whittier, S T, Whittier	1.90
Stag, A C G, Glendora	2.55
Golden Wreath, xc, G N O G	2.00
Pointer, A C G, Charter Oak	1.80
Alchemis, xf, G N O G	2.65
LEMONS—	Avge.
Quail, O K Ex	3.00
Coyote, O K Ex	2.70

BOSTON, Monday, Jan. 16.—Eighteen cars sold. Cold. Market easier.

NAVELS—	Avge.
Royal Knight, R H, Redlands	1.95
Fairoaks, Fairoaks F Co	1.85
Pointer, A C G, Charter Oak	1.90
Gold Buckle, H R, E Highland	2.50
Crocus, S B, Yerkes Spur	2.55
Alta Cresta, A H Pach	2.75
Highland, Highland F G A	2.25
Bronco, xf, W American F Co	2.25
Golden Gate, xc, Redlands G O A	2.05
Constitution, Cleghorn Bros	2.00
Bouquet, xf, Randolph F Co	1.95
Ben Hur, R H, Redlands	1.75
Whittier, S T, Whittier	1.65
Laurel, Q C, Corona	2.45
Priscilla, S B, Highland	2.45
Canna, S B, Yerkes Spur	2.35
Robusta, A H, Pach	2.50
Independent, Growers F Co	2.30
Biplane	2.25
Dirigible	2.05
Herald, xc, W American F Co	1.95
LEMONS—	Avge.
Quail, O K Ex	3.30
Marguerite, xc, Earl F Co	3.00
Poinsettia, fy, Earl F Co	3.05

ST. LOUIS, Monday, Jan. 16.—Cold. Firm on good fruit. Four cars navels and two cars lemons sold.

NAVELS—	Avge.
Searchlight, S S, Orange	1.65
Golden, Riverside Ex	2.10
Martha Washington, S S, Tustin	1.75
Lochinvar, R H, E Highland	2.45
Golden Rule, Riv Ex, Riverside	2.20
George Washington, S S Ex	1.80
Cowboy, S S Ex, Tustin	1.90
Belt, R H, E Highland	2.35
LEMONS—	Avge.
Airship, V C Fillmore	3.05
Pet, S A Ex	3.10
Duck, S A Ex	2.70
Oriole, V C Fillmore	2.90
Arab, S A Ex	3.00

CINCINNATI, Monday, Jan. 16.—Cold. Market advancing on navels, easier on Floridas. Two cars navels and five cars Floridas sold. Brights, 90c@$1.70; Russets, 90c@$1.70.

NAVELS—	Avge.
Big R, S B, Rialto	2.05
Honest Pack, Tustin P Co	1.75
Yacht, S B, Rialto	1.85
Lucky, Sd, Tustin P Co	1.60

CINCINNATI, Friday, Jan. 13—(Delayed wire).—Cool, raining. Steady on navels and lemons. Weak on Floridas. One car navels, one lemons, six cars Floridas sold.

NAVELS—	Avge.
Planet, S S, Orange	2.00
LEMONS—	Avge.
Economy, ch, Randolph F Co	2.20

Florida Brights, $1.05@1.70; Russets, $1.10@1.70.

Note.—Stag Tangerines, A C G, Glendora, sold in Philadelphia today, omitted from sale given above, averaged $1.40.

CLEVELAND, Monday, Jan. 16.—Five cars navels sold. Market higher. Cold. Predicted colder.

NAVELS—	Avge.
Red Shield, A C G, Azusa	2.20
Arroyo, Sd, Pasadena	2.00
Crocus, S B, Yerkes Spur	2.70
Cosmos, S B, Yerkes Spur	2.20
Canyon, A C G, Lamanda Park	2.25
Alhambra, S T, Alhambra	2.30
Tournament, S T, Pasadena	1.75
Canna, S B, Yerkes Spur	2.50
Trail, A C G, Lamanda Park	2.55

CHICAGO, Monday, Jan. 16.—LEMONS—Market is well supplied. Trade was very quiet, and there was no change. Boxes, California fancy 300s, $3.00; 360s, $3.00; off sizes, $2.25@2.50.

ORANGES—There is a steady market. Trade is fair for Californias, which are plentiful. Boxes, navels, California fancy, 96s, $2.25; 126s, $2.50; smaller sizes outside in rather a small way, $2.50@3.00; choice and extra choice, 25c per box less.

NEW YORK, Tuesday, Jan. 17.—Seventeen cars navels, one navelencia, one seedling and two cars lemons sold. Market easier on navels, unchanged on lemons. Fair, seasonable weather.

NAVELS—	Avge.
Golden Orchard, fy, Or Ind F Co	1.85
Citrus Belle, Imp, Sd, Or Ind F Co	1.60
Golden Orchard, fy	1.70
Alta Cresta, A H Ex	2.65
Robusta, A H Ex	2.25
Gold Buckle, Imp, R H Ex	2.60
Iris, D M Ex	2.25
Glendora Heights, A C G Ex	2.25
Artesia, Imp, A H Ex	2.95
Golden Orange, Imp, A H Ex	2.50
Artesia, A H Ex	2.25
Royal Knight, R H Ex	2.15
Nonpareil, Imp, Covina O G A	2.15
La Mesa, Riv Ex, Riverside	2.10
Golden Rule, Riverside Ex	2.00
Iris, D M Ex	1.90
Violet, D M Ex	1.80
Blue C, Covina Ex	2.20
Red C, Covina Ex	1.90
Red Shield, A C G Ex	1.95
Athlete, College Heights O G A	1.75
Titus Ranch, fy, S Marino G P A	1.90
El Toreador, Sd, S Marino G P A	1.40
Highlander, xf, Highland F G A	2.30
Camellia, xf, Red M O Co	2.25
Marguerite, xc, Earl F Co	1.40
Corona Cross, Imp	2.60

BOSTON, Tuesday, Jan. 17.—Ten cars sold. Colder. Market unchanged.

NAVELS—	Avge.
Parrot, S A Ex	1.45
Pine Cone, S B, Highland	2.40
Carrier, S B, Highland	1.95
Tunnel, S T, Fernando	1.85
Gold Buckle, R H, E Highland	2.55
John Alden, S B, Highland	2.10
Standard, Sd, National O Co	2.30
Cove, Sd, E Peycke Co	1.55
Whittier, S T, Whittier	1.45
Arrowhead, S B, Highland	2.15
Rey, S T, Fernando	2.10
Laurel, Q C, Corona	2.50
Priscilla, S B, Highland	2.45
Orchard, Or National O	2.60
A One, fy, E Pekcke Co	1.75

LEMONS—Excellent, S A E, $2.00.

CHICAGO, Tuesday, Jan. 17.—The lemon market has improved. The supply has become reduced. Owing to late low prices, shipments from the coast have been reduced. Advanced prices were quoted. Boxes, California fancy 300s, $3.50 asked; 360s, $3.50 asked; off sizes, $3.00 asked.

ORANGES—The supply is fair of navels, but not large. A steady market quoted, with prices unchanged. Boxes, navels, California fancy 96s, $2.25 asked; 126s, $2.50.

HINTS ON GARDENING.

The Morris & Snow Seed Co. of Los Angeles is out with its new spring catalogue, "A Few Hints on Gardening." The hints given are sufficient to make one want to get out and work in the soil. The booklet is illustrated and the text is most instructive.

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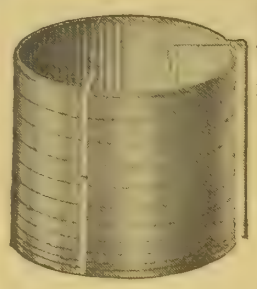

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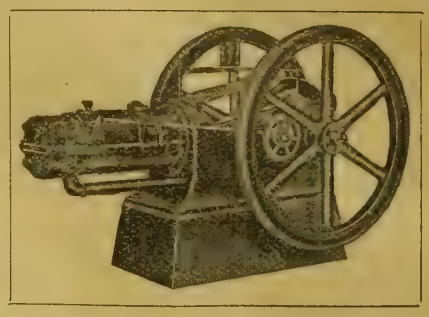

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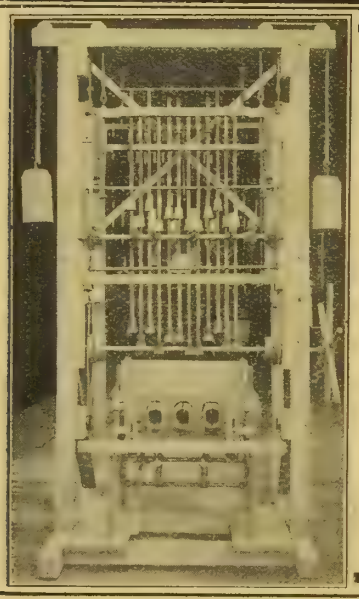

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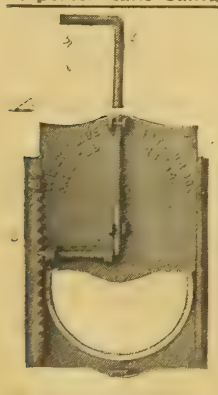

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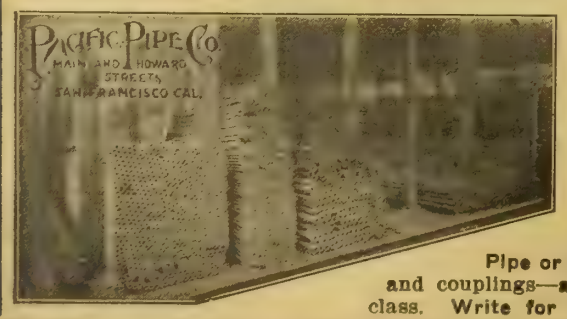

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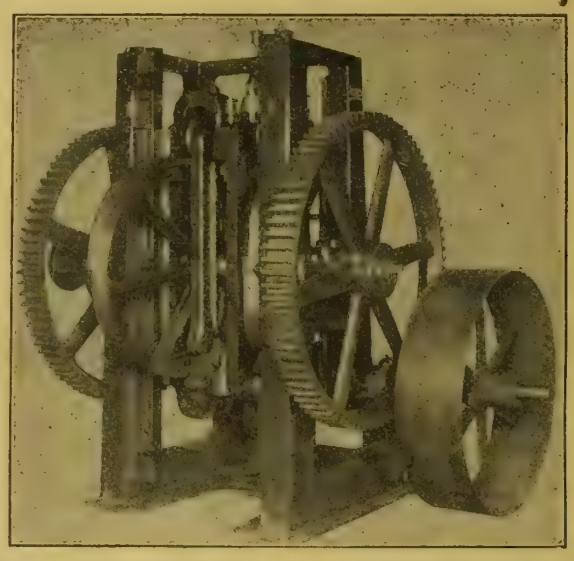

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California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES JANUARY 26, 1911 SAN FRANCISCO

SUBSTANTIAL CALIFORNIA POULTRY HOUSES AND YARDS

On this page is presented a group of views picturing what in the writer's mind is indeed a substantial and practical poultry house, and improvements calculated to contribute largely to the comforts and contentedness of fowls, and the stimulating of egg-production on the part of the hens. Some may say that this claim is a trifle extravagant, nevertheless this opinion is based on wide observation and years of experience both East and West. Properly constructed and intelligently managed this style of house and yard will "pull down" as much hen fruit in winter from a given number of hens in any climate as any other style with which we are familiar. It is widely known as the roosting room and scratching shed house, and it is so modeled that much time, expense and lumber is saved in building; it can be continued to any desired length in one line. A feature is its scratching-shed. This shed is ten feet square, where the birds work for their fine grain ration. There is no prettier sight than one or two dozen hens singing, hustling and scratching in about ten inches of clean wheat or oat straw, where their evening meal has been scattered. It is advisable to keep a fowl busy, contented, and in good laying condition in this work shop.

The house proper, which is shown in the cut, illustrates the sleeping quarters. This is not alone for roosting purposes, but also contains the laying nests. Perches are just sufficiently high to avoid the cold air and the effluvia from the floor and droppings. Under perches is a wide pan built to slide in on cleats to catch the droppings; immediately beneath this pan are the nests.

Talk about results. This house back East where the mercury often drops to 16 degrees below zero, produced for the writer 19 to 25 eggs every day during the winter out of 30 hens. Cut also gives partial views of yards, which are eighteen feet wide, and made any length desired.

The two views at the top show houses originally constructed as rabbitries—now only a memory of the crazy Belgian hare boom that had us all going several years ago. In spite of that sporadic and flamboyant event, the Belgian hare is not without its economic value. For the service of man in the practice of our modern domestic economy there is nothing to quite take the place of a well-grown, nicely fatted young Belgian hare. As a means of fighting the meat trust, this little quadruped certainly has virtues worthy of our consideration.

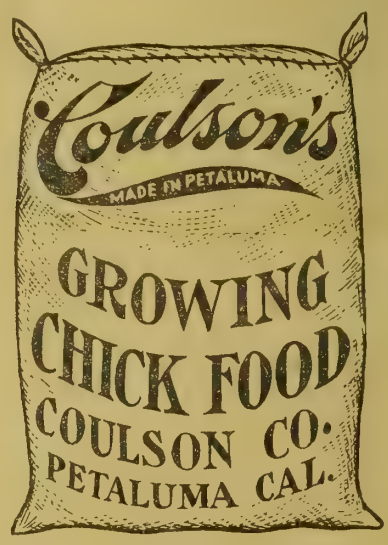
POULTRY RAISING MADE EASY

Scientific Poultry Raising means scientific feeding—feeding which will supply the greatest amount of egg producing energy, give the bird a strong constitution and render her least liable to disease. When you fail to furnish the most beneficial elements you are simply trying to run an egg factory without the proper material.

We are Manufacturers of Poultry Food for Birds Of Every Age

For the little chick which has recently broken its shell to get out into the world we make Coulson's Special Chick Food. This food is carefully selected to meet the demands of an intricate and delicate body. The parts composing it are all thoroughly cleaned, well granulated and carefully mixed to give the right proportions. Use this food for six weeks, when your chicks will be ready for

Coulson's Growing Chick Food



This food is a little stronger than the Special Chick Food, contains additional properties, which the chick is now able to digest, and is a great body builder. It produces muscle, bone and sinew, gives correct bearing to the chick and carries it safely on to the period of eggs and market.

Coulson's Egg Food

When the pullets are three to four months old give them Coulson's Egg Food, which will bring them in good health to the laying time, and start them right. The surplus strength of the food now goes into the making of eggs, and the exhaustion occasioned by producing them is therefore readily compensated for in the Egg Food, as it furnishes the needed ingredients.

In conjunction with Coulson's Egg Food, Coulson's Scratching Food fed once a day gives a variety in grains and seed which is very beneficial.

You can buy our goods from any reliable poultry dealer. They are on sale everywhere. If your dealer cannot supply you write us and we will tell you where you can get what you want. Send to us for our free book, "Poultry Feeding for Profit," and for any information on poultry matters and we will forward it.

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California Cultivator

Vol. XXXVI. No. 4. LOS ANGELES: THURSDAY, JANUARY 26, 1911 One Dollar the Year

The Great American Business Hen in California

Development of Hen Farming.—Feeding and Caretaking.—Insect Foes and Disease.—Preventives and Remedies.—Marketing a Crop of Newly Laid Eggs.

Henry W. Kruckeberg

Poultry culture has its place in our agricultural development. And though only a "chicken business," by reason of the units of which it is made up, in the aggregate it outstrips in money value many of our staple orchard and field crops. Statistics give it an annual importance of about seven hundred millions of dollars in the United States. By reason of its wide distribution into small units of production it suggests the busy bee gathering tiny bits of nectar from countless thousands of blossoms which go to make up the carloads of California honey that are annually exported. In California, the American hen has gained a strong foothold, and is daily growing in importance. We can boast of possessing in Petaluma the greatest poultry center in the country,—and yet, California annually imports many dollars worth of poultry products. Between these two statements there is a field for exploitation and a world for improvement. There is no reason why California should not supply her own markets. Poultry is exported from Northern California at certain seasons of the year, but only during the winter when biddy is more or less out of business in the colder regions. Why is this? The reasons are many and diverse, but they are insignificant compared to the fact that poultry culture has with us never attained first-class importance in the sense that fruit growing has. Our best endeavor has been plant culture rather than live stock. But we are growing, and the industrious hen is gradually coming into possession of her own.

WH. LEGHORN. MEDITERRANEAN.

With most people the matter of breed and variety is already settled. It is after all in its last analysis a matter of individual taste and purpose. All breeds are good in the hands of good breeders. Generally speaking, however, the Mediterranean class seems to have first call in California, with the American and English as close seconds. The feather-legged sorts are not popular. And while we may feel satisfied as to our breed and variety, no one will feel quite right unless his birds are up to Standard requirements. By "standard" is here meant fowl answering to the requirements of the American Poultry Association's "Standard of Perfection," a book that occupies the same relation to poultry that similar books do to cattle, horses, hogs, etc. And do not imagine that the book's requirements serve only the ends of beauty—far from it, for it has been quite well established that the standard bird is also the paying bird. The scrub as a whole is an undesirable quantity devoid of economic quality as well as points of beauty. Since breed and variety is a matter of taste, we may go on a step further.

SIL. PEN. WYANDOTTE. AMERICAN.

Artificial hatching and brooding is, of course, germane to our subject, but in this paper it will be avoided (1) because the average farmer and fruit grower still adheres to nature's way of replenishing his flocks, and (2) because many now resort to the purchase of the day-old chicks direct from the professional hatcheries. This practice is destined to be extended until we shall be able to buy three-months old pullets in much the same way. The nucleus of such a business is already in evidence at Petaluma. Mating is another item worthy of a paper of its own, but for our present purpose it will suffice to state that you would mate your most vigorous males, the ones that evince pugnacity, are great feeders, rapid growers, active, alert and "boss of the roost," to your best laying females characterized by a corresponding vigor, health and good, motherly qualities. The progeny of such is apt to partake of the best qualities of both parents.

The clutch of eggs is off or the brood of peeping young are in from the incubator to the brooder. For the first 24 hours they should be left alone, after that they will require constant attention if we are to obtain good results, whether we aim at a supply of hen fruit or carcass for market. The usual practice is to hard-boil an egg, chop it fine, shell and all, and then mix it with an equal amount of bread crumbs or cornmeal or oatmeal; this is the first meal. This food should be kept up for two or three days,—after which we feed with ground wheat, corn, shell and bone, also green food, such as cut alfalfa, lettuce, etc. The standard chick foods now on the market are being widely used, and invariably give satisfaction. It is a good practice to feed often, but little at a time, say every two hours, or four and five times a day until the chicks are five or six weeks old. Always be sure that no food remains in the vessels or runs after they have eaten, to become sour. Nothing is so prolific of bowel trouble and dysentery. In my own case, with some forty fowl bred "on the side," the egg and bread diet is continued for three or four days, when it is at once substituted for the morning mash fed to the adult poultry. This mash for the most part contains the waste from the table accumulated the previous day. A large iron kettle stands on the back of the kitchen range, into which are placed the available leavings—bits of meat, vegetable parings, cast-off bread, etc. The morning following this is all cooked by the addition of the proper amount of water, when sufficient bran is added to make a mash. Into this is also added a pinch of salt and a scant teacupful of bone and blood meal. Give only what the fowl will eat up clean in about 20 to 30 minutes. We feed in galvanized iron troughs. At midday we give liberally of green food—cut alfalfa, lettuce, Swiss chard, cabbage, chopped onions, beets, or whatever is most convenient, all the time aiming to have as great a variety as possible. At night grain, principally cracked corn and wheat, which is supplemented with millet, hemp, canary and other seeds, as occasion suggests. It is quite apt to be a mooted question with beginners just how soon to commence feeding grain food to young chicks. The chick cannot be too soon supplied with food that will require the grinding of the gizzard to be properly brought into action. Soft food will not do this, consequently, more or less dry food must be supplied. In the gizzard, with the aid of some grit, the woody envelope of more nutritious parts of seeds and grain is ground into atoms, also the nutritious parts thus prepared for digestion and assimilation. Some gritty substance is absolutely essential; for without it the gizzard cannot properly perform its work. Even baby chicks should be fed upon a sanded floor. The gritty matter should be as hard and sharp as possible, so that it will grind up the bones and such like substances. When chicks are young, broken wheat, coarse oatmeal, canary seed and some hemp seed are each very suitable. They should not not have much, if any, Indian corn, as it makes them too fat, and thus renders them liable to a variety of ailments. For stock purposes a fat fowl is undesirable, for its progeny is almost certain to be weak. The question is often asked, "How shall we feed a flock of hens?" That depends somewhat on our purpose. If for eggs, we must largely provide those elements of which the egg is formed; if for table purposes the ration should be rich in the fat and meat building constituents. Fifteen per cent of animal food, twenty-five per cent vegetable, and sixty per cent grain; the

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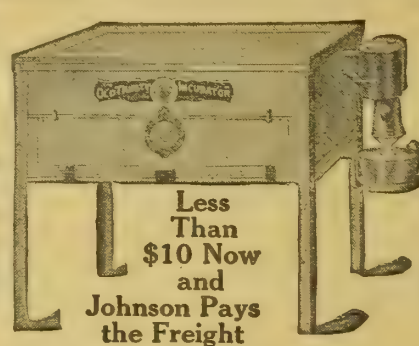

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1911 SEED CATALOG

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Eggs for Hatching, January to June. Day Old Chicks, March to June.

PASADENA, CALIFORNIA.

more varied this grain food the better, while the vegetable substance with us is preferably alfalfa. Beans, ground, when they can be bought at the corresponding price with other grains are excellent, for they contain thirty-eight per cent muscle forming material as compared to seventeen per cent in barley, twenty-two per cent in oats, and eleven per cent in corn—the corn having the greatest quantity of fat or heat; but the beans had best be part of a composite meal made about in the following proportions: 15 pounds corn, 15 pounds beans, 10 pounds barley, 15 pounds oats and 15 pounds wheat bran. Of this grain should be 60 per cent of the ration, with 15 per cent animal and 25 per cent alfalfa or other vegetables, the mash thoroughly scalded.

As to quantity, feed only what they will eat up clean in 20 minutes on a clean run. After this quantity is ascertained, if grain is fed, rake it into the runs or else supply litter into which it can be thrown. Some means must be provided to keep confined poultry constantly at work. Exercise is of as much importance as intelligent feeding. Dry feeding in hoppers to which the birds have free access at all times was a lively topic of discussion a few years ago, and found many followers, and was quite generally adopted. The theory was that it would be more economical, and save the labor of preparing the mash food, and give the birds all a fair show at the pie counter. Of late years it has been less in favor. The fundamental methods of feeding are grain, grain and dry mashes, and grain and the wet mashes, each, of course, supplemented with the green food. Breeders in their opinions and practices vary more or less as to which method is best; good results being possible by all three. Balanced rations also vary, being governed by the available materials and market prices. In California there is a decided tendency toward the practice of buying poultry foods already prepared direct from the manufacturers and dealers, as we shall notice a little later on. Where fowls are confined green food must be supplied, and nothing is superior to cut alfalfa. Another item please remember, and that is a plentiful supply of pure water furnished in clean and pure vessels or drinking fountains. Birds in a state of nature have access to plenty of gravel or coarse sand with which to grind their food. See to it that under artificial conditions there is an abundant supply of ground shell, fine gravel, coarse sand, broken crockery or glass pounded into particles the size of peas. And please do not forget that cleanliness is the badge of civilization, and to the contrary, that filth is degenerating, and no business ever yet was successful in squalor and wretchedness—least of all the business hen. As supplemental to cleanliness do not forget the dust bath, it is nature's bath tub for the hen, and is a preventive of lice and filth.

In the interests of economy and better results in product, as just noted, many commercial breeders are buying their feeding stuff in the prepared state—this gives more time to intelligent caretaking of the birds and enables a closer study of their requirements. Poultry and chick feeds now constitute a business by themselves, and right here at home we have a number of establishments that turn out many carloads every year. But the division and specializing of the business goes even further. Experience has taught breeders that it is better to center on one branch of the business. As a result of this we note the egg-farmers, the professional hatcheries, the manufacture of feeds, the growing of three-months-old pullets on contract, which finds its chief exploitation in Petaluma, and other innovations, all tending to a singleness of purpose, in which the specialist excels and so reaps a corresponding return. If, as Dr. Johnson said, "Bad dinners go hand in hand with total depravity, while a properly fed man is already half saved," the importance of good living for poultry is apparent; it of itself is almost proof against disease.

In California poultry should find ideal conditions—and so it would, did not its insect foes also find congenial environment. The bugs affecting web and feather are not only numerically strong, but persistent and pugnacious. The mites, the head and body lice are indeed the bane of the breeder and the torment of his fowls. It seems almost impossible to breed poultry literally free from parasites. Like the poor, they are always with us. Young chicks should have their heads greased for the destructive head louse three or four times. First, the day following their birth; again when a week old; and a third time at the expiration of about 20 days. If the bird appears droopy after that period repeat the operation, using only enough grease—sweet oil, butter or lard—to thinly coat the head. Use insect powders freely in nests and thoroughly dust it into the plumage of infected fowls. Use whitewash liberally inside and outside of the houses, applying with a spray pump, and be particular to swab all roosts with liquid lice killer at least once a month.

Disease? The best way is to have none of it in your flocks. Proper feeding, pure water, good houses and cleanliness are a quartet that when properly applied will do much to avoid sickness in your poultry. A sick fowl patient is indeed a bad actor, and should be hissed off the poultry stage. To even touch on the subject of diseases and remedial measures is hazardous and tedious. For ourselves sick chickens not only give us that tired feeling that you read about, but an acute pain in the head. Bowel complaint, roup, swell head and indeed most of the ills that chicken flesh is heir to, are invariably traceable to bad housing, improper feeding, and filth. As with persons, change of diet, of environment, of conditions, will often bring biddy back to sprightliness and vigor. There are many so-called remedies for chicken ailments, but a sick fowl means a sick profit, and the good Lord knows we have enough of that already. At best, if seemingly cured, the recovered specimen is still a menace to the flock, as its progeny is bound to inherit traces of weakness and be wanting in vigor and pugnacity. Hence, let me admonish the beginner to eschew by every means the presence of disease, or weak, under grown and undeveloped specimens. In spite of these negative reflections we will venture a few suggestions calculated to bring about normally healthy conditions, or at least act as deterents to the advance of Generals Bacteria and Microbe and their ragged and emaciated army of ailing soldiers.

Keep clean. This means sanitary houses, sanitary yards, and sanitary appliances. To keep the premises pure and sweet sprinkle powdered air slaked lime in runs and houses.

Be sure of your food and water being clean and wholesome. Water and food-borne diseases are not uncommon in the poultry yard. The former can often be purified of infectious elements by the addition of permanganate of potash.

Wholesome food. Moldy bread, musty grain, decaying vegetable matter, tainted meat, are unfit for hens, because leading to inflammation of the intestines which finds expression in diaorrhoea.

Charcoal prevents disease by its absorptive powers of the gases in the system; and also for its physical

action. If available, poultry will eat of it quite freely.

Common hard soap dissolved in water to the consistency of soft soap, one tablespoon to the gallon of water will often clean out nostrils and throat, and act as a mild purgative.

Onions fed liberally with red pepper chopped fine in the mash has a tendency to fortify the system against colds. The former if fed for any length of time, however, has a tendency to influence negatively the flavor of the egg.

Epsom salts is a simple drug calculated to maintain the system in robust condition. Give about a teaspoon to each twelve hens once a week. To afford all birds a chance at the medicine bottle, dissolve the salts in just enough water to take them up. Then employ this liquid in mixing the mash, making it dry and working it over and over. Give this for half a feed. In this way the birds all get a share. Salts cool the blood, clean the intestines and stimulate the action of the liver and other excretory organs. With Epsom salts and peroxide of hydrogen, which is a cleaning agent and a destroyer of disease germs, for external use, in case of sores, wounds, etc., one has two simple things with which to combat physical ills. To these add a box of quinine capsules of one grain size to be used with colds or droopiness, as it stimulates heart action. A box of liver pills might also be added.

But a religious regard for cleanliness and good sanitation, beats all remedies. Learn to remove the cause of disease and you will have only healthy and contented birds.

There are some who think it toughens fowls to allow them to roost in trees in the open; but I notice they are not among the most successful breeders. In this climate a warm house, in the sense that the term is applied in the East, is not necessary. Constructed cheaply and of light material it should be draught proof, with but a single opening for ventilation.

In the matter of contracting, harvesting, packing and shipping your crop of hen fruit, let me suggest:

1. Use hens that produce not only goodly numbers of eggs, but those of standard size: Leghorns, Rocks, Orpingtons, etc.
2. Good housing, regular feeding, clean, dry nests.
3. Gather your crop of hen fruit daily; when the weather is 80 degrees and over, twice.
4. Confine broody hens as soon as they show symptoms.
5. Reject all doubtful eggs found in a nest that has been missed.
6. Place summer eggs in a cool place as soon as gathered.
7. Avoid moisture coming in contact.
8. Dispose of young cockerels or segregate from the hens. Do the same with the cocks, out of the breeding season.
9. Sell your cracked and dirty eggs to your household.
10. Market not less than once a week, and as much oftener as practicable.
11. Keep all hen fruit as cool and dry as possible while in transit to market.
12. Keep eggs away from strong odors and out of musty rooms and cellars.
13. Use strong and clean cases and perfect fillers.

Success in poultry culture, whether on a large or small scale, is after all a matter of individual effort and persistent application. Faithfulness, a punctual observation to every detail, coupled with a love for the birds are essential to its successful prosecution. In so far as mere words go, the price of success may be summed up as follows:

1. Stock answering to standard requirements.
2. Cleanliness in every department.
3. Fresh air.
4. Abundance of pure water.
5. Proper feeding, coupled with grit.
6. Sanitary houses and yards.
7. Intelligent caretaking.

These basic principles should be well mixed with brain and brawn. Administer freely. If properly and persistently applied success will follow. One hundred doses for the asking at the Energy shop of Elbowgrease & Commonsense. Money back if unsatisfactory.

This open front door makes perfect ventilation

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It is the only Incubator without a "Sealed," Air-tight Egg Chamber. It supplies the life-giving oxygen freely, draws off the carbonic acid gas, and is saving the lives of millions of chicks.

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The Mandy Lee is as far in advance of other incubators in heat and moisture as it is in ventilation. We do not guess at anything. The sensitive regulator controls heat to the fraction of a degree and *we measure moisture* just as accurately with the Mandy Lee Hygrometer (one sent with every incubator). You know what you are doing. *You* measure and control moisture; *you* control the hatch. The Mandy Lee is the all-season, all climate, all condition hatcher, always producing the most and the strongest chicks.

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We are particular about the vigor and vitality of breeding stock from which we use eggs for hatching. This is the first essential to secure strong, healthy chicks. We use the best incubators we could procure. The eggs are given required care and attention while hatching so that you are assured to get good, strong chicks. Greatest care used in packing and shipping, that chicks reach you in good condition.

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	FEBRUARY.	MARCH AND AFTER.
WHITE LEGHORNS	$12.00 and $10.50	$10.50 and $ 8.50
BROWN LEGHORNS	12.00	10.50
R. I. REDS	15.00	14.00
BLACK MINORCAS	14.00	12.50

In quantities of 300 and over, 50 cents per hundred less. For 50 add one cent per chick to above prices.

San Jose Hatchery, ***San Jose, Calif.***

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Brooding and First Care of Chicks

F. E. BALDWIN.

The proper brooding of chicks is, in our opinion, the most important part of the poultry business. It is a well-known fact that just prior to hatching the chick draws up into its body the remainder of the yolk, and in this way starts on its journey with a three-days ration in its haversack.

What the chick most needs during the first three days is to be kept warm; true, it must have air, but heat is absolutely necessary for best results in growth and development later on.

These facts lead to the conclusion that it is better to keep the chicks in the incubator for a day or two after the hatch is over, for the reason that heat conditions can be regulated more perfectly and easily. Of course, if the hatch is large it will be necessary to remove a portion of those first hatched, which are crowding against the glass doors. The later ones may then have more room and air. It is well to keep the incubator doors darkened, so the chicks will not crowd to the front, but spread out—"go 'way back and sit down," as it were.

We remove the trays after the hatch is well cleaned up, so as to give the chicks all the room possible, and keep the temperature, as shown by the thermometer, the same as during the period of incubation. Of course, the chicks are now about four inches below where they were when on the trays, and the temperature is much lower. They are, however, close enough together, though somewhat spread out, to help each other keep warm.

Before transferring the chicks to the brooders we heat the nursery end to a temperature of 95 to 100 degrees with the bulb of the thermometer under the hover, four inches from the floor. We put in the brooder a font of water, the drinking rim of which is one and one-quarter inches above the bottom. This font we place on a square board one inch in thickness, which projects an inch or two beyond the bottom of the round galvanized iron font. This arrangement prevents the litter being scratched into the drinking water, and yet the baby chicks will find the water by stumbling up onto the board. These fonts of water should be placed in the brooders so they will be warmed up some before the chicks take their first drink.

We also place fine grit on one-half inch boards with a rim around the edge to keep the grit from getting off of the boards. These boards can be turned over, as the rim about the edge is made by nailing a three-quarter-inch half-round moulding to the edge of the half-inch boards so that a rim of one-eighth of an inch projects above and below the flat or floor of the board itself. By turning the boards occasionally, time is saved in cleaning.

We cover the floor of the brooder with a thin layer of coffee shells or other fine litter, and place these boards on top of litter. The object of all this is to have the grit (and, later on, the feed) under the feet of the chicks, where they will find it.

It is wrong to mix feed with litter and expect baby chicks to find it. The mother hen is absent, and we all know, if she were present, how she would take a bit of grain in her bill and call the chicks to her and feed it to them one by one. We have all noticed how the chicks will walk through the feed, never noticing it, to get the kernel the hen is calling their attention to. In the absence of the hen we must place the grit under their feet, where they naturally first look for something to pick at.

The brooder is now ready for the chicks—water, grit, litter, and temperature at 95 to 100 degres, as described.

The chicks are taken, preferably in the middle of the day, in boxes, and counted as we place them in the brooders. We put fifty to seventy-five chicks to the brooder, as room may permit. We prefer fifty, but seventy-five will do well by giving them a little more attention.

In transferring them, in the middle of the day, we seldom cover them up, as they are not long on the road. Of course, if rainy or windy, a gunny sack is thrown over the box in transit.

As soon as they are in the brooders our only duty for that day is to keep the temperature at 95 to 100 degrees and keep the boards supplied with grit.

They learn to eat from the boards by picking up the shining particles of granite grit. They learn to drink readily, and the grit, water and heat keep them in condition to absorb the yolk, which must be absorbed before the digestion of grains is begun, if we would start the chicks right.

The question of heat and ventilation for the first five days is vital. We use oil lamps in the brooders, the fumes from which are carried off by a metal smokestack, and no smell from the lamp allowed to contaminate the air which the chicks breathe.

Pure fresh air, from out of doors, is conducted through a double drum heater, where it is heated before passing through into the nursery hover, and then diffused downward onto the chicks. This pure air, from out of doors, heated, and coming in on the

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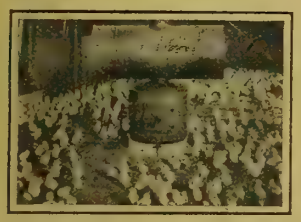

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chicks in a constant flow, is all the ventilation needed for the first five days. The door into the next compartment, or exercising room, has cracks about it to let enough air into the exercising room to keep up the circulation and enable the heated air from the heater to come in readily. Later on—i. e., after chicks are five days old—an opening between the nursery and exercising room is opened fully, partially, or closed altogether, at the will of the operator, by a sliding door.

With the ventilation problem off our minds, we have nothing to do but to attend to the temperature. The temperature is regulated by the height of the lamp flame. When the sun is shining brightly in the middle of the day, little heat, if any, is required. It may be that a gunny sack hung over the brooder nursery door may be needed to keep the temperature down to the required point. As the afternoon advances, the lamp flames must be gradually pushed up, and when we leave them at 9 or 10 o'clock in the evening, we leave the mercury registering a few degrees higher, to carry the chicks through the cold hours before sunrise without the least discomfort or the possibility of a chill.

We start them at 95 to 100 degrees. We find that in the daytime, when active, the chick does not need quite as much heat as at night, when quiet, so we start them at 95 degrees during the day and 100 degrees at night. After the first five days we run at 90 to 95 degrees, as above explained, for a week, and then reduce temperature gradually.

The second day in the brooder we begin to feed a mixture of small grains. We used to mix our own feed, but find our time worth more than the profit which the poultry supply dealer makes on the mixture, so now use the commercial mixtures. The principal thing is to get a good clean-looking mixture, with grits and a variety of grains. This mixed chick feed we feed four or five times a day on the boards already described, so the chicks can find it under their feet, with no litter mixed with it.

After they are five days in the brooder we begin to mix the feed in light litter. By easy stages the chick learns to find its feed in deeper litter, and they will scratch to beat the band. The first mixture of feed with litter is around the boards where the chicks go for their feed. These precautions are quite necessary to prevent the loss of chicks that otherwise would fail to find the feed and slowly starve.

The second day after being put in the brooders we feed a mixture of commercial beef scraps, charcoal and baby chick grit, on the boards, under their feet, where they first learned to pick up the shining granite. We give this mixture once a day for five days on the boards, then keep a dish of it before them at all times.

We begin also on the second day after the chicks are in the brooders to feed them green stuff—anything green that is small enough for them to eat. We feed this several times a day—a little, often, is better than a lot, to be trampled under foot and rendered unfit for use.

We have never had a case of toe picking since we began feeding meat scrap and green stuff the second day after chicks were put in the brooder.

If we keep our chicks warm for the first five days, we have found the mortality between three and six weeks to be greatly reduced. We do not fear bowel trouble, no matter what is fed, if the temperature and fresh air factors are right. On the other hand, we find no scheme of feeding is worth anything if the temperature and ventilating problems are neglected, for bowel trouble will follow, no matter what we feed.

In other words, the condition of the chick is what permits the disease germs to get a foothold in the intestines. The proper regulation of the heat and ventilation for the first five days is the greatest thing in brooding. An even temperature at all hours of the day and night for five days will start the chicks with the strength to "make a live of it" provided the parent stock is vigorous and the chicks are properly hatched.

THE INDIAN RUNNER DUCK.
By Caldwell.

Most every one knows something about Pekin ducks, but not so many are acquainted with the Indian Runners. They are comparatively a new breed in this country. There are several shades of color, pure white, fawn and white, and brown and white; all are good layers, hence it is a matter of breeding for quality and egg production. They do well in a small enclosure. Nevertheless well-bred Runners are great travelers and will wander long distances in search of food. For this reason, if allowed plenty of range they will require but little feeding for a greater part of the year. They are rightly named Runners, being very active, but are always to be found at their roosting place at night.

They are the most hardy of all domestic fowls, being originally a native of the West Indies.

It is no trouble to raise an Indian Runner duckling, for when it is hatched, it is as good as raised, unless some accident befalls it.

They are reasonably immune of vermin and disease, hence no dust bath to provide for. No nest boxes; no flying over fences; nor scratching gardens,—so you can readily see that they are an economical as well as a profitable variety. No other fowl can approach them as layers, especially of winter eggs. They commence laying at four and one-half to six months of age if fed for that purpose. They lay a large white egg, which commands a premium. They eat inexpensive food and are never bothered with "cold feet," and may well be called "mortgage lifters." We take a real pleasure in caring for our flock of Runners and find them far more profitable than chickens.

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The evidence is conclusive that the PETALUMA is the best Incubator buy that can be made. The best value for the money ever offered and is appreciated most by those who have had varied experiences with other incubators. Why? Because it hatches such large, strong vigorous chicks. More Petaluma Incubators were installed in the large hatcheries last year than all other makes combined. No other incubator in the world has a hatching record to equal the Petaluma.

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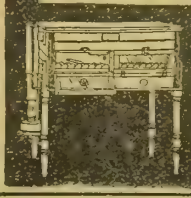

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Poultry the Best Paying Branch of Farming

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Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c per foot
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1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00 per foot
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20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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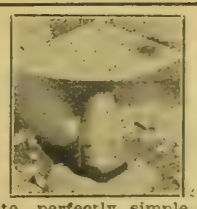

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Roosting and Scratching Shed House

LOUIS D. HADLEY.

One house is composed of two rooms, a roosting room and a scratching shed. The former is for the fowls to sleep and lay eggs in; the latter is used during the day time as a work-shop and feeding room for the hens.

This house, by building two roosting rooms together and two scratching sheds together as shown in drawings can be built to any length one may desire, the number of houses to be governed by the number of hens the builder intends to keep. Location of doors and windows is plainly shown in drawings; also lines are shown to indicate direction the doors are to swing. One house has three doors; should two houses be built, with the two roosting rooms together in the middle and the two scratching sheds at the two ends, there should be five doors and six windows—two double sashed windows in front of each roosting room; one single-framed window on hinges between each roosting room, and each scratching shed, and one single-framed window on hinges on outside of each scratching-shed. The roosting room of each house should be 8x10 feet and the scratching shed should be 10x10 feet. The front of the whole house should be 8 feet high and the rear should be 5 feet high.

This open scratching-shed with the floor covered with straw to a depth of six or eight inches, is simply grand for the hens during rainy weather.

This house is admirably planned as regards the roosts and nests, the roosts being at the rear of the roosting-room out of the way and where you will find the minimum of drafts, being neither close to the floor or close to the roof.

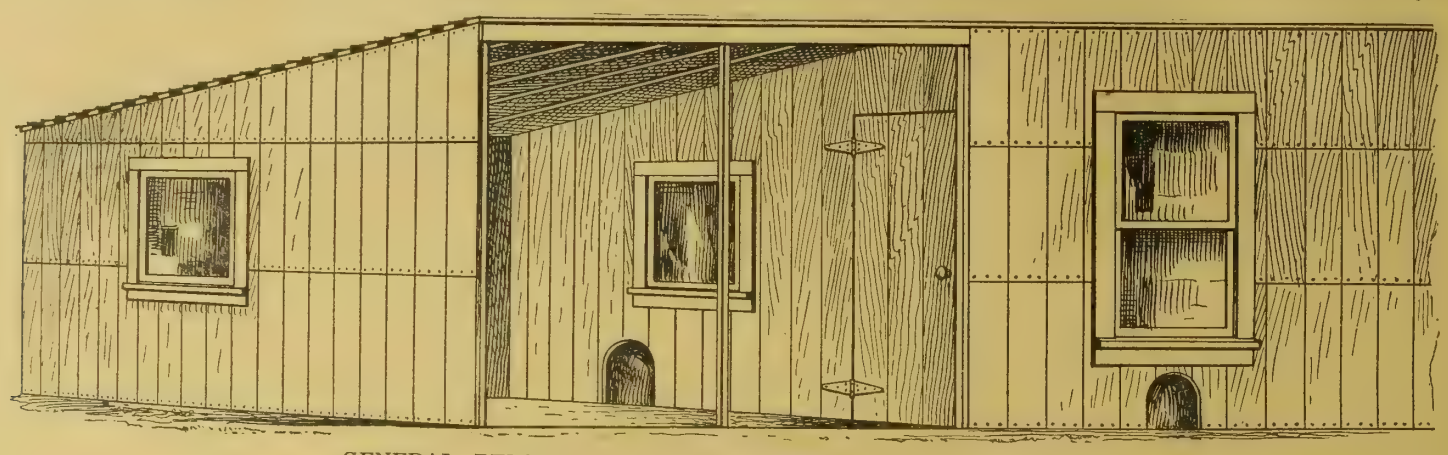
The outside of this house can be made of materials to suit your pocket-book, so long as it is made warm and tight. Plain boards covered with water-proof building paper and battened, or rustic, siding, and shingles for roof. Stick to the dimensions and build so interior will be dry, warm and arranged to ventilate, and all will be well, regardless of material used.

The top of the sills of this house should be ten inches above the surface of the ground on which you intend to build, and dirt should be filled in enough to bring the surface of the floor of dirt up to the bottom of the sills, the top four inches could be made of concrete, the top inch of surface made of fine sand and cement, and made smooth, same as cement sidewalk with two-inch hole at back of each room under the two-inch sill to allow water to run out that may at any time get in from an unexpected shower or when you are flushing out house with hose. When occupied, cement floors are covered each with two buckets of sifted clean sand, and six or eight inches of straw, roosting-rooms and scratching-sheds both, then thrown inside, by letting water stand over the entire surface about 24 hours.

The bottom sills should be 2x4, redwood or pine, halved at ends and nailed together at ends and where spliced.

These sills should set on posts set in the ground two feet. Redwood or pine, dipped in crude oil or asphaltum, or plain cedar or chestnut posts four by six or six by six inches are about right. A post should be at each corfowls will not slip or hurt themselves when jumping down off the roosts. The real value of the cement floors is in keeping out rats, skunks, weasels, etc., and preventing a blinding, stifling dust when hens are scratching in the straw for grain.

When a house is filled in to bottom of sills inside, dirt also must be put along the outside on a slant up to about the same height, so that no water will ever run towards the house, but on the contrary will always run away from the house. Before ever putting in cement floors, be sure to settle down perfectly the fresh dirt



GENERAL PERSPECTIVE OF THE LAYING POULTRY HOUSES.

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GARDEN VEGETABLE SEEDS.
Carefully selected and fresh. Complete stock.

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Such a large item that we can quote bottom prices.

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The guaranteed, absolutely automatic and fireproof apparatus.

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A noteworthy feature of this department is the fact that all trees are shipped with an inspection certificate signed by an inspector of the Horticultural Commission; it is a guarantee of cleanliness and health.

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Including all kinds of grapes and berries.

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ner of each room, and one between each of these, making the posts five feet apart in front of the scratching-shed, and four feet apart in front of roosting room. Put one also in the center of each cross partition. Nail a board one foot wide along the lower half of sill, letting it drop down into the ground a little; of course you will have to dig the ground out a bit to receive it. This board should lap one inch on sill, the other inch of sill remaining to nail upper boards to. This board must be nailed tightly to foundation posts.

mediate studs can be used, two making the structure just that much stronger. By using all 2x4 material for all studding it makes it come out better where you intend ceiling inside with matched boards.

Cut the top end flush with outside of plate, and cut the lower end so that it will project about eight inches, having it mitred that a gutter may be nailed to it.

The rafters over the house can be placed two or three feet apart as the builder desires, of course the closer they are put, the more steady and

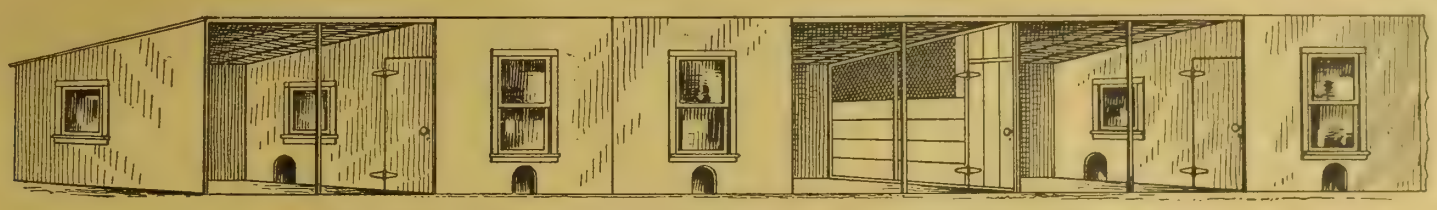
on give the whole a second coat of paint. For front of roosting-room have a window frame set in to receive a lower and upper sash, that they may be lowered and raised as desired.

The windows can be composed of one pane of glass each, or several small panes. Make the partitions between roosting-rooms and scratching-sheds from the top of bottom sills up for four feet, of boards, the rest of space of poultry wire to roof, leaving two or three feet space at front of house for the door, having a 2x4 stud with board up and down to swing door

doors open when cold.

The dropping-board or roost platform is made of matched boards, is three feet wide and made just long enough to slide in between the partitions in roosting-room on two cleats about three inches wide and three feet long, nailed securely to the sides of roosting-room partition.

Six inches above these cleats for the dropping board to slide in on, nail one more cleat on each partition opposite each other for the roosts to rest on. Before nailing the cleats for the roosts onto the partition, measure off



EXTERIOR VIEW OF SCRATCHING SHED AND ROOSTING ROOM.

Plates of 2x4 scantling, being a duplicate of sills, should be halved and nailed together at corners and splices. For the front of the house cut the required number of studs seven and a half feet long, and for rear of house cut studs five and a half feet long. These studs are cut from 2x4 scantling, one for each corner of roosting room and scratching-shed.

Toe nail these studs onto sills and on top of them spike the plates.

In the front of each scratching-shed set an intermediate stud of 2x4 material, also for front of roosting-room, set the proper distance apart to receive the window frame, put two studs 2x4 scantling.

For the rear of each roosting-room and scratching-shed one or two inter-

stronger the house when finished.

Should you intend to cover sides of house with sheathing paper and roof it with roofing paper instead of shingles, all your outside boards should run lengthwise of your house. Cheap boards can be used for this way of building, avoiding boards with bad cracks and holes. In putting on paper lap each piece about three inches. Put sheathing paper on first, then roofing paper on over this, running paper lengthwise of building, putting tin head nails about three inches apart and about one quarter of an inch above the edge of top lap.

Put on battens eighteen inches apart. Before putting on the battens give them a coat of paint, also the paper, then, after battens are nailed

on; this same studding acts as a support between rooms. The single sash windows hung on hinges and set between roosting-room and scratching-shed should be set in a single frame hung to swing into roost-room and secured by a spring catch when shut. Door should be hung so as to swing in and towards back of scratching-shed, furnished with a hook in door and eye in partition so that door during warm weather can be left open and fastened to prevent wind from blowing it back and forth.

A little opening under front window leading into yard and one of the same under window between roosting-room and scratching-shed furnished with slide doors permit of exits for birds without the necessity of keeping large

ten inches from the end of the cleat that is to go to back of room, saw out an inch deep and three inches wide which is to be a grove for the 2x3 roost to set in and hold in place. Fifteen inches from this groove or notch, saw and chip out another for the second roost. This makes the roosts fifteen inches apart, and the back one ten inches from the back wall. The roosts should be made of 2x3 scantling sawed the right length to set on these cleats just above dropping board and should be slightly rounded on upper corners. When cleaning droppings off the boards the roosts are lifted from their sockets and set back against back wall, one on top of the other. The nest box is pretty plainly illustrated and gives a

"SUCCESS" Incubators

Everybody Knows

THAT EVEN HEAT and the RIGHT amount of warmed fresh air is what hatches eggs. This can be had in a "SUCCESS" Incubator just the same as in any other well made redwood case labeled Incubator. Don't think because some companies use a pretty label and a big price that you will get any more value than in the "SUCCESS" Incubator which I sell at these very low prices.

We Pay the Freight

Buy from me at wholesale prices

Which would you rather do, buy from a company that sells through agents and tacks on 25% to the real value of the Incubator or buy from me at first cost? Any company that sells through an agent has to give them 25% to 35% of the price, or they would not sell the goods, that is plain. I do not sell through agents. I keep no books, sell to no one on credit, have no losses for you to have to stand a part. I sell to you at wholesale. My price list proves it. I sell a hot water, three pipe system machine, double walls, double top, slatted egg trays, compound heater, complete with removable nursery drawers, stained mahogany color with three coats shellac, and then pay the freight on the machines. I can do it and still make a profit. I own my own buildings, pay no rent, use no high priced useless office help, and everybody works. If you are with me, get my free book today, 48 pages. It tells the story. Our 64-page Pioneer Hatchery book tells the story of the largest baby chick concern in the world. It's worth while. Send your name to me today.

———Experience

I can show you quick where we get it, when you get my book. My business doubles year after year, because I make good Incubators and sell at the right price.

We hatch 100,000 eggs every 21 days.

My heaters cost MORE

Than any other hot water heater used on any Incubator whatsoever. It has three pipes, hot water goes around the outsides of the case first and returns through the central pipe. The copper boiler on the 612-egg size is 10 inches long, no other is made that long, and three pipes cost more than two. No hot air Incubator on earth will run as even as a first-class hot water Incubator.

INVESTIGATION is all I ask. Send for the book today.

60 Egg, - - $9.00
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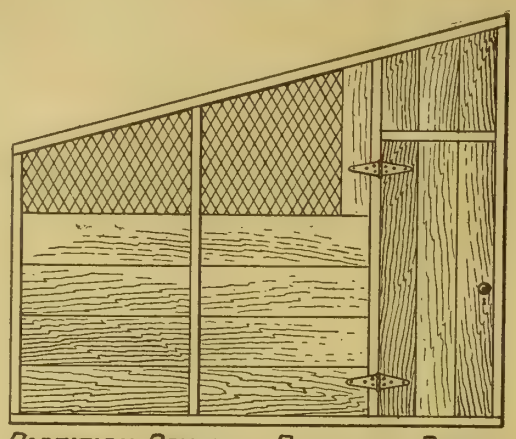
good idea as to what it should be and how it should be made, it is to be made six feet long by fourteen inches wide (inside measurements), and then divided equally into six nests, hinged at the bottom in a long door to be shut up and caught by spring catch at top when shut. This nest is placed directly under the dropping-board, having a one-foot space at each end for hens to go in and around to nests.

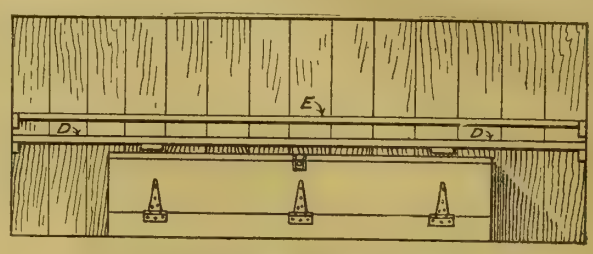
Placed in this manner the nests are partially dark and suit the whims of a hen when she wants a quiet, secluded spot for a nest to lay in.

A good plan is to have two doors made, each of light weight, matched boards with a window of glass or celluloid in each, hung to top of front of scratching-shed on heavy hinges so that door can be swung in and up against roof out of way during mild weather and secured very strongly in a way so far as to be practically impossible for them to fall down accidentally and hit some child or chicken, 'tis also good to have doors swung on double acting hinges that the doors can also be swung out and up, and fastened when out and up to a 2x4 scantling, the ends of which rest on three 3x4 or 4x4 posts set in the ground at just the right distance from the house so that lower end of door will just reach to the 2x4 resting on the posts. Two of the three posts should be set opposite each corner of scratch-shed, the third post directly opposite the intermediate stud in the center of front of shed. When fastened out and up, the doors should be supported on strong buttons fastened with bolts run through middle of 2x4. Doors should just clear the 2x4, then as door goes up past 2x4, the large wooden buttons should be swung around and allow doors to rest on top of buttons. There should be two doors to each scratch-shed, one should have a cleat on one edge extending beyond it two inches, along the edge at intermediate stud.

Other door should be let down first and fastened, then let door down with cleat on it which will extend 2 inches over first door, making it tight and keeping out bad weather. A twelve inch board should be at bottom of front of scratching-shed to prevent straw being scratched out of shed into run or yard.

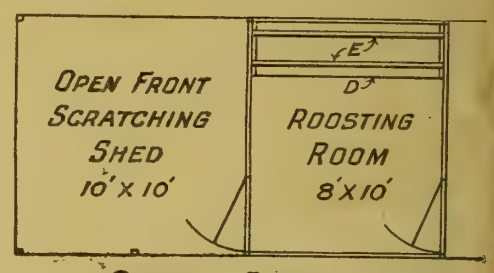


PARTITION BETWEEN ROOSTING ROOMS AND SCRATCHING SHEDS.



BACK OF ROOSTING ROOM, Showing Roost, Platform & Nest Boxes.

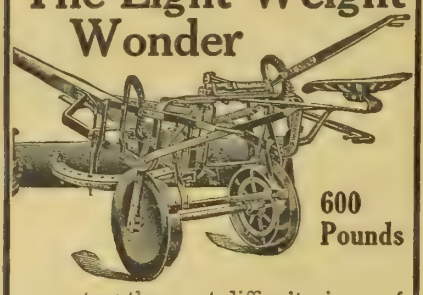
NEST BOXES.



GROUND PLAN.

20th Century Grader

The Light Weight Wonder



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Works equally well on rough or smooth ground. Lasts a lifetime but quickly pays for itself. Perfectly balanced. Made in every style and size to meet every condition. There's a Thompson for you no matter what seed or how many acres or what quantity to the acre you sow. Lightest, strongest and most durable. Weighs 45 to 50 pounds complete. Large wheel runs easily. Anybody can use it. Absolutely guaranteed.

Send name on postal now for complete catalog showing many styles and sizes. Write quick if interested in increased profits. Address

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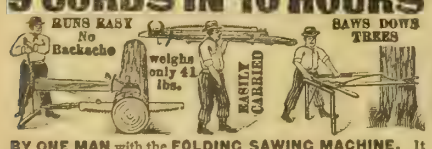

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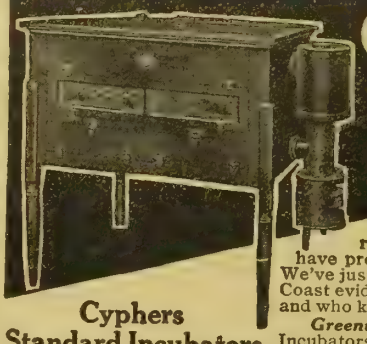

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The Leading Hatchers of the Pacific Coast

Cyphers Standard Incubators

Ten years is ample time to prove out an Incubator. To prove whether the statements of its maker are mere "claims"—or are founded on ***absolute facts.***

Cyphers Incubators and Brooders have been out here on the Coast for ***10 years of hard and constant test.*** You will find them today on the farms and in the plants of the most successful poultry raisers from one end of the Coast to the other, and they have given a good account of themselves. They have proved that they are perfectly adapted to the conditions and requirements of the Pacific Coast climate. We've just gotten out our new Year Book and Poultryman's Guide for 1911. It presents a lot of interesting Pacific Coast evidence. We will send you scores of letters from poultrymen who are your neighbors—poultrymen you know—and who know incubators. Read these ***sample*** letters. We have many more like them:

Greenwood Poultry Ranch, Monterey, Cal., Aug. 2, 1910:—"During the season just closed I have used 4 of your Incubators. Have hatched close to 6,000 chicks. I am perfectly satisfied with them and shall use more the coming season. I find them almost perfect in regulation, and if I should ever have a poor hatch, I would blame myself and not the machine. Very truly yours, FRANK GREENWOOD."

J. Leonard Nillson, Route 2, Box 145, Sacramento, Cal., wrote us Sept. 16, 1910:—"Having been in the poultry business several years, and having tried various makes of incubators, I am pleased to report that for simplicity of operation and the best hatches, the Cyphers cannot be surpassed. I have never had a hatch less than 83% of the fertile eggs, and the chicks hatched in your machines are always strong and well developed. Will install ten more of your No. 3 machines the coming season."

H. L. Miller, San Jose, Cal., wrote us July 22, 1910:—"I took off three hatches of chickens from 244-Egg Cyphers, bought of you this year. Showed an average of 85 per cent of the fertile eggs, and succeeded in raising 98 per cent of the chicks. Was a beginner in the business."

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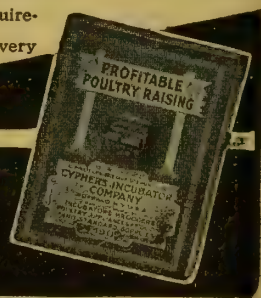

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How to Raise Strong, Healthy Poultry

H. C. SCRUTTON.

This article is intended, not for the experienced polltryman, but for the beginner in a small way who has just got the fever, but who is nevertheless anxious to gain his experience at as little cost as possible.

The most important poultry question for the beginner is "How to raise chicks." It can be done successfully in many different ways, but at the same time for the beginner especially some ways are easier than theirs.

There are three different ways of obtaining chicks—hatching with hens—hatching with incubators and buying the chicks already hatched. This last way is the best for the beginner in his first season. Make up your mind when you want them, anywhere between January and June, and send in your order to some reliable man. Give yourself plenty of time to order your brooder and put up your house, getting this done if possible before you order your chicks, which will enable you to think out all your arrangements for their comfort beforehand.

In selecting your brooder get some well-known make which has given satisfaction in this part of the country. Get the brooder large enough—for instance, if a certain make of brooder is said to hold 100 to 125 chicks, do not put more than 100 chicks in it. It will no doubt hold the 125 chicks at the start, but chicks grow and unless some of these die they will get overcrowded later. Don't assume they are going to die—start them right—and raise them all or nearly all.

Having got your brooder selected, the next thing to do, rather it should be done before getting the chicks, is to plant some lettuce, and lots of it. It may seem a luxury to grow lettuce for chicks, but there is nothing like it at the start, and later they can have some coarser greens, such as kale, cabbage or alfalfa. Sow enough lettuce to last them for a month, and see that at the end of that time they have either more lettuce or some other green feed ready for them.

The next thing to do is to get your brooder house ready, and your brooder placed in it. Have house with three sides tight and the front open to the south. Have an eight-inch board at bottom of open side with some netting above and a protecting roof overhead to keep off the weather.

Place the brooder in handy position, in accordance with the maker's directions, and put plenty of sand over the floor of brooder house and in the brooder as well. On top of this put a liberal supply of cut straw or any other clean litter you may have. Place a little box with oyster shell, grit and charcoal close to the brooder and also a small chicken water fountain.

For the first two or three days after the chicks arrive do not give them the full run of the brooder, but confine them to a small space immediately in front of the brooder, so that they will learn to run in and out, and to enable you to see that they all get feed and water.

Now comes the important question of feed, and this is one of quality, not of price. Get the best make of chick food, consisting of crushed grains, etc., which you can. Cheap cracked screenings may be all right for older chickens but they are apt to be dirty and unsound, and the risk of feeding a cheap feed to baby chicks is too great. It simply won't do. Therefore get a good, clean chick food containing a fair proportion of steel cut oats in it, and pay the price.

When you receive the chicks, if they are not long out of the incubator, they can be kept in the brooder most of the time, the first day they need nothing beyond a drink and a little grit. The second day see that they all get out for a feed and place this feed on a small board where all can see it. As soon as they all get used to feeding, throw the chick food on the litter and make them scratch for it. As they get older it can always be thrown in the deepest part of the litter, so as to keep them working all the time.

If you adopt this plan and have a good brooder house there is no occasion to let them outside for the first two or three weeks. This keeping them in is contrary to some people's ideas, but I prefer it as the safest plan, provided you keep them busy with plenty of litter.

With the open front house they have plenty of air, but are kept away from rain and wind.

With these suggestions the beginner should be able to raise his first flock with a minimum of loss. He will then see there is really money in the business and with his own experience, be able to branch out in a larger way.

BURLAP CHICKEN HOUSE.

By Mrs. C. D. Hubbard, San Fernando.

The following outline description gives a poultry house for California conditions which is the equal of many far more expensive ones.

We carefully save all burlap sacks and with a bit of second-hand lumber can construct poultry houses with practically the only outlay for roofing. Make two frames, one for the sills and another for the top. The sills should be of 2x4, and the upper frame may be of 2x3 and of pine. The dimensions of the two frames should be identical. The uprights may be of 2x3, those for the front being 6 feet high, and have the slope of the roof bring the eaves about 5 feet from the ground. The house should front to the south with door on same side. The only framework necessary is sufficient to hold the burlap sacks which are used without cutting open. The front should be covered with wire netting, as should the door. To prevent direct draft on the poultry the front may be burlaped to the height of one grain sack. This may be sowed or pinned into the wire netting, using nails in lieu of pins. The cheapest roof, and a good one, is made of corrugated iron.

The perches should not be more than 12 or 15 inches from the ground. If too high, the birds are liable to injure their feet in jumping off, causing the formation of a corn-like growth known as bumblefoot.

LAY AND LIE.

The teacher called the grammar class,
One bright November day,
And said: "My children, now you know
The hens they sit and lay;
So tell me what the people do—
Now think right hard and try."
And then a sorrel-headed boy
Yelled out: "They sit and lie."

Truro Daily News, N. S.

If there is not plenty of grit in reach of the fowls, see to it that it is provided. Oyster shells are good and may be easily obtained in many sections. The fowls will not consume the food economically without sharp grit to grind it up.

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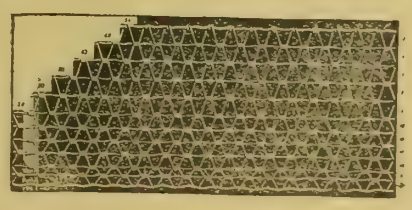

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Getting Eggs During Winter Months

W. E. EDWARDS.

Much has been written on getting eggs in winter. Although we have never written anything on the subject ourselves before, except to give our inquiring customers what information we could along this line and help them put their flocks on a paying basis, we can say that we are highly successful along this line and have built up a heavy laying strain.

We find it is generally in the way their stock has been reared and fed, though sometimes it is the fault of the stock. Many people cross their stock with all kinds of mongrels they can find, thinking this will increase their egg yield. This is an old fogy idea that has long been exploded by many experiments conducted through the world.

A pure bred will lay infinitely more eggs per year than any mongrel. In order to get most eggs in winter, it is very essential to get the pullets out early and force them through rapidly to maturity and get them started to laying early in the fall and keep up a persistent humoring by making everything as pleasant as possible for them, thereby keeping them contented and in good laying mood and not allowing them to be frightened. This will materially decrease the egg yield if allowed.

At one of the women's clubs, sometime ago, discussion was up as to the training of children, when the training should begin, etc., and one lady said that she considered the proper time to begin their training was a year before they were born! I would say that that would be a good time to begin to prepare our winter layers. Commence with strong, vigorous, heavy-laying parent stock, and the rest is easy. Chicks from stock mated up haphazard will probably be weakly and get stunted before grown and will never amount to anything.

In order to get many eggs from old hens in early winter it is necessary that they be carried through the moult in as strong and vigorous a condition as possible. Do this by giving them the proper food to keep up their system in good shape and that will grow a new coat of feathers as quickly as possible, when they should again have their egg-producing material in abundance.

But it makes no difference how well you care for the hens, they will never produce as many eggs in early winter as pullets. It is the preparatory work that brings about the conditions by which we get the winter eggs that we all seek so eagerly while eggs are at their highest.

The flock should be bred up to as high a state of egg production as possible, which we have proven can be easily done, by proper selection and mating. Still, much depends upon the feed, feeder, housing, etc. They must have the right food at regular hours and have it abundantly. Too many people feed poorly, i. e., underfeed and do not give the proper egg producing materials. In order for biddy to do her best she must be highly favored by having clean, well-ventilated, peaceful quarters and have variety, charcoal, grit, shells and fresh pure water should be at her command. We feed a mash once daily which consists of between fifteen and twenty ingredients properly compounded, and give a variety of grains in the litter to scratch for, which gives plenty of exercise during the day and in the evening give corn, wheat, oats and sunflower seed mixed, and let them eat to the limit. Always send a hen to bed with a full crop if you wish her to lay. It is the heartiest eater that is the best layer.

It is not necessary to know Hoganism in order to select a good layer. All that is necessary is to develop your birds rapidly and get a "sawmill" appetite onto them, and I assure you that you won't have many that you would need to weed out, as they will fill out well from comb to lay-bone.

In a future article I will give you more along this line. We have experimented with scratching pens much, both East and in California. While we use them quite a great deal here still, we do it mostly for the exercise it gives the chickens and not altogether for the eggs it produces, as the ones who have no scratching pens, lay as many eggs as the ones with them.

Prof. J. E. Rice, poultry expert for Cornell University, in an address before the students of the agricultural college of the University of Missouri, made the statement "that hens with short toe nails that were worn off by scratching were the greatest egg producers." (This shows that they were industrious.) He is right. For in that country or in any other cold country with their changeable weather, biddy has to almost scratch her nails off to keep warm, and the scratching pen is a necessity; but not so in California, as she has the orchard and meadow in which to scratch and can do it in the sunshine. I always earned every egg I got during the winter while in the poultry business in the East.

Open front houses are best when made free from drafts. They should have curtains to drop down over opening, on cold, rainy or windy days.

The whole thing can be summed up in a very few words. In order to get eggs in winter, we must have strong, vigorous, well-bred stock of a heavy laying strain. They must be properly housed, and fed scientifically with the proper foods at the regular feeding time, fed in abundance; but the heaviest feed at night.

A GOOD POULTRY HOUSE.

John D. Mercer.

A prominent physician of Los Angeles asks for information that will enable him to build a small poultry house that will hold about a dozen fowls and one suitable for this climate. This is a question that is frequently asked. In fact it is the most important of all subjects for the poultry-keeper, and one that is usually answered in a meager and very unsatisfactory manner. The ideal poultry house for the average keeper of a few fowls should be one that will properly shelter, assure health, be cheaply built and easily kept clean. These are the essential points to be considered and the following description, with illustration, we hope will be of service to many.

We recommend this style of house for all sections of Southern California, except such elevated locations that are subject to cold winters. This style of house will keep fowls healthy at all times and with a minimum amount of care free from vermin, if

Continued on Page 125.

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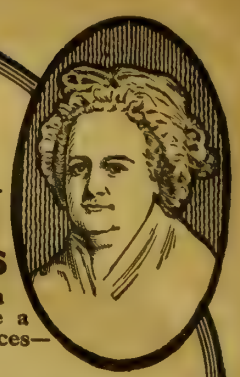

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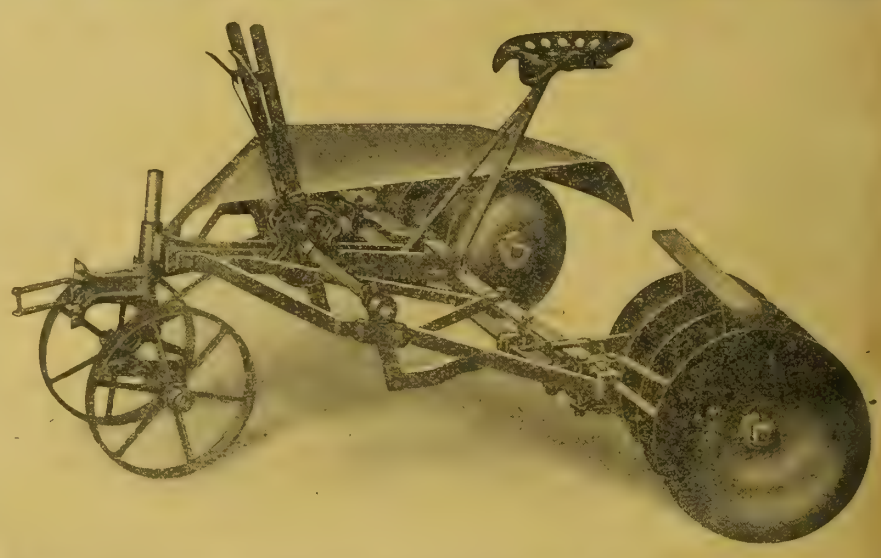

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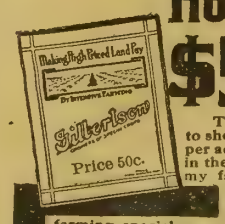

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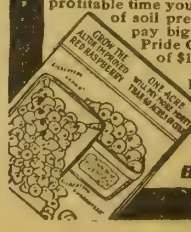
Book No. 1 is my intensive farming book, not a catalog, published to sell for 50c; send and get it now free; tells of my experiments and experience for the last 32 years. It has taken 32 years to write and to complete it. If you will at least spend 32 minutes reading it it will prove to be the most profitable time you ever spent. This book explains my special method of soil preparation, how to rotate crops, how to make your land pay big profits as I have done by growing my Grandpa's Pride Globe Onions which have produced an average profit of $15,000 on 40 acres and other special crops.



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Modern Methods of Artificial Incubation

HENRY LANGENSCHWADT

Have you ever turned your thoughts to what life really is? How great is the depth of the subject when we begin to think about it. How wonderful and mysterious! We start to investigate, trying to find what causes it and the growth of the being, and we no sooner think we have one problem, may be the solution of it, than others are encountered perhaps more difficult than the one we started out with.

The ordinary hen's egg is what we will consider now for a few minutes. It is familiar to almost every one as an article of food. It is the life side of this egg we wish to inquire into. Under right conditions life is started in the egg and will grow in the short time of three weeks reproducing the parent body. Nature in her course provides for the bringing about of this.

The mother hen it seems just applies warmth to the egg and the life develops and grows, certainly, provided the egg has been fertilized. Man found out that this development could be brought about without the hen doing it, in other words, artificial incubation or hatching. This was learned centuries ago. Yes, and it seems was carried on on as great, if not greater scale than it is at the present time.

The incubator of the present day, though, seems to have had its beginning about a century or so ago. Different sorts of machines were brought to the attention of the public and demonstrations given how eggs could be hatched without the hen. It is only within the past fifty years that this invention, the incubator, and its manufacture was brought to a commercial basis. The increase in the use of the incubator has been very great during the past fifteen or twenty years so that today it is quite common and looked upon as something we could not get along without.

Artificial incubation has not failed to bring some great problems before the poultryman. The hen, it seemed, just kept the eggs warm, about the temperature of her body when she was broody or in conditon to hatch the eggs. Cases are known where eggs have been hatched when they were maintained in different ways at right warmth. However the hen in her natural state hatches all or nearly all the eggs she starts out to incubate. When we use the artificial method or incubator we do not meet the same results. After taking out the infertile eggs that have never contained the germ of life only a percentage are hatched in the incubator or machine as we sometimes term it. Sometimes that percentage is very small. Not alone in point of number of chicks secured but also in their vigor and vitality do we find a difference in the artificial and natural methods.

To successfully hatch eggs artificially we want to duplicate the same conditions present when the eggs are under the hen. This as we have learned and are learning more and more, is not so easy a matter as it apears. It is not only a certain degree of warmth that is required. There is humidity combined with heat and other factors as to the eggs upon which the hen is setting. Then the eggs are not always lying in the same position. They are moved more or less often. So we find artificial incubation to give us good strong chicks is not nearly so simple a process as it seemed when we started out.

Investigation has revealed much about incubation and performing it artificially, but there is much more to be learned about it till we can succeed as well as the hen does. The government has taken a hand at the different experiment stations in the endeavor to solve some of the problems. There has been some valuable work done, but not what could be accomplished. The writer believs if these investigations were taken up and done by men that are practical great good could be accomplished. What do you think of turning over to a chemist the investigation of chicks dead in the shell found in incubator hatches? Such a case the writer knows of. The chemist may be needed to do a part of the work, but after all should he not do it with or under a practical man who knows more about the hen and her habits and poultry work in general. This may not bear directly on this subject, but we believe it would be well for the average poultry man to be interested in what government work is being done and interest it in doing more.

The incubator is often blamed when it is not so much at fault as the eggs. You must have good, hatchable eggs before you can expect results. When the hen cannot hatch some eggs, how can you expect the incubator to do so. Yet this is often the case. To secure good eggs you must have breeding stock that has proper feed, care and attention.

To operate your incubator follow the directions that come with it. The manufacturer ought to know best how to get results from his make of machine. The construction is so different that the method of running one make of incubator to get good results cannot always be applied to another make and expect the same results.

There is a great difference in the chicks from the same kind of eggs hatched in different makes of incubators and by differnt persons. It is really a business in itself, this hatching. It must be learned by experience and practice, and it cannot be expected that one can learn all about it by one or two hatches. In fact, we believe it will be for the best of the poultry industry if all hatching were done by persons devoting their whole time to that work. It seems the trend is more and more that way as time goes on. The experienced hatcher knows the eggs, and he can watch their progress during incubation much better than the person taking off only a few hatches a year. He will secure more and better chicks if he knows his business.

The incubator is not yet perfection. There is room for improvement. But whatever improvements are put upon an incubator, it should be thoroughly tried and tested before putting upon the market. So many incubators are just made to sell. Changes in construction are made from year to year that the writer knows in some instances were for the bad rather than good. Former models give better results than recent ones put upon the market. Select a machine that has been well tried and tested.

It takes good hatchable eggs, a good incubator and then the person must know how to run it, and good, successful hatches are assured. They may not be as large in percentage as the hen would bring off at all times, but then there is nothing but has its weak and good points.

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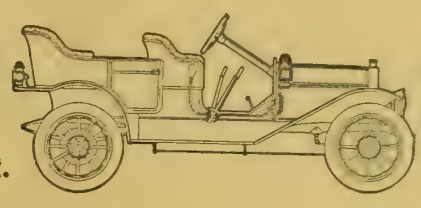

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A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,780 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, January 26, 1911

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AGAIN EGGS BY THE POUND.

According to a press dispatch under date of January 15, Senator E. K. Strowbridge of Hayward has introduced a bill, which if enacted into a law, eggs will no longer be sold in California by the dozen, but by the pound. The measure was drafted by the Hayward Poultry Produce Association, which assures Senator Strowbridge that all other poultry associations of the state want such a bill passed. The first section of the bill provides that all poultry produce, of wild or tame origin, must be sold by the pound weight avoirdupois. The second section directs that chickens, turkeys and other fowls which are produced or introduced into the state shall also be sold by the pound. The third says that all eggs of chickens and ducks shall be disposed of in the same way.

The agitation for this reform in their disposition is not by any means of recent date. Iowa has such a law, and we believe the same is true of other states, but for some reason it has never become the practice. Viewed on moral and economic grounds it has everything to commend it. A dozen large eggs possess a value over a dozen small ones; likewise a dozen fresh hen fruit are better than a dozen cold storage eggs, not only in eating quality, but also by reason of more weight. Breeds and varieties producing the larger eggs, would under the operation of such a law, take precedence over those sorts producing the smaller product; the only hope of the small egg hen would be to lay a larger number.

Poultry breeders and consumers quite generally favor the law; the chief objection would come from the dealers. The system as at present constituted has become so thoroughly intrenched and has so long been a custom, that some inconvenience would at first be experienced, and at the same time it would require a readjustment of values all along the line, not only as to all the market classifications of hen fruit, but also as to the commercial standing of breeds and varieties. Under such a dispensation the Minorcas would undoubtedly become greatly popular.

In view of these facts, The Cultivator is firmly of the opinion that the only just and equable method of selling eggs is by the pound; it is alike fair and just to producer and consumer, and would at the same time give credit to the bird producing the largest quantity of product by the scales instead of by the dozen, the latter being often less in actual quantity of manufactured product.

CAN EGG-PRODUCTION BE STIMULATED?

As a general proposition we have not "gone heavy" on the idea that egg-production can be much stimulated beyond what good care and wholesome feeding will bring about. That we are not alone in this position is possibly best shown in the fact that but few commercial breeders resort to stimulating foods and condiments with a view of increasing egg-production. In the light of these facts, it is indeed interesting to learn that in England a liberal allowance of mustard is regarded an essential in the ration in order to secure the maximum number of eggs. To prove conclusions the Poultry World of January 6 reports the results of some interesting experiments in feeding for eggs with three pens of Buff Orpington pullets of six birds each, all of which were given the same size house, yards and care. One pen was fed in the ordinary way; the second pen was given the addition of Capsicum, or ground red peppers; the third was given mustard instead. The experiment covered a year's time. When the returns stood thus—"Ordinary" 914 eggs, value £4 17s. 6d.; "Capsicums," 905 eggs, value £4 15s. 8d.; and "Mustard" 1023 eggs, value £5 15s. 2d. Taking the year round, the "Mustards" showed an extra profit over the "Ordinaries," of over 2s. 4d. per bird. A curious feature of the test was seen in the fact that the "Ordinaries" beat the "Capsicums," so that the cost of the Capsicums was a dead loss, apart from the fact that the birds fed on them laid the smallest number of eggs during the year.

The tests, however, were carried still further, to include fertility and hatchability of the eggs, and finally the influence on the health of the hens. The pens were mated on March 1st, and thirteen eggs were set from each on March 14th. The results yielded were "Ordinaries" fertility 84 per cent, hatching 90 per cent; "Mustards," fertility 100 per cent, hatching, 92 per cent; "Capsicums," fertility, 84 per cent, hatching 100 per cent. The chicks throve well, and on August 4th three cockerels from each pen were killed. The "Ordinaries" averaged 4 lb. 6 ozs., "Capsicums" 4 lb. 11 oz., "Mustards" 4 lb. 8 1-3 ozs. Here the mustard diet came in for second place. At the expiration of the twelve months two birds from each pen were killed and subjected to post-mortem examination. All six birds were thoroughly healthy, the "Capsicums" were slightly pale in liver, but not seriously so, whilst all the other organs were absolutely sound, the "Mustards" and the "Ordinaries" were in the pink of condition.

THE PRICE OF SUCCESS.

In its last analysis there is nothing difficult in the way of successful poultry culture: the two big factors are good sanitation and wholesome feeding. Coupled with these one should possess a love for the bird and a pleasure in studying its wants. A punctuality to details is of course essential. Dr. George B. Morse in a late address before the American Poultry Association at St. Louis, laid down seven rules which spelled cleanliness from within and from without. Here they are—tack them up in the hen house, observe them, and you will be quite apt to "go straight:"

"Clean out by giving Epsom salts.

"Clean up by spreading powdered slaked lime.

"Clean the water supply by addition of permanganate of potash.

"Clean the food by preventing contamination or by applying heat.

"Clean the eggs by dipping them in 90 per cent alcohol.

"Clean incubators and brooders by scrubbing with boiling water and good old-fashioned kitchen soap.

"Clean breeding by breeding from the youngest stock consistent with the requirements of good breeding.

AN OUTRAGEOUS LAW.

Even some of the best lawyers of the state have been unaware of a vicious law passed by the state legislature of 1907. It provides that the orchardist or gardener may not secure damages for depredations of live stock unless his premises are surrounded by "a substantial fence or other enclosure."

The Cultivator receives this information just as it is going to press, so cannot give it the attention it deserves. We quote, however, one paragraph from a letter from Attorney E. L. Payne:

"I therefore conclude that no damages can be recovered for trespass committed by animals, except under the statute of 1907, as that law repealed prior statutes giving right of action for damages, and therefore no damages can be recovered unless the land is fenced or enclosed, as provided by that statute. Such a state of affairs is certainly outrageous, and calls for remedial legislation."

The people of the Antelope Valley, who are making homes on comparatively new land, and may be put out of business if this law stands, are taking up the fight for repeal of the law.

Senator Lee C. Gates has the fight in hand at Sacramento. Every subscriber of the Cultivator should write him, and to the assemblyman and senator representing the district in which the subscriber lives, and urge the repeal of the trespassing law passed March 23, 1907, whereby the owner of, or one in possession of land is required to fence in order to secure any damage against trespassing stock.

A DELUSION AND A SNARE.

People having to do with chickens, and especially those about to embark in the poultry business, should beware of the 200-egg hens now so freely advertised in the poultry press; likewise, the proverbial grain of salt should not be forgotten when reading of big annual profits per hen. We are not trying to decry the bird with the fine egg record,—far from it. We not only glory in her prowess, but we worship at her shrine, and burn incense at her nest. But we deny her the capacity to produce her like, no matter what the mating may be. In other words, the 200-egg hen is undoubtedly a tangible fact; but the 200-egg strain of fowl it still in the making and a matter of the distant future.

Likewise, let us utter a word of caution as to the fabulous profits to which certain advertisers give publicity. Margins of from $3 to $6.40 per year per hen may be possible under unusual culture and rare conditions of selling breeding stock and eggs for hatching, but they are entirely unknown to the average flock the country over. Indeed, an average of 150 eggs per hen per year covering the run of a flock is a handsome return, especially if it be one of 300 head and upward. On such a basis a net return of $1.50 to $2.00 per bird is not unreasonable. The force of this statement will be realized, when we allow that the egg in nature's laboratory represents a chick—in other words, the hen laying 150 eggs reproduces 150 of her kind, if fertility in each is allowed. That is certainly going some.

Nature is niggardly in the production of prodigies, and with her life is cheap. She creates millions of men to produce a Caesar, a Napoleon, or a Lincoln. Likewise she breeds numberless horses to bring forth a Dexter or a Goldsmith Maid, the progeny of which give traces of ancestry, but scarcely ever perfect duplicates. The same is true of the 200 and 250-egg hen.

DEMONSTRATION TRAIN.

The third demonstration train trip tours the upper end of the San Joaquin Valley beginning next Tuesday at Westley. The dates for the trip are: Jan. 31, Westley, Crows Landing, Newman, Gustine; Feb. 1st, Volta, Los Banos, Dos Palos; Feb. 2nd, Kerman, Ormus, Lillis, Armona; Feb. 3rd, Lemoore, Hanford; Feb. 4th, Visalia, Traver, Kingsburg; Feb. 5th, Sunday, rest at Fresno; Feb. 6th, Selma, Fowler; Feb. 7th, Malaga, Madera, Fresno; Feb. 8th, Clovis, Sanger, Reedley; Feb. 9th, Dinuba, Exeter; Feb. 10th, Lindsay, Porterville; Feb. 11th, Bakersfield, Delano, Pixley and Tulare.

FARMERS INSTITUTES.

J. B. Neff, conductor of Farmers Institutes for Southern California, announces institutes as follows: Etiwanda Feb. 13th, Rialto Feb. 14th, Ontario Feb. 15th, San Dimas Feb. 16th, Placentia Feb. 7th.

Agricultural News Notes of the Pacific Coast

Northern California

Some sections of Yuba county report devastation from jack-rabbits.

An Eastern syndicate has under consideration the taking over of the Los Molinos Land Co. in Tehama county.

The Sacramento Valley Irrigation Company has commenced subdivision of the Chambers tract in Glenn county.

Extensive planting of seed and trees is being made on the California National Forest, the seeds and nuts being sent from the forests in Colorado.

Sacramento milk handlers, especially some restaurants, have been brought on the carpet by the state dairy bureau for selling watered milk.

East Side and West Side Sacramento Valley boosters are in conflict as to a state highway to be constructed with funds derived from sale of the $18,000,000 bonds.

A 5000-inch filing has been made on waters of the Sacramento near Red Bluff, the water to be taken from the river by pumping and used in Tehama and Glenn counties.

The Davis almond growers association held its annual meeting on January 9th, having the largest attendance of any former meeting. Mr. J. W. Anderson was continued as secretary.

The dairy production in this state during 1909 aggregated in value $13,186,044. This was increased in 1910 to $14,403,798. The total dairy products of the last year were $28,256,609.

The Madeline Meadow Co. has secured storage possibilities and will conserve water to the extent of 40,000 or more acre-feet to irrigate lands in Lassen county.

The highest price quoted for butter in the San Francisco market was for the week ending December 1st. The average for that week was 36.83 cents. The receipts for that week aggregated 166,200 pounds, while in some of the weeks in April it went as high as 454,300 pounds, and the average price at that time was about 25 cents.

The annual meeting of the Sonoma County Farmers Mutual Fire Insurance Company was held last week and a board of directors was elected as follows: John M. Given, Forestville; A. E. Burnham, Healdsburg; Carl Petersen, Geyserville; D. R. Hill, Windsor; G. N. Sanborn, Sebastopol; P. C. Jones, Bloomfield; J. Sorensen, Petaluma; W. Evart, Penngrove; A. P. Martin, Two Rock; G. W. Smith, Santa Rosa.

Central California

Pleyto, Monterey county, is working for a vegetable cannery.

The extent of vineyards of Fresno county decreased during the past year. Some vineyards are being reset with figs.

Those interested in horticulture from all parts of the state are submitting new bills to the state legislature.

Nevada potatoes have been found infested with eel worms and have been quarantined by the state commission.

A Lindsay orange grower thinks he has secured earlier coloring of oranges by the use of sulphate of iron in his orchard.

The Fresno Republican reports that plantings of figs and olives will be more extended than usual over the San Joaquin Valley.

One Lindsay orange grower reports 7000 boxes of packed oranges from ten acres. This is not by any means the average for that section, however.

Construction work of extensions of the Turlock irrigation system is proceeding finely and much cleaning and improving of old canals is being done.

Hanford alfalfa growers have been slow in extending plantings this season owing to the drouth during the earlier part of the season.

Tulare county board of supervisors and horticultural commission is still contending as to whether graft has existed in various features of county work.

The precipitation during the last storm at San Jose broke all records in the 24 hours ending at seven o'clock, January 14th, with a four-inch rainfall.

The California Fruit Growers Exchange of Sacramento hopes to have a marketing union of apple men of Watsonville to affiliate with that exchange.

What is said to be the greatest water suit ever commenced in Madera county ended last week in the nonsuiting of the big Miller and Lux estate in an action commenced to condemn the waters of the San Joaquin river.

It is reported that packers are buying raisins in large blocks and all they can secure at 3 cents. The Republican reports that over 3000 tons were purchased last week. One company has made freest offers to buy 1911 goods at 3½c.

Southern California

Irrigation District No. 8 of the Imperial Valley is now raising 700 acres of seed peas.

A gypsum or land plaster plant has been constructed at San Fernando, Los Angeles county.

The California Fruit Growers' Exchange is spending $70,000 in advertising California oranges.

It is reported that 5,000 cattle on Santa Rosa Island, off Ventura county, are suffering because of the drouth.

Prominent Riversiders met last week and took steps to favor the proposition for appropriations in support of district fairs.

Mass meetings are the order of the day in the Imperial Valley. The burning question is reclamation control or irrigation district control of the water systems of that valley.

Contractors working under government direction are pushing the work on the great levees of the Colorado river. The effort is to secure control before the midsummer floods.

A member of the Tri-Counties Reforestation Committee presented a paper at its recent convention advocating individual ownership of small tracts of forest as a solution of the watershed protection question.

The latest in orange packing house equipment is at Redlands where a "tagging" machine is being used. The machine quickly pastes a little sticker attractively, calling attention to the quality of the fruit, on each orange packed.

The Yucaipa Land Company has a contract for fourteen miles of water pipe to conduct water to its lands. It is expected that this spring will see the planting of enough trees to make at least 1000 acres of apple orchards in the valley.

The railroads have adopted a new order for the protection of shipments of citrus fruits, in effect that "all packages containing citrus fruit must be reinforced by a metal strip passing over the top thereof and nailed to the sides of center piece." It will be put in effect March 1.

San Dimas and Glendora residents are much concerned over the proposed establishing of a factory and storage warehouse for giant powder by the Giant Powder Works, now located at San Francisco. The plan contemplates the storage of 100,000 pounds of giant powder in that section.

The Coast

The Farmers Union at Walla Walla, Washington, estimates that less than half the grain in that county has been sold.

Klickitat county wheat fields are covered with several inches of snow, and a promise of a big crop of fall wheat is made.

Oregon enthusiasts claimed that the exhibit at the recent wool growers convention shows Oregon to be the best sheep country on earth.

The Colville Indian Reservation north of Spokane, Wash., is now open to settlement. Over a million acres of lands are thrown open.

The president of the State Horticultural Society of Oregon predicts that the Pacific Northwest will soon be producing 100,000 cars of apples.

Lewis county fruit growers met in Chehalis, Washington, on January 9, and formed the Southwestern Fruit Growers Association, Incorporated.

Arrangements are being made for the formal dedication of the Roosevelt Dam in Salt River, Arizona, either in February or March. The dam has been in operation for some time.

Fruit growers at Cambridge, Idaho, are devoting the winter evenings to discussion of the question, "Resolved, That Spitzenberg is right and that Spitzenburg is wrong."

The Oregon State Agricultural College at Corvallis is planning to give much more attention to college extension work; in other words, will carry the college to the people.

The farmers of Utah are making a strenuous fight for better prices on sugar beets. Organizations are being formed over the state. The factories maintain they are paying highest possible price.

Farmers near Weston, Oregon, who have been working for a government reclamation project, are tired of the delay and are taking steps to secure control of the water and funds for conducting it to the land.

The Oregon State Conservation Commission and others who would see the forests preserved, have prepared a bill for presentation to the state legislature which provides for protection of life and property from forests fires.

The Washington State Dairy Association, at its recent meeting at Lyndon, resolved in favor of "compulsory testing of dairy cattle and requirement of certification of tuberculosis tests for all dairy animals, except for purposes of immediate slaughter."

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CONTAGIOUS ABORTION.

Many terms are used in discussing this trouble such as "slinking," "casting," "losing," "aborting," etc., the idea being conveyed that the young is cast out of the womb before it is fully developed and capable of separate existence.

Causes.

Abortion may be brought about in many ways. The principal causes probably are injuries to the mother from fighting, falling, kicks from other animals, drinking excessively of very cold water, exposure to severe or sudden changes in the weather, and the eating of spoiled, frozen or moldy foods, especially wheat or rye which contain ergot or smut. Improper hygienic surroundings also contribute, especially in stabling, breeding too young, inbreeding, and severe constitutional diseases. The death of the foetus itself is at times responsible.

When any of the accidental or explainable causes cannot be assigned to the case, contagious abortion is always to be suspected, for it is common in this state and easily spread from one animal to another. The failure of many mares and cows to breed may often be attributed to this trouble. The diseased animals are often able to infect those with which they associate, so it is readily seen that the immediate loss of the young animal is not the only loss sustained by a herd in which this disease may get a foothold. It frequently results in many months of sterility or possible loss of increase completely, as well as infection of new herds of animals replacing the old herd.

There can be no doubt of the fact that the disease is of germ origin, or infectious, as we more properly say. The fact that it spreads rapidly from one animal to another, and that experimentally it can be produced by the introduction of the discharge of an affected animal into the vagina of a pregnant animal, both conclusively prove this point.

The germs of the disease are found in the vagina and uterus of affected animals and are passed out with the discharge from these organs, therefore the membranes and discharges from a case of abortion should always be buried, burned or thoroughly covered with strong and efficient disinfectant.

This is one disease where it is obvious that prevention is worth vastly more than an attempt to cure, mainly because the trouble is as a rule not suspected to be present until it has occurred, therefore treatment is directed to those animals supposed or known to be affected, and the known exposed ones, applying those sanitary measures necessary to check its spread.

Considerable experimental work has been done in attempting to control the disease and various methods have been more or less successful in herds that were affected in a mild form. This station carried on a series of experiments by using locally, at various periods of time, capsules filled with icthyol and other disinfectants. Also giving salol internally. None of these methods proved as satisfactory in controlling the disease as the following:

Treatment.

Burn the foetus and membranes, together with all litter soiled with the fluids. Clean out the barn and burn the refuse. Whitewash the walls with spray or brush with a solution of corrosive sublimate, one ounce in eight gallons of water and lime. Repeat this process often and get all drains and floors well covered with the antiseptic fluids.

Separate aborting animals from those supposed not to be affected and keep them separate until they are entirely well. Wash off the tail and surrounding parts of all animals with a solution of creolin or phenol, two per cent in water, and irrigate the uterus with a 2 per cent solution of phenol in water kept thoroughly mixed. This is best performed by using a funnel and hose five or six feet long, inserting one end in the uterus, and pouring the antiseptic solution into the funnel, allowing it to run in gradually.

Many animals, even those which have persistently refused to breed, can be made profitable breeding aniamls again by the following method:

Boil and cool one quart of soft water. Add to this five drams of pure crystals of phenol. Keep this solution in a well corked, sterilized bottle, shaking it vigorously each time before using any of it. Get a hypodermic syringe, similar to those used in vaccinating for blackleg, and treat the affected animals by injecting under the skin about one to one and one-half ounces of this solution, putting one to two drams at different points of the body. Repeat every seven to ten days till about six treatments are given. After about two treatments increase the dose to all the animal will stand. To do this give one or two extra syringes full and wait a little while, all the time watching the eyes. If the pupil dilates, enough has been given. An overdose makes some animals quite sleepy, or they stagger a little, but these symptoms are not dangerous and soon wear off. To give all the animal will stand without staggering is good practice after about the second treatment.

If faithfully followed, the above directions should rid any herd of contagious abortion in a short time and it will probably check the tendency. To herds suspected of possible trouble, thoroughly mix one pound of phenol with five pounds of salt, and give to each animal a tablespoonful of the mixture in a bran mash every other day for a week. This will probably prevent the threatened abortion.

Bulls which have served aborting cows can spread the disease, so the sheath should be irrigated before and after each service, the same as was directed for the irrigation of the vagina in the female. The bulls should also be given the hypodermic treatment and should be isolated and kept from associating with herds wherein the disease has not been found.

Some cows and mares have repeatedly failed to conceive after service and this condition is often due to the acidity of the fluids of the uterus which prevents conception. The dif-

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ficulty is best overcome by soaking a cake of ordinary yeast in about a quart of lukewarm water over night, keeping it at about body temperature all the time; this solution should be strained through a clean muslin cloth and injected into the vagina of an animal a few hours before service. It neutralizes the acids and overcomes the trouble in many cases.—K. W. Stouder, Kansas Experiment Station.

BREEDING UP A DAIRY HERD.

"If I had that bull back I would not take $1000 for him. He got big and hard to handle, and I let him go to a butcher for $40, but everyone of his heifers turned out to be a great milker, and had I had the sense to have kept him and line bred his stock, I would have had a record-breaking dairy, as I can now well see." This man's experience is no different from that of scores of others who follow the custom of keeping a sire only one or two years at the most and then getting something else with almost a sure possibility that the good influence of the first sire is halved up by the second, which means in reality the loss of all ground previously gained.

The prevailing custom of a community is a hard thing to overcome with a new practice, especially in the breeding of dairy cows; notably where, for two or more generations, it had been the practice or custom to ignore breed lines in securing even the heifers to make the dairy members good, and all the more so when sires were changed every year, and if a sire of dairy breeding was procured he went the next year the same as the brindle one had the year before, and he was in turn followed by a yellow-and-white sire of unknown ancestry because he was cheap in price, and his calves were to be sold for "bobs," anyway.

Such a plan never increases the value of stock beyond the range of canners' prices, and now that there is an awakening to the fact that dairy stock needs the prepotency of a breed ancestry behind it the gravest danger threatens that the old custom will be kept in partial practice at least and the history of our friend's sire will be repeated over and over and a retrograde condition will result and even the grades of merit will in turn be graded or degraded, by the use of sires of unknown quality.

Often the remark is made: "I cannot afford to have high-bred stock. I must raise grades." Then all the more essential is it that only sires of the best are used and kept as long as possible. With a sire of strong blood lines, and developed vitality, there will be no necessity with grade cows of an outcross for three generations at least, and the third generation will be 87½ per cent of the intensified and reinforced blood of the sire, and to all practical purposes the equals of pure-bred stock and at no more cost than the common stock he had supposed he must always possess. The history of all high-class breeding and best records is where little latitude has been given to the introduction of new sires, keeping to the line even of one family of a breed and not getting scared in breeding now and then heifers back to their own sire to double the prepotency of the milking function.

In this vicinity there is a great demand for high grades of a certain breed of dairy stock, and a month-old heifer calf of a grade cow, if it had a thoroughbred sire from the same family breed, brings the price of a horse; but the calf of a grade cow, mated with an unknown bred grade, brings veal prices and no more. In this intensifying the blood of a grade by the influence of a pure-bred lies the whole success of the uplift of our dairy stock from the common level of the past; and if the customs of the past are to prevail, with frequent changes of sires, and sires of unknown quality, and mixtures of blood, the last condition of this dairying will be as unsatisfactory as the first.

For the dairyman needs only the one thought and purpose in mind, that of a dairy breed and type of the breed, and to keep in that line with sires of strong dairy prepotency and of the same breed as are the cows. Dual purpose is a stumbling block to him. What does he want of a beef steer or beef in any paying form, when a 20-months-old heifer, well-bred, will today, in sight of my house buy three steers of equal age. And why should this man want to mix dairy breeds, when he gains nothing in production and decreases the value of the "mix" 50 per cent.—John Gould in Tribune-Farmer.

COUGH IN PIGS.

There are a variety of causes for cough in pigs. In the summer-time the most common cause is worms, either of the intestines or of the lungs; but in the winter time cough is often due, as in man, to a cold affecting the throat or lungs.

If the pigs are drawn up in their bellies, seem to be affected with indigestion, and especially if any traces of worms are found in their droppings, the cause of the cough is probably worms, and we would advise one of the following treatments:

For each one hundred pound pig mix one teaspoonful of turpentine with milk. Give this to the pigs in the morning before they have had anything to eat. Repeat the dose for three days in succession.

The Iowa Experiment Station recommends the following treatment as effective: Dissolve one dram of finely powdered iron sulphate for each one hundred pounds of hog flesh, in warm water, and thoroughly mix with the slop which is fed in the morning, every other morning for a week. If the case is a bad one, continue the dose for two weeks. And if the pigs still continue to do poorly, repeat the treatment in six weeks or a couple of months.

It is always a good plan to keep a mixture of salt, charcoal, ashes, lime and iron sulphate before growing pigs.

If the trouble seems to be due to an affection of the throat or lungs rather than to worms, we advise the following treatment: First, put the affected hogs in warm, clean, comfortable quarters—pens which are not in the least dusty. Feed the pigs a light, sloppy ration. Steam the badly affected animals with a solution made by adding one part of turpentine to two hundred parts of boiling water, for fifteen minutes twice daily. This is said to be effective. The steaming solution held under the pig's snout is supposed to help restore the air passages to a normal condition. It is a good plan to disinfect the pens and sleeping quarters with carbolic acid or some other good disinfectant.—Wallace's Farmer.

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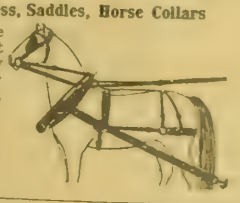

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FERTILIZING VETCHES AND BEANS.

By R. M. Morris.

As the result of many experiments the Citrus Experiment Station at Riverside places the vetch at the head of the cover crop list. The vetch is an annual legume. The stems are weak and do not support the plant. The leaves are compound, having six or ten leaflets, and are terminated by little tendrils which attach themselves to whatever they can find for support. While the plant has grown as much as 8 to 10 feet in length, ordinarily it does not exceed 3 or 4 feet, and is usually shorter. It has been known to make some very heavy yields. When sown alone, to be turned under, about 60 pounds of seed are used per acre. One of the advantages in cover crops is that the roots penetrate to depths which it is impractical to reach with machinery. This means that by and by these roots decay and are not only converted into humus, which makes a home for bacteria, but allows a freer penetration of air and water.

The vetch is a heavy feeder on the mineral elements, potash and phosphoric acid. When the crop is plowed under the potassium and the phosphorus which it contains are returned to the soil, and these elements are then probably as available as they were before. But undoubtedly much of this fertility is taken up by the trees in the groves where these crops are grown.

When vetch is to be cut for hay, it does better when sown with rye or wheat. The latter is preferable since it is slower in starting than rye, and therefore, not so liable to smother out the vetch. This mixture makes ideal hay and will yield about six tons green hay per acre.

When the vetch is thus utilized for hay and is taken from the field, a large amount of the mineral elements of the soil are removed. It can thus be seen that whether sown for a cover crop in a citrus grove or for hay, it should be liberally supplied with potash and phosphoric acid. A mixture of 250 pounds of 17 per cent superphosphate and 150 pounds sulphate of potash should be drilled in at the time the vetch is sown. This will not only insure a perfect stand and a heavy growth, but it will cause it to be more helpful to the trees, if grown in a grove, and prevent the ground from becoming improverished, if grown for hay.

There is a tremendous acreage of beans grown in Orange, Ventura and other counties of Southern California that are unfertilized. Since the roots are left in the ground, and in some instances the tops returned, it is said that in some places the yield of beans per acre has increased rather than dimished during the past few years. But if there are such instances, it will also be noted that a careful preparation of the seed bed has been made and most thorough cultivation practiced. Beans belong to the family of legumes and have that mysterious power of attracting atmospheric nitrogen; but like vetch, clover and all other leguminous crops, they are heavy feedrs on the mineral elements, phosphoric acid and potash. Therefore, a liberal supply of these elements must be present either naturally or applied, if large crops of marketable beans are to be secured. As a hint to the grower, who is going to try commercial plant food, I would state that nothing but high-grade materials should be used. While a nitrogen gathering crop, if the beans are to be grown on clay or sandy land it will be well to supply some nitrogen, say 100 pounds of nitrate of soda or dried blood per acre. But on most soils, the elements mostly needed will be potash and superphosphate. At least 125 pounds actual potash and 200 pounds available phosphoric acid should be used per acre. Since the ground is usually prepared early, there will be an advantage in applying the fertilizers from two to three weeks before the beans are sown. The plant food should be applied broadcast by hand or sown with a drill and worked into the soil by using a light harrow.

THE USE OF FERTILIZER UPON CITRUS FRUITS.

By George Wright.

It is not always good business practice to wait for "signs of deficiencies in the soil" before making judicious use of commercial plant food. The entire question of the advisability of the use of fertilizers is a relative one, and may be reduced to a determination as to whether or not, by their proper use, there can be obtained an increase of crop sufficient to allow something of a profit after meeting the extra cost of fertilizer and labor. This is a matter which each grower can only determine for himself.

No horticultural crop has given more satisfactory returns from fertilization than the orange. The experience both in California and in Florida has been that judicious use of commercial plant food has had a wonderful effect in starting active vegetation and increasing production.

With the orange, as with other fruit, with its attendant open culture, there is constantly being withdrawn from the soil large quantities of plant food. Here we have a crop that is entirely sold off the land, entailing a constant drain upon the soil fertility, hence manuring soon is forced upon the attention of the grower and becomes one of the most important considerations in the extensive culture of citrus fruits. Once the soil fertility is exhausted, all operations are of little avail, if it be not replaced. That this may be more rationally done, it is necessary to take into account, besides the nature of the soil, the composition of the plant and the condition of vegetation. Knowing these, we should be able to judge with a fair measure of accuracy, what elements are likely to be needed and in approximately what proportion.

It is self-evident that attention should first be directed to supplying soil deficiencies, when these are known to exist, and then to returning to the soil such an amount as may have been withdrawn by the crop produced.

Since the first is a matter which is entirely dependent upon the local conditions and the character of the soil, no general treatment can be given. The second, however, is inseparable from the crop.

Figured upon the average composition of California oranges, and estimating the crop per acre at 20,000 pounds of fruit, there is removed from the soil annually per acre:

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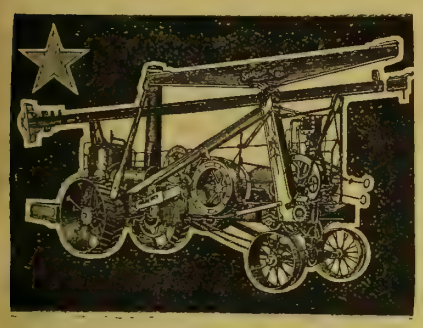

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These figures do not express the total amount of plant food withdrawn from the soil, for no account is taken of that used by the tree itself in building its tissues. It is a very definite expression, however, of the amount withdrawn by the fruit and shipped away to some distant point never to be returned except by the use of fertilizer. As to the amount removed by the parts of the tree other than the fruit, analysis shows as follows:

In 100 parts:

	Nit.	Ph. Acid	Pot.	Lime
Leaves	.70	.10	.32	.77
Trunk, br'ch	.70	.43	.58	.80

We may fairly assume, perhaps, although it has not been demonstrated, that the natural unlocking of plant food from its less available sources will, in most cases, supply the needs so far as wood and leaf is concerned, in such quantity as to sustain life, but probably not for many years in sufficient amount to impart a vigorous growth and induce liberal fruiting with high-class fruit that will make for profit in citrus culture. Attention, then, must be given to the restoring of the annual draught and placing the tree under such conditions of liberal food supply as to place it at its highest efficiency for healthy growth and abundant fruiting.

In referring to the table preceding, showing the plant food removed by the orange, it will be noted that the proportion of nitrogen, phosphoric acid and potash stand about as follows: Nitrogen: 4; Phosphoric acid: 1; Potash: 4, and were it sufficient to supply the exact balance for the fruit only, that proportion might serve as a basis for a fertilizer mixture; but there are certain soil conditions to be taken account of which result in mechanical and chemical losses. For this reason under ordinary conditions, the proportions of phosphoric acid and potash have to be somewhat increased. A formula which has given good results is the proportion of:

Nitrogen	4 per cent
Available phosphoric acid	8 per cent
Potash	4 per cent

In connection with citrus growing, it is of particular interest to keep in mind the functions of potash, especially as they are so vital to the quality of this class of fruits.

Potash, as a plant food, seems to influence especially the development of starch and sugar, the development of the woody parts of the plant and the pulp of the fruit, thus filling out the framework built by the nitrogenous ingredients. The flavor and color of fruits is also accredited to potash to a greater or less extent. A lack of potash is said, by Webber, to cause, in the orange, "an excessive growth of weak; immature wood, which does not harden up as winter approaches and is liable to be injured by frost," in localities where such occur. It is also associated with the chemical changes which takes place in the translocation of the starch from cell to cell. Webber says: "Its greatest importance is in connection with protein formation, in which it is apparently indispensable."

The lack of potash is often first evident from a decided lack in growth even though the foliage maintains its green color and there appears to be no apparent cause for the trouble. The potash of fertilizers is almost exclusively from either sulphate or the muriate of potash, either of which carries about 50 per cent of actual potash entirely soluble in water, hence immediately available.

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Apples: Alexander, Red Astrachan, Gravenstein, White Astrachan, Jonathan, Rome Beauty, Spitzenburg, Bellflower, Newton Pippin, Grimes Golden Pippin, Ortley, McIntosh Red, Winesap, Wagner, Winter Banana, Arkansas Black and many others.

Get in your orders now for Gravenstein, Jonathan, Spitzenburg, Yellow Newton Pippin, White and Red Astrachan, Alexander. They always sell out first.

Cherries: Black Tartarian, Bing, Black Oregon, Black Republican, Royal Ann, Lambert.

Cherries are great money makers. The above varieties always sell out early.

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GEO. C. ROEDING, Pres. and Mgr.

Deciduous Bush-Tree Fruits

RECOMMENDED FRUIT TREES.

At the request of Tulare Grange former Horticultural Commissioner P. D. Fowler suggested the following desirable fruits for plants in that section of San Joaquin valley. It is suggestive and valuable in any section of the state.

Peaches, Free Stone.

Sneed, May 25.
Briggs, Red May, June 15.
Alexander, June 15.
Admiral Dewey, June 15.
Early Imperial, last of June.
Hale's Early, early July.
Foster, middle of July.
Elberta, last of July.
Muir, last of July.
Lovell, August 15.
Morris White, August 10.
Salway, middle of September.
Ward's Late Free, Oct. 1st.
Opulent White, a cross between Muir and White Nectarine, Aug. 1st.

Peaches, Cling Stones.

Yellow St. John, late June.
Tuscan Cling, yellow, middle July.
Sellers Orange Cling, yellow, middle August.
Phillips Cling, yellow, early in September.
Levy Late, yellow, middle September.
Persian Cling, middle of August.
McKevitt's Cling, last of August.
Heath Cling, middle of September.
Georges Late Cling, late in September.

Apples.

Red June, June 1, red.
Red Astrachan, June 15th, red.
White Astrachan, July 1, white.
Duchess of Oldenburg, July 15, yellow streaked with red.
Early Harvest, July 1, light straw color.
Red Beitigheimer, August 15.
Swaar, November 15, yellow with brown streaks.
Wine Sap, November 1, red.
Ben Davis, November 1, red.
White Winter Pearmain, November 15, white.
Lawver, December 1, red.

Pears.

Doyenne d'Ete, small, yellow, shaded with red, July 1st.
Beurre Giffard, medium size, greenish yellow, July 15.
Bartlett, August 15.
Winter Bartlett, November 1.
Winter Nelis, December 1.

Plums.

Climax, middle of January, purple.
Prunis Simoni, early July, purple.
Bary's Green Gage, August 15, greenish yeilow.
Satsuma, August 1, purple, flesh dark red.
Shropshire Damson, Sept. 15, blue.

Prunes.

Tragedy, dark purple, early July.
Robe de Sargent, black, August 20.
French, black, September 10.
Hungarian, September 15.

Apricot.

Pringle, May 15, small.
Royal, June 1, medium, good canning and drying.
Blenheim, June 15, medium, good canning and drying.
Hemskirke late June, large, good canning and drying.
Tilton, middle June, large, good canning and drying.

Nectarines.

New White, large, early, July.
Stanwick, large, August 15, greenish white.

Quinces.

Pineapple late August.
Smyrna, late September.

Almonds.

Drake's Late August.
Texas Prolific, August 15.

Walnuts.

Franquette, grafted on California Black root.
Mayette, grafted on California Black root.

Figs.

Calimyrna, August to October.
Mission, June to August.
San Pedro, black, early in August.

Grapes.

Thompson Seedless, white, August.
Malaga, white, August.
Muscat, white, September.
Rose of Peru, black, October.
Purple Damascus, black, September.
Black Cornichon, black, October.
Sabal Kanski, red, September.
Flame Tokay, red, September.
Emperor, red, November.

Blackberry.

Mammoth Blackberry, early June.
Loganberry, May.

Strawberry.

Brandywine.

NO SURPLUS OF GOOD FRUIT.

It is an interesting fact that the great extension of fruit growing, in all parts of the country, has been attended, not by a decline in prices, but by a very considerable advance. The question whether or not the multiplication of orchards and berry patches will have the effect of producing a glut, so as to render profitless the labor and expenditures of the fruit grower, seems, then, very likely to meet a negative reply.

In the first place the demand for all the fruits of North America is worldwide. The world's appetite for them is insatiable; and as the facilities for distributing them are better systematized through intelligent co-operative arrangements between growers and transportation agencies, and selling agencies in the cities, it seems as though the problem is to be, not how to get rid of surpluses, but how to get enough of any kind of good fruit.

In years of great abundance in American apple orchards, good apples have sold in Mexico at 15 cents apiece. In London they have retailed at 25 cents apiece. Other fruits, capable of bearing transportation for long distances, have commanded proportionately high prices. Of course, these prices have been for choice fruit. In New York and Boston even 10 and 15 cents apiece has been readily obtainable for choice apples.

Such exceptional figures as those above quoted are not, however, necessary as a basis for profitable fruit growing. The moderate prices paid by the mass of American consumers are sufficiently high for that; as in thousands of homes, our people are learning to prefer fruit, at such moderate prices, to many another article of food which they have heretofore demanded.

The improvement of canning processes and the cheapening of apparatus has also its effect in insuring a market for fruits. Fruit farmers are not now depending on "canneries." Recent inventions enable them to do the canning themselves.

It would seem, then, that the grower

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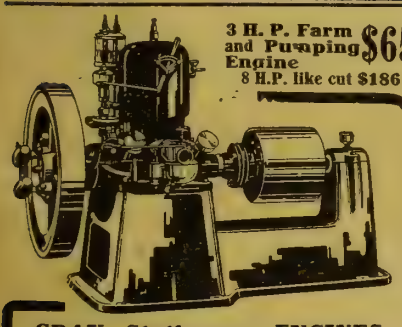

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Blue, Red, Gray, Manna, Desert, Swamp Gums and many others. Tough, hardy trees, selected rapid growers, thrifty and even in size, large or small as desired, for fall or winter planting. Guaranteed true to name and full count. Price right. Illustrated descriptive booklet and questions answered free on request. Write now.
LLOYD R. TAYLOR, Modesto, Cal.

need only see to it that his fruit is of good quality, attractively put up and intelligently marketed to be certain of a reasonable reward. But the day when neglected orchards and bushes could be depended on to produce salable crops has passed. The grower of today must be equipped by study for battling with insect pests; must be insistent in cultivation and in the use of the sprayer; and must, in short, give as close attention to his trees as the stockman does to his cattle, the doctor to his patients, or the merchant to keeping his stock of goods fresh and in salable condition.—Market Growers' Journal.

WALNUTS IN SANTA BARBARA COUNTY.

From the report of Prof. C. W. Beers, horticultural commissioner of Santa Barbara county, we note the following on the walnut question:

"Three days of this month were devoted to field work in a study of the walnut industry in connection with Prof. E. R. Lake from the agricultural department at Washington, who was making an exhaustive study of the question as presented on the Pacific Coast.

"Professor Lake had worked his way down from Utah, Washington and Oregon, through the northern part of California into this section. In our field he found the first positive standard type of nut of the Santa Barbara soft-shell variety. The type of tree, with its own type of nut, and its uniformity from Tecolote to Carpinteria, determined what should be considered the type for the Santa Barbara soft-shell walnut from the government standpoint.

"It was found that in our own section there are three distinct types of nuts now being grown and being selected as types for future planting, namely: the Santa Barbara soft-shell, the Khaghazi type and the Pecan type, each nut being distinct in its own field and each appealing to different demands and making its own market.

"A very general disposition to seek grafted trees for new plantings became evident. Each grower is disposed to make careful selection of type nuts for planting, only the very best of the seedlings to be preserved, and then make a careful selection of scions from his own most satisfactory trees for budding onto these selected seedlings. Scion selections to be made with three prominent ideas: selecting from trees showing least disposition to bacterial attacks, those giving the best type of nut and those showing large productiveness. In this manner it is believed a very high type of tree may be secured."

HE DIDN'T HAVE IT.

Miss Merrill, a teacher in a grade school, had trouble with Johnnie last week. Johnnie had trouble doing his work, and the authorities finally discovered that his sight was defective. Miss Merrill told Johnnie, and sent him home with a note to his mother. He gazed at the note in horror, then at the teacher, and burst into tears. The note read:

"Johnnie has astigmatism. Do not let him return to school until he has been attended to."

Miss Merrill understood his grief better when she received a note from his mother. She read: "I don't know what he has done, but I licked him for it. I can't find it on him, and he says he ain't got it, now you better lick him and see if you can find it."—Chicago Record-Herald.

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Leghorns.

What breed of chickens will do best in this section? It is sometimes as cold as 16 degrees above zero, though seldom below 20 degrees. Will White Leghorns live in a climate like this? Are they any more delicate than other breeds?—Subscriber, Laytonville.

There can be nothing in your temperature to interfere with White Leghorns. They are not so popular in the East as they are in California, and perhaps the zero weather of that section would interfere with their best development, but we believe anywhere in this state climatic conditions would not be unfavorable.

Agricultural Books.

In your interesting article on horticultural training for boys you speak of books of value and of state and national reports. Where may these be secured?

The Cultivator can secure from publishers, at their list price, books of value, list of which is now being made up by the business office and will be ready in a short time. Bulletins of the state agricultural experiment station may be had by addressing Prof. E. J. Wickson, Director, Berkeley, Cal. Reports of the state horticultural commission may be secured by writing to J. W. Jeffrey, State Horticultural Commissioner, Sacramento, Cal. Write to Department of Agriculture, Washington, D. C., for bulletins of the Department of Agriculture. These latter are so extended in their scope that it is best to be specific along the particular line of information desired. The annual year book may be obtained by writing to your congressman or senator at Washington.

Aylesbury Ducks.

Where can one secure pure-bred Aylesbury ducks or eggs?—Subscriber, Santa Rosa.

We think later Cultivators will contain announcements of Aylesbury breeders.

Planting Orange Seed.

What time of the year should one plant orange seed?—Subscriber, Buena Park.

The early spring months, depending upon the season. The time ranges from March to May. If your soil is cold and there is danger of the seed decaying in the ground, hold until it warms up later.

Removing Fruit.

Should all of the oranges be cut off of a young Valencia tree which will be three years old this coming March, or only a part of them, or any? I notice that among my trees the ones which have the most fruit are invariably the smaller ones. They are perfectly healthy to all appearances, but something must be the matter to make them go to fruit when trees of the same age but much larger are putting on no fruit at all.—Subscriber, Tustin.

The fact that your trees are small and bearing indicates lack of strongest vitality. An orange tree will invariably begin to bear when out of condition. We have seen trees which were bearing a fair crop of half-grown fruit gophered and immediately they began to bloom and set a second crop. In your case, it may be simply a gravel pocket or some soil condition which has put the tree slightly out of vigor. We would investigate and if necessary add fertility. As to removing the fruit; trees of that age may be permitted, if fairly thrifty, to carry a little, but tree growth is of greater value.

Bees in Building.

I have been bothered for over a year with a swarm of bees behind the rustic of my house. It is a very difficult place to get at them owing to the fact of there being several plumbing pipes entering at the same place. In fact, it was through this means that they were enabled to gain ingress. What I desire to know is how to get rid of them without tearing out that side of the house?—Subscriber, Tustin.

This is a very perplexing question to answer for only studying immediate conditions will be of any help. Plugging the entrance is usually futile, for the busy little fellows generally find another. If possible to remove the rustic, clear away all of the comb and capture the queen. This will probably result in driving them away. It is barely possible that by making a hole and inserting a ball of cotton or other absorbent thoroughly saturated with bichloride of mercury, you could kill the whole swarm.

Cutting Eucalypts.

What time of year is it best to cut eucalypts, to make sure of getting second growth? At what height from the ground? Trees are now six to twenty inches in diameter. Varieties are blue gum, red and tereticornis.—Subscriber, Selma.

We believe the best time is when the tree is as nearly dormant as possible. We have heard timber cutters say that they did not believe there was any season at which one may be perfectly sure of all the trees living, but we have never seen trees cut in the fall, say from Thanksgiving to Christmas, that did not sprout nicely the following spring. If cut in the spring, after the flow of sap has started, there seems to be greater danger of the sap souring and the stump beginning to rot. We do not think the height from the ground is material.

Peanuts on Overflowed Land.

Have just purchased 160 acres, and wish general information as to handling. It is southeast of Wheatland two and a half miles, and a couple of years since a break in the levee admitted the river and lots of sand was deposited on some of the land. Will this produce good peanuts, and what kind is best? Is it necessary to cover blossoms? Also, will sweet potatoes do well in this river sand? Have silo now empty, but anticipate filling it next summer. Will plant oats, barley and wheat; also early potatoes. Will beans do well on this soil?—Subscriber, Sheridan, Placer County.

It is impossible to give advice regarding so general a matter. The depth of the sand over the good soil, also the coarseness of the sand, are factors which will have to be determined by examination. We have seen where breaks in levees have admitted strong currents of water, and coarse, sharp sand has been thrown in banks several feet in depth. Of course, such land was entirely ruined. Again, where the water has been more quiet, a fine silt has been deposited to the depth of an inch or two, and the land has been really benefited. If the sand on this land is not too deep for the roots to reach through it into the soil below, it may prove very beneficial.

Peanuts require sandy soil, and do not need to have blossoms covered, but we would refer our subscriber to Cultivator of April 23, 1908, the principal article of this issue being given over to culture of the peanut. Regarding other crops to be grown, the best information can be had from immediate neighbors. What has succeeded well in soils of a similar nature is the crop to plant. Our impression from the meager information given is that there are great possibilities on such a ranch.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Abnormal Lactation.

A mare eight months gone with foal is leaking milk freely. She is very fat, fed liberally on alfalfa, and allowed to run in a small lot. Will this kill the colt?—Subscriber, Dos Palos.

While this condition will not destroy the foal, it is not advisable to permit it to continue. Feed sparingly and exercise regularly at light work till the flesh is reduced to working order. This will be better for both mare and foal.—F. G. M.

Hollow-tail in Cows.

Is there any such disease as "hollow-tail" in cows?—G. R. G.

No. The practice of cutting out a segment of the bones of the tail is painful and if a weak cow under this cruel treatment exerts herself to get upon her feet the method deserves no more credit than administering a severe beating with a club which would accomplish the same end.—F. G. M.

Constipation.

Will mustard relieve constipation in cows, and what is the dose?—Subscriber, Dos Palos.

Mustard may be administered to cows in doses of one ounce or less. It stimulates motion and secretion in the stomach proper, but its action on the intestines is uncertain, hence it is doubtful if it could be relied upon as a laxative. Epsom salts in one-pound doses as a drench is preferable.—F. G. M.

Teat Duct Closed.

A heifer has lumps in the udder, which seem to work down into the teat while milking. The flow of milk stops after the milk has been squeezed out 6 or 7 times.—Subscriber, Holtville.

A membrane spans the space at the base of the teat. The opening in this membrane is too small to permit the milk to flow freely into the teat, therefore when the teat is emptied some time is required for it to fill again. The opening in the membrane may be enlarged by the use of a slender knife passed up the teat, but a skilled surgeon should be employed to do the operating.—F. G. M.

Injured Udder.

The udder of a cow has been injured by some object penetrating one quarter above the base of one teat. Matter collects in the part and escapes through the wound and also from the point of the teat. Can this teat be saved so it will give milk again?—E. S. N.

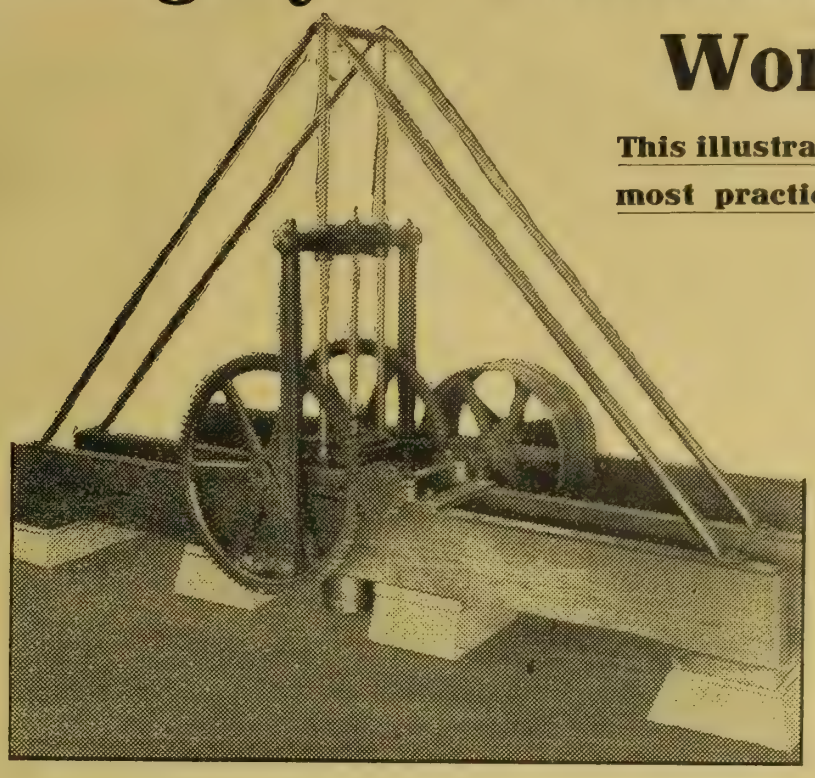
It is doubtful if the quarter will ever yield healthy milk again. Even if cured it is liable to inflame at the next period of lactation. Inject peroxide of hydrogen, diluted with an equal amount of water, into the opening of the teat and also into the wound, using a syringe the nozzle of which can be introduced into the openings. Press this out and repeat till the cavity is cleared of all matter.—F. G. M.

Indigestion.

A horse, 17 years old, has had three spells of colic during the past three months. He paws, rolls and bloats considerably. Is fed barley hay and ground barley and twice a day given condition powders.—Subscriber, Creston.

Some horses at the age mentioned are subject to spells of colic which implies indigestion. Discontinue the condition powders and give one pound of epsom salts dissolved in a quart of water as a drench. Allow this 38 hours to act, and follow with one tablespoonful of hyposulphide of soda in the feed, twice daily for about one week.

Gregory's Combination Working Head



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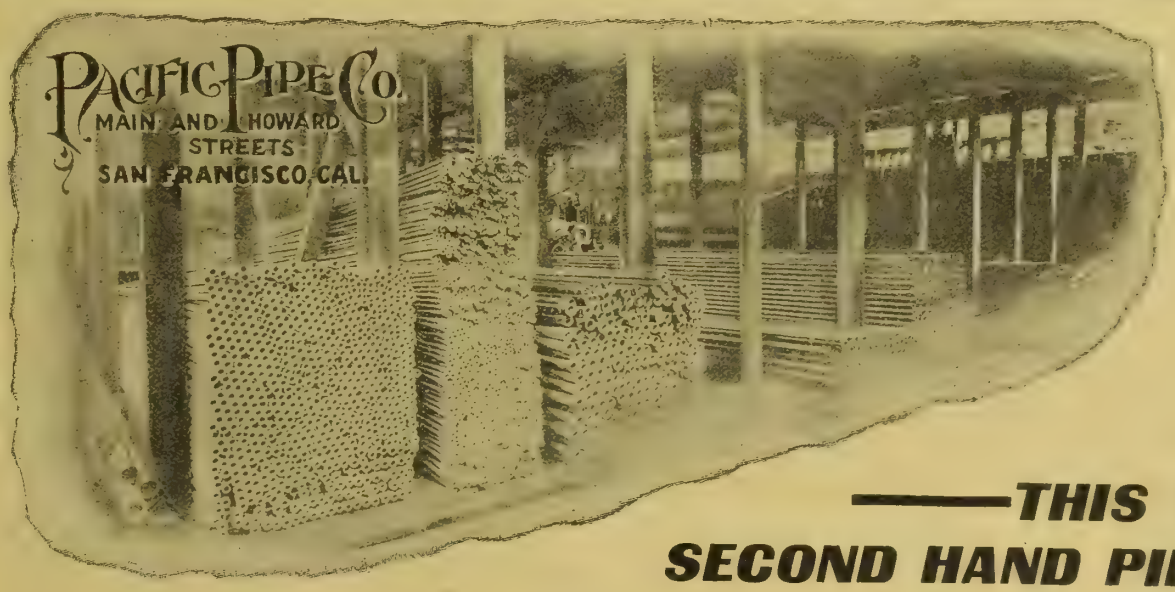

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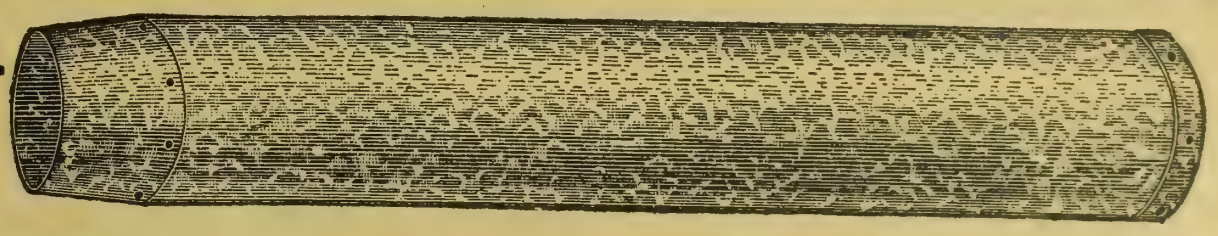

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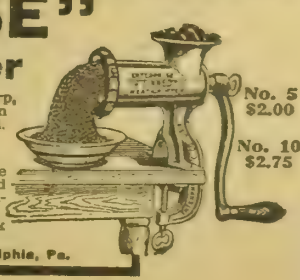

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THE "BOSS"
Tree Protector

MADE OF YUCCA PALM

Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

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10 in. long, 7 in.wide	$ 9.50
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14 in. long, 7 in.wide	11.50
16 in. long, 7 in.wide	13.00
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24 in. long, 7 in.wide	17.00
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NURSERY STOCK

3,000,000 Eucalyptus for immediate planting.

Deciduous and Citrus Trees in quantity.

Write us your wants and we will quote you prices. Descriptive catalogue free on application.

Orange County Nursery and Land Co.
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Eucalyptus Seeds

In large or small quantities, 33 kinds to select from. Write for free pamphlet 'Eucalyptus Culture." It gives full directions for sowing the seed, raising the plants and planting out into the field, together with descriptions of all the leading species, giving their uses and the localities to which they are adapted. Sample packets 15c each, 2 for 25c, 4 for 50c, 9 for $1.00. Choice Flower, Garden, Tree and Palm Seeds, Roses, Flowering Plants etc. Catalogue mailed free upon application.

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345 So. Main Street
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SEED CATALOG
READY TO MAIL

The leading Seed Catalog of the West—Lilly's Catalog. Your 1911 crop depends on GOOD seed—send for this Catalog and get the best. Write now to the
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Luther Burbank's New Plum

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"The Best Blood Plum Yet Produced."
Write for descriptive circular.

PIONEER NURSERY CO.
Dept. C., *Monrovia, Cal.*

Placentia Perfection Walnuts
Grafted on California Black
Eucalyptus Trees and Seed
Sunset Nurseries, Tropico, Cal

Home Grounds Beautiful

THE JUJUBE TREE.

One of the most ancient of cultivated fruits, highly esteemed in the Orient, but little known in America, is the jujube or Chinese date plum produced by several species of small trees of the genus Zizyphus, natives of eastern Asia and Palestine, south to India and even Ceylon. Of these Zizyphus sativa or vulgaris stands first in importance, as it is by far the hardiest, being naturalized in southern Europe and growing well, though not fruiting freely, in this country as far north as Philadelphia. On the Pacific Coast it is hardy at ordinary elevations up to the Oregon line, and probably can be fruited in any locality not subject to sharp winter frosts. It is sparingly planted in the Gulf States and California, but deserves consideration as a commercial crop where conditions favor its full development. The drupe-like fruits are borne in the greatest profusion on short deciduous, leafy branches over the whole tree, and range in size according to variety from small cherries up to that of good-sized plums. The whitish flowers are not conspicuous but are freely produced on the new growth throughout the early summer months, the fruits ripening near the close of the year and turning various shades of brown as maturing advances. Trees are generally of graceful, upright growth, the aspect in late fall strangely simulating that of a young eastern locust or Pseudacacia covered with chocolate plums in place of seed pods—a resemblance further enhanced by the numerous sharp spines found on most jujubes and the apparently pinnate character of the foliage. The fruits are scarcely edible until they shrivel, which usually occurs in dry climates before dropping. The flavor is then to be compared with rather sweet and tender dried apples, or rarely with that of certain edible hawthorn fruits, but there is great difference among varieties as regards sweetness, acidity and mucilaginous character of the flesh. Each fruit contains a single relatively large pit or stone-like seed, but in some of the prized Chinese sorts this is reduced to small proportions, and is even said to be lacking in certain choice varieties, not yet introduced to cultivation in this country.

The jujube fruit is scarcely known in commerce save in Oriental countries, where it is extensively used in the preparation of sweetmeats and confections in great diversity of forms, but what is termed jujube paste in Europe and America is said to be principally compounded of sugar, gelatine and gum arabic, with fruity flavorings. By suitable preparation the fruits can be made to yield a large proportion of well-flavored fruit pulp, suitable for high-class confections, conforming to the most stringent requirements of pure food legislation and would doubtless be in large demand were the home supply assured. Though of little utility for domestic use, jujubes have great possibilities as manufactured products. The Chinese "dates," largely imported by the Celestial residents of our cities, are crystallized jujubes, and are often little inferior either in size or quality to the best products of the true date palm, while in hardiness, general ease of culture and early productiveness, the jujube tree is greatly superior. It is not unusual for little plants to show blooms while still in the seed leaf. Trees commonly bear when four or five years old, and produce abundantly after the sixth year.

Jujubes are freely propagated by means of buds, grafts and cuttings of green or even hard wood. Like other long cultivated fruits, seedlings do not with certainty perpetuate the variety and propagation for orchard use should be made by some of the above methods from known worthy sorts. The agricultural explorers of the National Department of Agriculture are searching for the best jujubes grown in Northern China, and in due time really desirable varieties are likely to become available for extended trial.

Zizyphus Jujuba is less known in this country than Z. sativa, though a great favorite in the warmer portions of the Orient. The fruits are well-flavored, though often somewhat acid, and the tree is quite ornamental, with generally drooping branches. The young growth is covered with a brownish down. It probably can only be successfully grown in frost-free climates. There is also a native jujube, Z. Parryi, found in Southern California, but the fruits are so dry and mealy that they are regarded as of little account. There are several other species of limited horticultural value.—Rural New Yorker.

POTTING PLANTS.

On proper potting depends materially the success of not only house-plant culture but a good deal of greenhouse work. Potting is a general term applied to the first setting in a pot or the transfer from one size to another for providing additional rooting space. The requisites are pots of suitable size, materials for drainage and compost adapted to the wants of the plants operated on. Take a pot, place a large piece of broken potsherd over the hole in the bottom with its convex side downward, and on this add a layer of broken bricks or other porous substance, varying from half an inch to two inches in thickness, according to the size of the pot and the nature of the plant. On this place turfy or lumpy pieces of the soil or compost (not sifted, but reduced by the hand to the size of pigeon-eggs), adding enough so that the plant will stand with the top of its attached mass of earth just below the level of the rim of the new pot.

The plant should next be attended to by gently inverting its pot in the hand and giving the edge a gentle tap, so as to remove the soil in one mass without disturbing the roots. Holding the plant in this position, displace the drainage material which had before been used and gently disengage the tips of the roots around the sides; then set it firmly in the new pot and fill firmly between the old mass of soil and the sides with compost. Finish the surface off evenly with the base of the stem about level with the rim and the soil near the rim a quarter to half an inch below it according to the size of the pot. It is important that the soil should be sufficiently dry when used to bear compression without becoming adhesive. The proper time for repotting is when each plant has filled just the soil about it with roots and extracted the nourishment from it, without having been left till the soil is exhausted or the roots matted or tangled. Whenever this state is reached (except in mid-winter) repot at once.

When space is limited, this increase in the size of pots should not be too rapid, say two sizes at each shifting, although this will not secure the same rapid growth which results from the adoption of larger pots. Free-growing plants, such as geraniums, will require more frequent shiftings than hard-wooded plants, for which an annual renewal is sufficient.—Farm and Fireside.

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800	Seeds	Cabbage	3 Best Varieties	3 pkts.
2,600	"	Lettuce	4 " "	4 "
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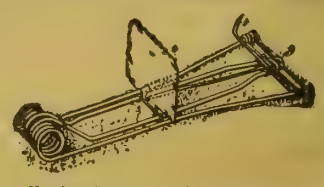

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Our little booklet, "Farmers' Friend," will explain to you the good qualities of our fertilizer and tell you what it has done for others. Write for it today—it is free.

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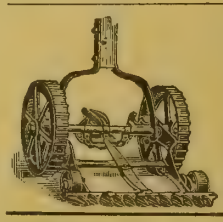

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Will cut tall grass and weeds and do all the trimming along the walks and drives. Your dealer should have them—if he has not drop us a line and we will send circulars and prices.
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High Grade Trees
T. J. True — **Modesto R. D. 1**
Write for prices.

TREES--Eucalyptus, Pines and Cypress In Boxes
ORNAMENTAL TREES AND ROSES,
Prices on application.
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EUCALYPTUS
The best that 40 years experience can produce, being grown slowly, in the cool atmosphere of the coast, are more hardy and more vigorous than those grown in the hot interior of the State.
Correspondence Invited.
W. A. T. STRATTON, Petaluma, Cal.

Garden and Field Crops

CALIFORNIA SEED RAISING CENTER.

In 1793 Cooper, Taber & Co., of London, England, the greatest seed growers and merchants of the time, offered to the public seven varieties of Sweet Pea seed. Today the same firm offers, from a complete list, at least 700 varieties and the majority of them are raised in California.

"Truly, the world is turning 'round."

S. B. Dicks, fellow of the Royal Horticultural Society of England and member of the firm of Cooper, Taber & Co., said as much in a recent interview with a Los Angeles (Cal.) newspaper representative. Mr. Dicks is making his annual tour of the United States in the interest of his firm. Incidentally, a member of the firm has visited the United States for the past 82 years, without exception. Nowadays, the tour is not complete without a visit to California.

"The time was," Mr. Dicks said to the reporter, "when England sent seed to California. Now California is sending seed to Europe and that is why I say the world is turning 'round. At one time California was sending its money to England for the seeds that were necessary in its development. Now we are sending our money here for seeds that we distribute to the world.

"There are three special kinds of seeds in which the trade of Europe has been transferred to California, and to Los Angeles, I may say. First, there is the lowly onion. The onion is grown to greater perfection in California than in any other state of the Union or in Europe. At one time we drew upon the East for our supply of onion seed, but now we are coming to California and to Los Angeles. California has given the East a knockout blow, so far as onions go.

"Second, there is the seed of the lettuce. Lettuce is grown by the hundred thousand pounds in this state, I find. The seed is of particular value because of the state of perfection which it reaches. This climate allows it to grow to greater maturity and, consequently, it is more hardy, and even after two or three years is as good for our purpose as it was when first gathered.

"As for sweet peas, this is the market upon which the world draws for its seed. The culture of the sweet pea practically has been driven out of Europe because of disastrous seasons and has settled in California, where hundreds of acres are grown. Again, I say, the climate is responsible. Here the product may be cut, dried and threshed in the open field, while in Europe we are forced to cut, then stack and wait for favorable weather to thresh. All of these conditions have a bearing on the price of the seed. We can buy here and ship to Europe and sell the seed as cheaply there as we formerly did the home-grown variety.

"Germany, for many years, was the principal growing ground in Europe for asters. There, again, climatic conditions militated against the culture of the aster and of recent years it has been practically impossible to get satisfactory seed from Germany. The germinating quality was poor and the seed was deteriorated. Here the aster gets all the sunshine necessary and we find the finest seed now comes from California."

The sweet pea, no doubt, is Mr. Dicks' hobby. He is one of the founders of the National Sweet Pea Society of England, which has done more to foster the culture of the sweet pea than any other horticultural organization. Besides, Mr. Dicks wrote a history of the sweet pea which now is considered an authority.

The house of Cooper, Taber & Co. has been in existence since the time of Queen Elizabeth. The head of the house was at that time a common councilman and Shakespeare was appearing in his Black Friars Theater close to the spot where the London house of the firm now stands.

"I dare say we may have sold Shakespeare himself some seeds, although it is not recorded on our books," Mr. Dicks said this morning. "He probably paid cash, if he bought."—Florists Exchange.

NITRATE OF SODA ON LETTUCE.

A subscriber in Indiana wants to know whether or not it will pay to use nitrate of soda on lettuce. He desires to apply it with spray pump just before watering with hose. He also wants to know how much to use per 1000 square feet of bench space and where it can be purchased.

Nitrate of soda is not generally used with lettuce in the greenhouse. Manure is used so freely that the soil is usually full of available plant food. There are cases no doubt when nitrate of soda would increase the crop to such an extent that it would be a profitable investment. The best way to determine whether or not your soil needs the addition of nitrogen in the form of nitrate of soda would be to use some of it on a part of the area and leave the rest without the addition of nitrogen in this form. The quantity applied per 1000 square feet might be varied. Twenty pounds per 1000 square feet would be a heavy application, while ten pounds would be comparatively light.

I can see no reason why the nitrate of soda should be applied in the form of a spray. Nitrogen in this form is readily available and if it is worked into the soil just before setting the plants it will dissolve and be ready for the plants as soon as they are ready for it. Nearly all dealers in commercial fertilizers will order nitrate of soda if they do not have it on hand, but they sometimes have to be urged to do so as they prefer to sell mixed goods as a rule. It often comes quite lumpy and should be mashed or ground up before applying to soil.—Market Growers Journal.

All spices should be plainly labeled. Not having cans already marked, use laps of envelopes. Write or print on them what you want. Use on either cans or bottles. The envelopes need not be wasted, as they may be used for holding recipes or clippings.

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The 1911 Planet Jr illustrated catalogue is invaluable to every progressive farmer and gardener. 56 pages brimful of helpful hints on labor-saving. **Free and postpaid.** Write for it today.

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Barley—Good Clean Stock.
Oats—Imported Texas Red, also local grown.
Wheat—Clean California Seed.
Burr Clover for late cover crops.
Fancy Utah Alfalfa Seed.

Advise us of the quantities you need and we will quote you attractive prices.

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SEND US A LIST OF YOUR WANTS AND WE WILL GLADLY QUOTE YOU

EUCALYPTUS

in any quantity, as well as a first-class line of General Nursery Stock.

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Office and Sales Yard: 121 W. San Fernando St., San Jose, Cal. Box 826
Fruit and Ornamental Trees.
Nurseries: 90 Acres, Monterey Road, Near Edenvale. 25 Acres, Center Road, South of Tully Road. 16 Acres, East San Jose, Alum Rock Ave.
Send for Free Price List.

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A VEGETABLE GARDEN for 25c
LETTUCE RADISH BEET CARROT CUCUMBER TURNIP
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845 SOUTH SPRING STREET LOS ANGELES
FRANK J. IRONMONGER

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

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For Sale—Registered Holstein Bulls; 1 to 2 years old. Some sired by Prince Juliana, brother of former world's record heifer, Juliana De Kol. Dam and granddam, A. R. O. cows. Three record-breakers in some of their pedigrees. M. E. Sherman, Minnewawa Vineyard, Fresno, Calif.

Fistula, Poll Evil, Quittor and all running sores cured permanently by a recent discovery of medical science. Write for particulars. Dr. Fred G. Matthews, Veterinary Bacteriologist, 1232 Central Ave., Los Angeles.

For Sale—Registered Belgian stallion, imported by Champlin Bros. of Clinton, Iowa. Coal black, a fine individual and in A1 condition. For particulars address C. F. Wood, R. D. 2, Compton, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

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Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, 448A Marden Bldg., Washington, D. C.

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RANCHES

Income city and beach property from $50 to $500 per month for ranch or acreage, equal value. Submit details at once. Parrish Barker, 207 Union Trust Bldg., Los Angeles, Cal.

RANCHES
RANCHES

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Skilled and Experienced Horticulturist wants to get charge as superintendent or foreman over any good property under acceptable conditions. Please apply to Editor Cultivator.

A Live Man with 15 years' experience in the planting and care of orange trees, both in nursery and orchard form will be open for a position about February 1st. Would prefer a big proposition. Address R., care Cultivator.

Help Wanted—We want several good solicitors to solicit for a high class suburban monthly publication. Good profitable employment to the right party. For particulars address Box H, Cultivator Office, Los Angeles.

Wanted—Two second-hand power sprayers. Must be in good condition. Address, stating price, make, length of time used. I. Ford, 315 W. Cypress Ave., Redlands, Cal.

Wanted—Luglienga grape cuttings. J. L. W., R. F. D. 12, Box 380, Los Angeles, Cal.

TREES.

Removal Prices—Make an offer. Black Walnut selected trees, one and two years old, 2 to 8 feet high. Also seedling peach trees, good stock, and Maliner Kren Horseradish sets. A. P. Henning, Clements, San Joaquin, Cal.

For Sale—250,000 first-class rooted vines, Zinfandel, Tokays, Muscats, Black Morocco, Black Ferrara, Cornichons, and Emperors in 1,000 lots at $11.00, smaller lots $1.50 per 100. Geo. McArthur, Acampo, Cal.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Ballou's Nursery, 728 East Orange Grove Ave., Pasadena, Cal.

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

Fig Trees For Sale—White Pacific and Black Spanish, 2 years old, in large or small lots. Write for prices and particulars. W. F. Fisher, 1784 North Broadway, Los Angeles.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

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Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Iris—We will send postpaid (our selection) 8 distinct varieties for $1.00, 24 in six varieties for $2.50. The Dean Iris Gardens, Moneta, Cal.

PIGEONS.

Carneaux Pigeons—Guaranteed thoroughbred; original stock purchased from Plymouth Rock Squab Co., Boston. Four weeks squabs, weight twelve to twenty ounces. Breed ten times a year. Guaranteed mated and working when sold. Write for particulars. W. C. Barrett, Carneaux Squab Co., San Pedro, Cal.

FARM LANDS FOR SALE.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars call or address Paxton, 612 Lankershim Bldg., Los Angeles.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale—Mountain home near Riverside. 160 acres hill land with concrete buildings in excellent repair, and 140 stands of bees in fine condition. Good spring close to house. Ideal location for healthseeker or chicken raiser. H. E. Wilder, R. F. D. 1, Riverside, Cal.

For Sale—815 acres in San Luis Obispo County. A typical dairy ranch. Plenty of wood, water, irrigable land, buildings, fenced and cross fenced. Orchards, vineyards, oranges, lemons and walnuts do exceedingly well here. Forty acres of land suitable for these. Price $21 per acre. For further particulars apply to Mrs. F. A. Clink, Pozo, Cal.

For Sale—The Fresno Meadows Colony is now opened for settlement in lots of 40 acres or more with water at $50 per acre. This is an opening price and is made to induce settlement. Arrangements can be made so that the first payment will carry the deal indefinitely. Call or write at once. Green & Webb, Gen. Sales Agents, 406 Laughlin Bldg., Los Angeles. Phone A8284.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

For Sale—11.85 acres full bearing peach orchard near Ontario, being lot 4, block L, of Blackburn's Addition to Ontario. Price $2200.00; $1300.00 cash, balance in one, two and three years. Address, O. Sassaman, Perris, Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

Cuba—Most productive soil. Delightful and healthful climate. Ample rainfall. Cheapest transportation facilities to the world's greatest markets. Particulars free. Sanderson, 13 Palace Building, Minneapolis.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Information where there is good state land in California now. Where? How to obtain. Send dime. Total cost $2.00 an acre. Joseph Clark, 830 M St., Sacramento, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

MACHINERY.

WINDMILLS
8, 10, 12 ft. sizes, complete or separate.
ENGINES

1½ H. P. Lambert and pump complete, guaranteed A1, too cheap to quote. 2 H. P. complete or separate, 4, 6, 18, 20, and 32 H. P., also many others. Blacksmith tools, grading tools, 2 horse orchard sprayer, windlass, plows, scrapers, wagons, fine $325 stanhope, swap at $100, silver mounted harness $25, light double harness nearly new cost $35 for $19.50, header, baler, mower, 25 H. P. gasoline hoist, in fact, most anything you are looking for second-hand. If we haven't it, know where you can get it. Demmitt Co., upstairs, 120 N. Main St., Los Angeles.

For Sale—Second-hand windmills, tanks, pumps, engines, farm machinery that will do the same work as new at half price. Finest and largest stock of tanks we have ever had. We are overstocked on tanks and are selling them at cut prices. Especially fine 2,000 gal. redwood tanks at $19.50. Some 8,000 and 10,000 gal, brand new, never been put up, at half price. Round stock tanks 2x8 ft. for $10. Wine tanks, water tanks, oil tanks, pickle tanks, spray tanks.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—9 H. P. portable gas engine on steel truck. Almost brand new. Price right. Machinery Exchange, Main & Bruno Sts., Los Angeles.

For Sale—Gasoline engines. We have the stock. If you want a second-hand engine with our guarantee for a year against all defects, see Bailie & Brandt Co., 943-945 N. Main St., Los Angeles.

For Sale—A practically new No. 2 Sharples Separator. Snap. C. P. Dandy, 421 Wilcox Bldg., Los Angeles.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

LOVELL'S BLACK MINORCAS
California's
Greatest Egg Producers

Pedigreed, trapnested, scientifically bred. Free circular. DAVID J. LOVELL, 5720 So. Park Ave., Los Angeles, Cal.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Day-old Chicks from my pure bred and carefully selected stock of S. C. White Leghorns from January 15 to February 15, $10 per 100; after February 15th, $9 per 100. Spring orders taken now. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Silver Spangled Hamburgs, unsurpassed for beauty. Twenty years with Hamburgs. My stock pronounced by expert judges the finest in America. Eggs $5 per 13. C. J. Siegfried, Alameda, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME

At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Barred Rocks a Specialty (Hawkins strain). Perfectly barred, vigorous birds, correctly mated. Best matings $2.50 per 15; incubator lots a matter of correspondence. Enoch Crews, Fairmount Ave., Santa Cruz, Cal.

S. C. Rhode Island Reds, good stock, fine layers. Eggs $1.50 per 15, $6.00 per 100. Chicks hatched if ordered. L. Haynes, Madera, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

I Hatch White Rocks Exclusively—Baby chicks $15 per 100. Guaranteed pure bred and from heavy laying strain. Will book orders for stock one to ten weeks old. Circular free. J. Wesley Lord, Inglewood, Cal.

Eggs for Hatching—$1.00 per 15; $5.00 per 100. Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons and Black Minorcas. Stamped envelope or cash with order. L. W. Neilsen, R. R. 2, Box A1, Petaluma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, R. I. Reds and Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

R. I. Red Eggs for hatching from scientifically tested layers. The Luedkes, Anaheim, R. D. 1.

S. C. Brown Leghorn Cockerels For Sale—$3.50, $5, $7, $10, and $15 each, Bright strain. Mrs. C. H. Vary, Pomona, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

For Sale—Kellerstrass White Orpington cockerels. Bargain. 160 W. 47th St., Los Angeles, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

Orland Hatchery—Just hatched White Leghorn Chix. Booking orders for later delivery. P. L. Simpson, Box 13, Orland, Cal.

Baby Chicks and Eggs for Hatching—Orders now taken for January and later delivery of R. I. Reds (Tompkins Strain), White Minorcas and S. C. Black Minorcas (Northrup Strain). C. U. Chamberlin, Los Gatos, Cal.

CHICKENS FOR SALE.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

For Sale—Some A1 Silver Penciled Wyandotte cockerels, from blue ribbon winners. Some fine ones at $2.50 and $3.00. Higher priced birds a matter of correspondence. Eggs $1.25 per 13. My stock are the winners of four first prizes, three second prizes and one third prize at the 1911 Los Angeles Show. W. C. Pagenkopp, Sherman, Cal.

Rock Haven—60 pens White Plymouth Rocks, 20 pens S. C. Rhode Island Reds. Our hobby is high capacity egg producers. Eggs the year round. Baby chicks every month in the year. Send for our booklet. Jos. E. Davis, Box 148, R. F. D. 11, Los Angeles, Cal.

R. I. Reds (Tompkins Strain)—Eggs and chicks. Rancho Casa Loma, R. D. 14, Box 56, Los Gatos, Cal.

For Sale—White Rock laying pullets. Also breeding pen of choice White Rocks. Mrs. M. C. Shorey, Box 639, Colton, Cal.

Black Langshan Cockerels For Sale—$3.00 and $5.00. Bred from Boyd's famous Missouri strain of heavy layers. W. S. Parrish, Armona, Cal.

For Sale—Kellerstrass White Orpington cockerels from prize winning stock. Price $3.50. L. Welte, Del Mar, Cal.

TURKEYS.

Wanted—Turkey eggs from stock 2 years old or more. State number and price. W. Pappelbaum, R. F. D. No. 1, Box 203, Los Angeles.

White Holland Tom Turkeys, brothers to winner of first prize at Los Angeles Show, January 5, 1911. Eggs and poults later. Also French Houdan and Rhode Island Red eggs and cockerels. Red eggs $5.00 per 100; 75c per setting. Mrs. Hocking, Guasti, Cal.

For Sale—Young Mammoth White Holland Turkey Toms. Fine large birds of the celebrated J. C. Fischel Strain. None better as thoroughbreds, also excellent to cross with the Bronze for the market. Price $8.00 to $10.00 each. Foreman Bros., Box 213, Corning, Cal.

For Sale—Few fine Mammoth Bronze Turkey Toms, standard weight. No eggs or hens at present. Mrs. A. C. Wisegarver, San Fernando, Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

For Sale—Choice Pure Bred Mammoth Bronze Turkey Toms. Extra large and well marked. Mrs. Frank McVey, Turlock, Cal.

NURSERY STOCK.

S. E. Courtney of the Capital Nursery, Hanford, Kings County, Cal., is now shipping first-class peach trees to his many customers in all parts of the state at the following low prices:

All varieties of Clings and Free Stones.

	Price.
Firsts .....5 to 7 ft., freight prepaid	12c
Seconds .....3 to 5 ft., freight prepaid	9c
Thirds .....2 to 3 ft., freight prepaid	6c
Apricots .....4 to 6 ft., freight prepaid	18c
Apricots .....3 to 4 ft., freight prepaid	15c
Apricots .....2 to 3 ft., freight prepaid	10c

Orange seed bed stock, Sour, per 1000 $12.00

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

Plants at Wholesale Prices—Strawberries 1c each; carnations, 2c; dewberries, 3c; grapes, 7c; loganberries, 3c; blackberries, 4c; raspberries, 4c; crimson winter rhubarb, 7c; softshell walnuts, 10c. Correspondence a pleasure. Caldwell & Co., Route 3, Los Angeles, Cal.

For Sale—5000 healthy large 2-year-old roots Burbank's Crimson Winter Rhubarb, purest strain. Crop this season; same plants nurseries are asking from $25 to $40 per 100. Owing to necessity of clearing ground for residence purposes will sell at bargain in lots of 50 and over. F. H. Gutierrez, Santa Cruz, Cal.

Rivera Nursery, L. L. Bequette, Prop.—Wholesale and retail dealers in Northern and semi-tropical trees, shrubs, roses, green house plants, etc. Have good stock of apples, peaches, etc. Send for descriptive price list. 625 S. Breed St., Los Angeles, Cal.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

For Sale—Alexander, Muir, Crawford's Early and Foster Peach, Royal and Blenheim Apricot on peach root. First-class trees true to name. Abell's Nursery, Arroyo Grande, Cal.

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J. A. Powell, R. D. 1, Box 1, Ripon, Cal.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

Improved Superlative Red Raspberry Plants—Largest raspberry in cultivation. 100 plants, $5.00. Send for description. William Richard, 438 River St., Santa Cruz, Cal.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

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FOR SALE—
NOW IS THE TIME TO PLANT
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The following is a list of Novelties of proven merit all of which have been tested at our trial grounds at Montebello for at least two years. Where prices are quoted $1.00 each, the rate will be $10.00 per dozen; 75c each, $7.50 per dozen; 50c each, $5.00 per dozen. The following set at $1.00 each:
LYON ROSE, Coral Rose Shaded Gold.
MRS. AARON WARD, Apricot Yellow.
MRS. ARTHUR WADDELL, Copper.
SOUVENIR de STELLA GRAY, Orange Salmon.
The following set 75c each:
ALICE ROOSEVELT, Deep Salmon.
HARRY KIRK, Yellow.
INSTITEUTER SIRDEY, Fine Yellow.
JOSEPH HILL, Copper.
JEAN NOTE, Deep Yellow.
MAD. SEGUND WEBBER, Pearly Pink.
MAD. CONSTANT SOUPERT, Golden Yellow Pink.
MRS. WILLIAM CROSS, White.
QUEEN CAROLA de SAXE, Crimson.
WHITE KILLARNEY, White.
The following set 50c each:
ANNIE MULLER, Pink Baby Rose.
BETTY, Copper and Pink.
CATHERINE ZEMET, White Baby Rose.
PINK CHEROKEE, Pink.
DEANE HOLE, Pink.
PEACE, White.
RHEA REID, Crimson.
The following comprise the best known of the older and newer varieties each 35c, $3.50 per dozen, extra strong:
Avoca.
Bessie Brown, Beauty Inconstante, Black Prince.
Clara Watson, Capt. Christy.
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Franz Deegan, Freiherr von Marshall, Franciska Kruger, Frau Karl Druschki, Florence Pemberton, Francis Levet.
Grusa an Teplitz, Gen'l. Jacqueminot.
Hugh Watson, Hugh Dickson.
J. B. Clark, Jules Margottin.
Kaiserin—A Victoria, Killarney.
Laurette, Lady Battersea.
Madame Abel Chatenay, Madame Caroline Testout, Madame Jean Dupuy, Madame C. Luizet, Madame Lambard, Madame Leon Paine, Maman Cochet, White; Maman Cochet, Pink; Maman Cochet, Red; Mrs. Benj. Cant, Mrs. Jennie Guillemot, Mrs. John Laing, Meteor, Marie von Houtte, Mamie, Magna Charta.
Pearl von Godesburg, Paul Neyron, Prince Camille de Rhoan, Prince of Bulgaria.
Rhea Reid, Richmond, Rhum der Gartenweldt.
Souvenir de Pierre Notting, Soliel d'Or, Sombreuil.
Ulrich Brunner.
Viscountess of Folkstone, Venus.
Xavier Olibo.
CLIMBING ROSES.
Cl. Kaiserine.
Cl. Glorie de Margottin.
Cl. Mad. Caroline Testout.
Cl. Bridesmaid.
Cl. Wooton.
Cl. Papa Gontier.
Cl. Francais Crousse.
Cl. Mad. Driout.
Cl. R. M. Henrietta.
Cl. Reve d'Or.
Cl. Glorie D'Dijon.
Cherokee.
Cl. Marshal Niel.
Cl. Queen Olga of Wurtemberg.
Cl. William Allen Richardson.
Cl. LaMarque.
Cl. Dorothy Perkins.
Plants are all budded on wild rose root and will give twice the results of cutting grown plants. All two year old plants.
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Sunset, Main 1745. Home, F4592.
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Growing Dept. of fifty-five acres at Montebello, Calif.

PHEASANTS

For Sale—Ringed Necked Pheasants, "Mongolian." $5.00 a pair. Mrs. Geo. W. Jenkins, Route 1, Box 40, Sonoma, Cal.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.
WICK'S WHITE FOWL FARM, Moorpark, Cal

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Typhoid, Malaria, Diphtheria and other dreaded diseases are largely caused by drinking impure water. Our "Seneca" filter will positively remove all germs and other impurities from water, leaving it "Clear as Crystal" and absolutely pure. The "Seneca" filter is on sale at hardware stores generally. If your dealer does not carry it, we will supply you direct. Everyone should have a copy of our Free Booklet, which tells about the diseases caused by drinking impure water and how the "Seneca" **siphon & pressure** filters remove all impurities. **The Seneca Filter Co.**, Dept. D, Kans. City, Mo.

PURE DRINKING WATER
This book written by Mr. P. Cook of the Mammoth Hatchery has eagerly been looked for. It is the authority on all questions connected with the hatching of chicks. There are no theories, but reliable information. Shows how to test carbonic acid gas, moisture, etc. Explains the cause of chicks dying in shell and how it may be prevented with certainty. This book will enable anyone to make his incubator hatch as fine and large chicks and as many as the mother hen. Price $1.00 postpaid. The WEIMAR PRESS, 3015 S. Main St., Los Angeles, Cal.

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75,000 eggs in incubation. We sell the finest, strongest baby chicks in the world. All from pure bred stock. Prices 10 to 15 cts. We are the largest dealers in fine laying hens. We ship everywhere. Send for our new catalog. Free. Largest stock of second-hand incubators. P. Cook, 3017 S. Main St., Los Angeles, Cal.

General Household Notes

INTRODUCING MYSELF.

I'm not the fellow you read about,
But only the man you know,
The chap you meet on the busy street
Where the hurrying thousands go;
I cannot class with the "starving poor,'
Nor yet with the "men of means";
I'm just the sort that you are yourself—
The salaried "in-betweens."

I've never handled a spade or pick,
I'm hardly a "son of toil,"
I cannot plow, for I don't know how
To "wrest my bread from the soil";
I'm only an ordinary dub,
With commonplace things to do,
And so, O commonplace friends of mine,
I'm singing my songs to You.

If you've never made your summer suit
Suffice for the winter's chill,
If you've never gone with a soiled shirt on
To save on the laundry bill,
If you've never eaten a buffet lunch
To save a nickel or two,
If you've never worried about the rent—
These ballads are not for you.

But you who worry and puzzle out
Each item of daily life,
Who work and fret in the fear of debt,
Along with your faithful wife—
Maybe you'll find in these songs of mine
A strain that you know is true,
And though I'm hardly the soul of song,
I'm singing them all to You.
—Berton Braley, in December Pacific Monthly.

* * *

The farmer often has his blues and bad "streaks," but "the salaried in-between" isn't always in the enviable position which he has in some farmers' imagination.

THE PASSING OF "FAITHFUL SCOTCH."

The above is the heading of an editorial which appeared in the Chicago Inter Ocean in June, 1910. It is another tribute to one of those loyal friends of man whose affection, devotion and intelligence make it difficult for many of us to believe that death blots out of existence the life of which they are the manifestation. The substance of this editorial we are glad to give here:

The thousands who will visit Estes Park in the Colorado Rockies this summer will not see "Faithful Scotch." For this famous collie of a famous master has gone where the good dogs go.

Scotch's master — or rather the friend and companion whom he worshiped—is Enos A. Mills, known in this country and abroad as the guide to Long's Peak, nature student and enthusiast, government lecturer on forest preservation and author of "Wild Life of the Rockies"—of which one of the chapters not least interesting is devoted to the doings of "Faithful Scotch."

Mountain climbers come from all over the world to ascend Long's Peak, a picturesque mountain of over 14,000 feet, just this side of the Continental Divide. Mr. Mills has been the guide of this mountain for more than twenty years and out of the situation have grown the little rustic hotel and log cabins of Long's Peak Inn (where go the climbers to begin the ascent.

Of this little rustic inn Scotch was no less the host than his master. He welcomed the coming and sped the parting guest. He escorted the climbers to the trail up the Peak. He received the returning fishermen. He kept the burros on the other side of the brook. He stood between the coyotes and the inhabitants of the chicken yard. He played football with the guests after dinner.

No matter how dogmatically the "instinct" school of scientists may assert that animals do not reason, Scotch had a mind of his own and used it—as any one could see who had eyes. A catalogue of his exploits would fill a book.

For example, when Scotch was but two years old a pack of coyotes made his life miserable. He went fifteen miles and brought back another collie. That afternoon the two dogs played as neat a game on the coyotes as ever was seen, and taught them their lesson for all time. That night the visiting collie returned home.

Again, a strapping young woman, accustomed to mountain climbing, insisted upon ascending Long's Peak alone. Guide Mills assented, but sent Scotch with her. The young woman got to the summit safely, lingered too long and got caught in the darkness and a storm.

When she went wrong on the downward trail Scotch, who knew every inch of the Peak, did his best to get her back. But the woman was obstinate. Scotch stayed with her on the mountain, kept her warm and saved her life. She was rescued at daylight slightly frostbitten, but otherwise all right. When the rescuers arrived Scotch gave a yawp of disgust and dashed off home for some breakfast.

Once Scotch misunderstood his orders and unflinchingly faced death in carrying them out—as he understood them. His master sent him back on a wilderness trail in winter to find a lost mitten. Twenty-four hours later in the bitter cold, his anxious master, after twelve hours of desperate climbing, found Scotch lying on the mitten. He thought he had been told to guard the mitten, not to bring it back!

The manner of the passing of Scotch is at once a pang and a consolation. Death by accident is always cruel because seemingly needless. But he died in doing what he thought was his duty.

The sin of sins in a forest country is to leave fire, and the first duty of the man who finds fire in the forest is to put it out. Scotch knew this as well as any one—many an incipient fire he had put out with his feet and many an alarm had he given.

This spring Scotch paid a visit to the roadmenders, and, as fate would have it, he arrived just at the moment when the men had taken shelter from a dynamite blast. His vigilant eye detected the smoke of the burning fuse. He barked the alarm and dashed to the spot. He arrived just as the blast exploded. He was struck in the head and chest. Death was instantaneous.

HOMELY HINTS.

When making cooked starch put in a bit of lard, and note results.

Wet a cloth in coal-oil and use to clean the sink; dampen another with the oil and rub your nickel-plated teakettle while hot. It will shine like silver.

An excellent and simple method of making a lamp throw out a clear light is to place a small piece of gum camphor in the receptacle with the oil.

To mend a crack in a stove, mix three teaspoonfuls of salt and one

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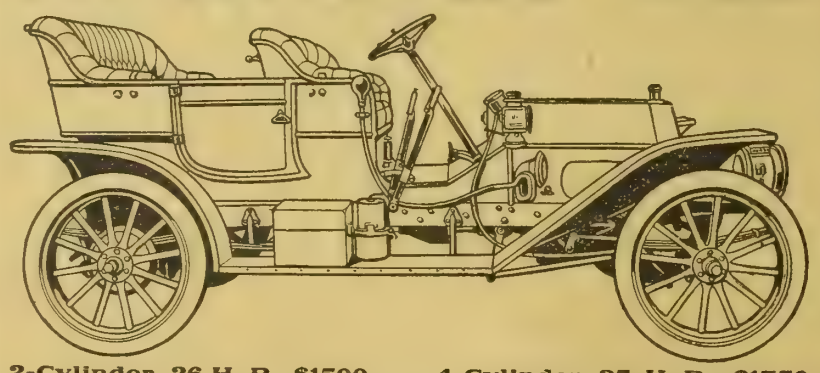

2-Cylinder, 26 H. P., $1500 **4-Cylinder, 35 H. P., $1750**

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There are multitudes of young people who are not in the public schools, but who look to the business college for the special educational training and finishing needed preparatory to lucrative business employment. Of such the major portion of a thousand enroll every year at the ISAACS-WOODBURY—the recognized leader since 1884.

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Bigger better fruit and more of it will be the result if you use the Planet Jr No 41 Orchard and Universal Cultivator to give your orchard thorough cultivation.

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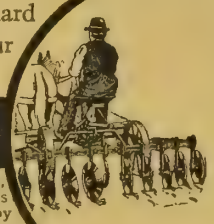

No. 41 is the greatest help you can have in orchard, vineyard, and hopyard. Saves time and labor besides doing better work. It is built especially for your work by a practical farmer and manufacturer, with over 35 years' experience. Unusually strong construction, yet easily handled. Equipped with attachments which cultivate, hoe, and furrow to any desired depth; also has side-hitch and fruit and tree shield. Can be made into disc-cultivator. Every implement fully guaranteed.

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S L Allen & Co Box 1106P Philadelphia Pa

pint of wood ashes with sufficient water to form a stiff paste. Fill the crack with this mixture while the stove is hot. When dry it will be as hard as cement.

If a beaten egg and a slice or two of light bread, soaked, are added to Hamburg steak, the latter will not become so dry and tasteless when fried.

To clean and brighten a galvanized iron pail or washtub use chloride of lime dissolved in soft water, and kerosene; rub, then polish with a soft cloth.

When washing cream-colored curtains add yellow ochre to the starch until the tint is as deep as you wish it to be. Test it with a bit of lace before dipping your curtains. Five cents' worth of the ochre will be sufficient for six pairs. Other laces may be tinted in like manner.

If, when you are cooking meat, fruit or vegetables, they should burn, remove the kettle from the fire and set immediately into a pan of cold water to remain until cool; then take from the kettle and put over the fire to cook again, being careful not to put in any burned pieces. You will not know by the taste that the food was scorched.

Soap-bark is one of the best things I know of to cleanse woolen fabrics. Procure a package at your druggist's, steep a pinch in water, and strain, and use the tea to sponge the article thoroughly. Coat-collars, so hard to make presentable, are readily cleaned with soap-bark, prepared as directed. It is better and safer than gasoline.

If you wish to darn a tablecloth, stretch the worn place or rent in your embroidery-hoop and see how much neater your work will look; it is more quickly and easily done, too. Also in darning the legs of children's stockings, try the plan of first buttonholing the hole, then darning from the buttonholed edge. The finished work is neater and more durable.

Take a tin lard pail, one that holds about five pounds, and punch the bottom full of holes, which you can easily do by placing it on a hard-wood block and using a large, long wire nail or punch to strike from the inside. Wash knives, forks and spoons, put them in this pail, pour scalding water over them and in a short time they will be dry, needing only a little wiping. Do the same with plates and most other dishes.

How many of the women folks use kerosene for taking paint out of garments, and for removing spots from boys' clothing? Just saturate with kerosene, rub well with a dark cloth, then hang in the air. I have taken enamel out of flannel, after it was pressed in, by this simple method. the oil soon evaporates, and will not harm any fabric.

A girl's education is not complete unless she has learned: To sew, to cook, to mend, to be gentle, to value time, to dress neatly, to keep a secret, to avoid idleness, to be self-reliant, to darn stockings, to respect old age, to make good bread, to keep a house tidy, to be above gossiping, to make home happy, to control her temper, to take care of the sick, to take care of the baby, to sweep down cobwebs, to marry a man for his worth instead of wealth, to read the very best of books, to take plenty of active exercise, to be a helpmate to her husband, to keep clear of trashy literature, to be light-hearted and fleet-footed, to be a woman under all circumstances.—Coleman's Rural.

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Your Money Grows Here

You draw out more than you put in when you become a savings depositor at this Home Bank. Your profit is definite, sure, constant. Every year is a prosperous one. Begin now. Keep your surplus funds at work.

We Pay

3% Interest on Minimum Monthly Balances of $300 or More, Account Subject to Checking.

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Home Savings Bank
Alexandria Hotel Bldg.
Fifth and Spring Sts.
Los Angeles, Cal.

SANITARY PERCOLATOR

Better Coffee at Half The Price.

35c Post Paid

IT FLOATS

Keeps coffee pot clean and sanitary. No "grounds." No eggs required. No straining. No dregs in the cup. Made of pure aluminum. Will not rust, tarnish or taint. Handsome as silver. Write today and make delicious coffee.

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LLOYD R. TAYLOR, Modesto, Cal.

Continued from Page 108.

ordinary precautions are observed; colds and the dreaded disease, roup, seldom if ever affect fowls kept in houses of this kind.

The following size will house a dozen or more fowls:

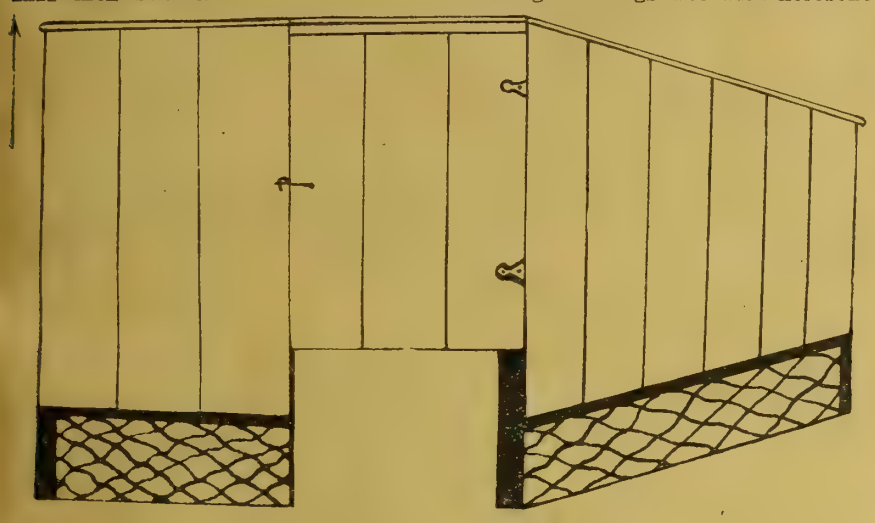
Dimensions of Poultry House.

Front—6 ft. high.
Back—5 ft. high.
Length of Front—6 ft.
Length of Sides—5 ft.
Door—2½x4 ft.

One foot of wire netting around entire bottom except at door.

Cost to build, complete—$6.00.

For material use four uprights, 2x3 or 2x4 in front, back and sides use 1x12 inch boards.



A LOW COST CALIFORNIA POULTRY HOUSE

Roof can be covered with any kind of roofing material, but for a permanent roof, shingles are best. One bunch or seventy-five cents worth is sufficient. 22 feet of 2-inch mesh wire for the lower part of the house will cost about fifteen cents. It will require 150 to 200 feet of lumber to build the house, which at $30.00 per thousand would make cost of house $6.00 when complete if all new material is used. If, however, old material on hand is used, the cost would simply be the labor.

Wire netting should extend around the entire bottom, except under the door, which can be left open for entrance or it is not necessary to have wire at the bottom. It is used or not according to one's needs.

If exhibition stock is kept in these coops the entrances should be two feet high to keep tail feathers from being injured. One foot entrance is high enough for common fowls.

The owner can use his own judgment as to having an opening for entrance or a door or a slide.

The inside of the house above the wire should be wind and waterproof, all ventilation needed is at the bottom. The air passing under the fowls and through the wire from all sides insures perfect ventilation and pure air regardless of the number of fowls housed.

The roosts should be one and one-half to two feet above the ground, but in case of heavy breeds that cannot fly high, the roosts could be lowered and the opening at the bottom made less than one foot, but in any case have the fowls roost above any possible drafts. Have simple roosts. A 1x3-inch strip makes a good roost for 5 or 6 feet. Nothing but roosts should be kept in the house unless it is convenient to have nests there. The nests should be set on the floor and not made fast to any part of the house. They can thus be easily removed and cleaned with fresh straw, grass or whatever nest material is used.

Paint the outside of nests, and the ends, sides and bottom of roosts with any good liquid lice killer. This treatment will keep out vermin.

Fix the roosts so they can be easily taken out and returned to their place.

SCALY LEG.

Scaly leg is contagious and is caused by a parasite mite, commonly called a scab mite. Dissolve in kerosene all it will take up of crude naphthalene flakes. Dip the scaly legs in this solution, taking care not to get the soft parts above the hocks wet with it. If soft feathered parts get wet with kerosene it will raise a bad blister. For same reason apply remedy in day time and not at night, as roosting with legs wet with kerosene may result in blisters on breast. Let fowl run after treating. Repeat the treatment every second day for three or four applications, then wash the legs well with good yellow soap and warm water. If necessary treatment may be repeated in a few days.—American Poultry Journal.

The laying of unusually large eggs is an indication that the hens are too fat.

SECURITY BUILDING
Ground floor and Basement occupied by the Security Savings Bank and Safe Deposit Vaults.

SECURITY SAVINGS BANK

Spring and Fifth Sts. Los Angeles, Cal.

OLDEST AND LARGEST IN THE SOUTHWEST

Capital and Reserve $1,938,000.00

Resources - - - $30,000,000.00

Over 62,000 Open, Active Accounts

4% Interest on Savings Accounts
And on Six Month's Certificates of Deposit

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Which Accounts may be checked against without presentation of Pass Book. Interest is paid monthly on the minimum monthly balances provided it amounts to $300 or over.

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FOR THE "LAND'S SAKE" Why Don't You Irrigate That Farm of Yours?

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Shipping Weight 15 Lbs.

If not on sale by your local merchant, he will order for you; or you can write either of the following jobbers direct, who will see that you are supplied. **Pacific Hardware & Steel Co., San Francisco or Los Angeles; The Thomson-Diggs Co., Sacramento; Hazard, Could & Co., San Diego.**

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For agricultural, horticultural, and gardening purposes.
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Odd tracts and ranches of all sizes.
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BEN. W. McCLOSKEY & CO.

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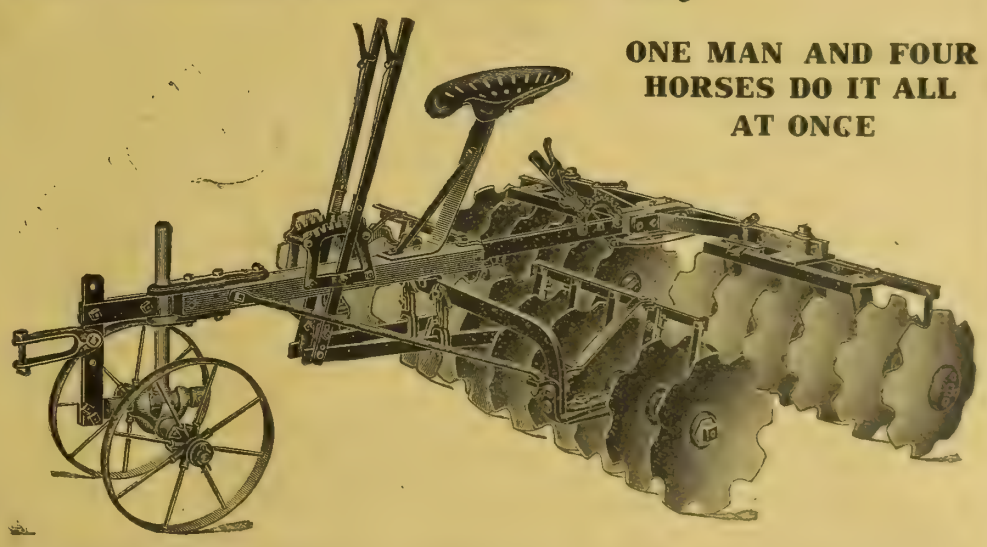
A Plow—A Disc—A Pulverizer—A Smoothing Harrow all in one

The SENSATION of the Day

Compare it Point for Point With Any Disc Harrow Made

Double Gangs
Double Cut
Double Throw
Double Levers

ONE MAN AND FOUR HORSES DO IT ALL AT ONCE



The flexibility of the **Arnott "Double-Cut"** in contrast with the stiff action of other two-way harrows is what is making it so popular. This flexibility is possible because of our Universal Joint connecting the front and rear gangs. For lack of this feature other double harrows have a good deal of side draft and will not make a square turn without digging a great hole. This can't happen on the **Arnott.** Independent front and rear levers within easy reach of rider.

Complete description mailed upon application. Write for prices

ARNOTT & COMPANY, Inc., Southwestern Gen. Agts.

112-118 South Los Angeles Street, LOS ANGELES.

All sizes in stock for immediate shipment, 4 to 10 ft. cut inclusive.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Jan. 25, 1911.

Butter.

The trade is anxious to learn the effect of the rain in a lowering of prices. Instead, however, an increase is noted, and a very firm condition now prevails.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	35
Firsts	32½
Cooking	25

Cheese.

Local	18
Northern, fresh	17½@18
Oregon Daisy	17½@18
Imported Swiss	32
Domestic Swiss	20@21

Eggs and Poultry.

A heavy decline was made the last of last week, which partly recovered on Monday, still leaving a couple of cents on practically all grades under last week.

Paying price f. o. b. Los Angeles is:

Local ranch candled	34
Case count buying price	30
Northern	28@32
Eastern storage	27
Firsts	24

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	15@17
Roosters	9
Spring	17@21
Turkeys	21@22
Ducks	16@17
Geese	16@17
Squabs, per doz	1.75

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	2.10@2.25
Salinas	2.50
Watsonville	2.35
Nevadas	2.00@2.10
Oregon, Early Rose	2.00@2.10
Northern Early Rose	2.00
Lompoc	2.50
Idaho Rurals	2.00@2.10
White Rose, local	2.00
Sweets, yellow, per centl	3.00@3.25

Onions.

Wholesale quotations:

Oregons	2.25
Australian browns	2.25
Nevadas	2.50
Garlic	7@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Asparagus, lb	15
Beets, sack	90
Beans, Lima	18
Beans, green	18
Beans, wax	18
Brussels sprouts	10
Bell peppers, lb	15
Green chilis	3@4
Cucumbers, box	1.00@2.25
Cabbage, sack	85@1.00
Celery, crate	2.25@2.50
Cauliflower, crate	1.50@1.75
Carrots, per sack	90
Egg plant, lb	12@15
Horseradish	12½
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@1.25
Oyster plant, doz	40
Okra, lb	10
Peas, lb	10@12
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Pumpkins, lb	1@2
Radishes, doz. bunches	20@25
Rhubarb, No. Strawberry	1.75
Rhubarb, Crim. Winter, box	1.35@1.50
Spinach, doz	20@25
Hubbard squash, lb	1@1½
Tomatoes, crate	1.25@1.50
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.75@2.25
Grapefruit	1.75@2.75
Lemons	1.50@2.50
Tangerines	1.60@1.75
Limes, per 100	1.25@1.50

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	4.00@5.00
Apples, Bellflower	1.10@135
Spitzenbergs	1.75@2.50
Jonathans	2.25@2.35
Greenings	1.10@1.25
Pearmains	1.10@1.50
Newtown Pippins	1.20@1.35
Pineapples	6@7
Mangoes, doz	1.75
Persimmons, lb	7
Pomegranates, lug	1.00
Pears, lb	5
Bartletts, lb	8@10
Winter Nelis	2.50
Strawberries	8@15
Raspberries	12@15

Dried Fruits.

Wholesale prices are:

Apricots	13
Evap. Apples, fancy, lb	11½@12½
Figs, box	1.75
Peaches	7@8½
Nectarines	10
Pears	11@12½
Prunes	7@12
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	5.75@6.00
Black eyes	5.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Lentils	7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb, new	14½
Pecans, polished	15@16
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10½
Extracted light amber	9
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	12.00@13.00
Wheat hay	13.00@14.00
Tame oat	14.00@16.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, ctl	1.80@1.85
Corn	1.60
Popcorn	3.75@4.00
Egyptian corn	1.75
White oats	1.80
Rye seed	2.00
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.15
Cracked corn	1.65
Cracked wheat	1.95
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed meal	1.70
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Jan. 24, 1911.

Butter.

Butter made an advance of a cent and a half during the last of the week, then a sharp decline, and on Monday a slump of three cents. Market easy at this writing, with heavy receipts.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	29
California firsts	28
Seconds	25

Cheese.

California flats, new	13@16½
Cal. Young America, fy, new	15½@16
Oregon fancy	14

Eggs and Poultry.

Eggs declined heavily, but recovered slightly on Saturday, and the market is easy.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	27
Firsts	25
Seconds	24

Hens, doz	4.50@10.00
Fryers, doz	5.50@6.00
Ducks	6.00@10.00
Broilers	2.50@4.00
Roosters, doz	4.50@10.00
Turkeys	20@21
Geese	2.00@2.50
Pigeons	1.50@2.50
Squabs	3.00@4.00

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	4½@6¼
Hogs	5½@8⅜
Milk lambs, unshorn	6@6¼
Wethers, No. 1	4½@5
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.85@2.00
Salinas Burbanks, cwt	2.00@2.15
Oregon Burbanks, cwt	1.75@2.00
Lompocs	2.00@2.15
Sweets, ctl	3.00@3.25

Onions.

Onions, California, sack	1.60@1.75
Onions, Oregons	2.00@2.15

Vegetables.

Wholesale quotations:

Artichokes	25@40
Beans, string, lb	12½@15
Beans, Lima	8@10
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	75@1.00
Celery, crate	65@1.75
Bell peppers	8@10
Chili peppers, lb	4@6
Egg plant, lb	10@12½
Mushrooms	50@1.50
Okra, box	40@60
Peas, lb	3@6
Summer squash, box	1.50@1.75
Rhubarb, box	1.00@1.50
Tomatoes	75@1.25
Turnips	65
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.25
Grapefruit	1.50@3.00
Lemons	1.50@3.00
Limes	3.00@4.00
Seedlings	1.50@2.00
Tangerines	50@2.00

Fresh Fruits.

Apples, box	75@1.00
Apples, Belleflowers	75@1.00
Newtowns	90@1.25
Spitzenberg	1.75@2.25
Bananas, Hawaiian	75@1.25
Pears, Bartletts	1.50@2.00
Winter varieties	1.00@1.25
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.: Apples, 9¾@11c; apricots, 10¾@13c; do, Moorparks, 14c; peaches, 6@7¼c; with a premium of ⅛@¼c on Muirs; prunes, bulk basis, Santa Claras, 6⅜@7c, with ¼c premium on 60s to 90s; outsides, 6@6¼c; figs, 6¼@7½c for white, and 5@5½c for black; pears, 9¾@13c.

RAISINS—1910 crop: London layers, in 20-lb. boxes—6-crown clusters, $2.50; do, 5-crown, $1.75@2; 4-crown, $1.30@1.40; 3-crown layers, $1@1.10; do, 2-crown, 95c@$1. Seeded, per pkg.—Fancy, No. 16, 5½@5¾c; choice No. 16, 5@5¼c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 4¾c; do, 3-crown, 4@4¼c; do, 2-crown, 3½@3¾c. Dried grapes, 3c. Seedless—Muscatels, 3¾c; Sultanas, 4¾c; Thompson's, 5@5¼c.

Nuts.

Walnuts, No. 1 soft shell	15
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15
Almonds, '10 I X L	14½
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	5.50@5.60
Pink	5.50@5.75
Black eyes	5.50@5.60
Small white	3.45@3.50
Large white	3.45@3.50
Kidneys	5.75
Garvanzas	2.90@3.25
Bayo	5.10@5.15
Horse beans	2.50@2.75
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	18@22
Hops, 1909	13@16
Hops, Oregon	13@16

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Scott, Magner & Miller say:

During the week ending today the San Francisco market has received 2,250 tons of hay. This amount is considerably less than we received during last week, and the cause of the lighter arrivals this week can be found in the fact that it has been difficult, and in some places impossible, to load this week on account of weather conditions.

Considerable hay has been ordered into market, and as soon as weather conditions are satisfactory for loading, arrivals can be expected to be sufficiently active to supply all branches of the trade.

There has been some little movement of alfalfa hay recently, and a better demand has been in evidence. Prices have remained steady and unchanged on this article.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	13.50@14.00
No. 1 wheat or wh and oat	11.50@13.50
No. 2 wheat or wh and oat	10.00@11.00
Choice tame oat	12.00@12.50
Other tame oat	9.00@11.00
Wild oat	8.00@10.50
Stock hay	6.00@7.00
Alfalfa, ton	9.00@12.00
Straw	40@50

Grain.

Wheat, No. 1	1.42½@1.52½
Barley, fancy	1.16¼@1.17½
Barley, good to choice	1.12½@1.15
Barley, poor to fair	1.10@1.11¾
Oats, white	1.45@1.60
Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Bran, ton	29.00@30.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Ground barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	34.00@36.50
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	24.50@25.50
Mixed feed, ton	25.00@27.00
Shorts	29.00@31.00

Almonds

The exchange almond stock is now reduced to 20 cars and the inquiry still continues good; in fact, we advanced the price ⅛c on one variety last week and the offer was promptly accepted.

Ne Plus are nearly cleaned up, as are also Languedocs and Hardshells; Drakes are moving rapidly and IXL's are moving very satisfactorily.

We have also arranged for all the balance of our shelled stuff and have inquiries for still more, which we will take care of before long.—California Almond Growers Exchange, J. P. Dargitz, Sec'y and Mgr.

Citrus Fruit Market

LOS ANGELES, Jan. 25, 1911.

Spotting of navels still continues to depress the market. Some auction sales are made at ruinously low prices, but, the country over, the sales are not so discouraging. The lessening of shipments which present weather will force will probably succeed in strengthening the market.

Lemons are very firm and commanding fair prices.

Shipments.

Shipments of oranges to date since Nov. 1, 1910: 6,090 cars, lemons 932 cars, total of citrus fruits 7,022 cars. To same date last season: Oranges 3,303, lemons 905, total 4,208.

NEW YORK, Monday, Jan. '23.—Twenty-nine cars navels, one car lemons sold. Market higher on medium and small sizes. Lemons higher. Fair and seasonable.

NAVELS—	Avge.
Old Mission, fy, Chapman	2.45
Old Mission, ch, Chapman	2.25
Golden Eagle, Sd, Chapman	2.05
Ideal High, Porterville F A	2.50
Delicious, Porterville F A	2.20
Native Son, ch, King F Co	2.25
Salt Lake, King F Co	2.05
Independent, fy, Growers F Co	1.80
Champion, Denman Sons	2.20
Orchard, Imp, Or National Or Co	2.70
Standard, Sd, Or National O Co	2.25
Corona Cross	2.25
Gold Buckle, R H, E Highland	2.85
Alta Cresta, A H Ex	2.55
Robusta, A H Ex	2.15
Hobo, A H Ex	1.85
Iris, D M Ex	2.40
Blue Seal, A C G Ex	2.45
Red Shield, A C G Ex	2.10
Carmencita, S T, Fullerton	2.40
Glendora Heights, fy, A C G	2.40
Glendora Heights, ch, A C G	2.15
Crocus, S B Ex	2.75
Canna, S B Ex	2.50
Iris, D M Ex	2.20
Truth, Riverside Ex	2.25
La Paloma, Riverside Ex	1.95
Butterfly, Imp, Covina Ex	2.20
Butterfly, Covina Tx	2.00
Stag, A C G Ex	2.30
Royal Knight, R H Ex	2.25
Ben Hur, R H Ex	2.05
Planet, S S Ex	1.85
Searchlight, S S Ex	1.65
Pine Cone, S B Ex	2.35
Arrowhead, S B Ex	2.25
Planet, S S Ex	1.75
Searchlight, S S Ex	1.65
Golden Orchard, fy, Ind F Co	1.85
Golden Flower, xf, Red G O A	2.05
Titus Ranch, fy, S Marino G P A	2.30
Titus Ranch, San Marino G P A	2.20
Camellia, xf, Red M O Dis	2.25

TANGERINES, halves—First American, $1.35; Dancey, $1.05; Blue Seal, $1.30; Camellia, $1.30.

LEMONS—Pride of Corona, $3.80; Highlander, $3.80.

CINCINNATI, Monday, Jan. 23.—Cold. Market steady on oranges. Two cars navels, three cars Floridas sold. Florida Brights, $1.40@1.80; Russets, $1.50@1.85.

NAVELS—	Avge.
Airship, V C, Fillmore	1.75
Pico, S T, Whittier	1.45
Oriole, V C, Fillmore	1.70

SEEDLINGS—Cycle, V C, Fillmore, $1.30.

LEMONS—Airship, V C, Fillmore, $3.45; Oriole, $3.55.

CLEVELAND, Monday, Jan. 23.—Six cars sold. Market higher. Weather favorable.

NAVELS—	Avge.
Planet, S S, Orange	2.00
Trail, A C G, Lamanda Park	2.20
Gold Buckle, R H, E Highland	2.75
Hobo, A H Pach	2.00
Gavilan, Riv Arl Sta	2.10
Canon, A C G, Lamanda Park	1.05
Robusta, A H Pach	2.40
Golden Flower, xf, Red G O	2.30

PITTSBURG, Monday, Jan. 23.—Eight cars sold. Market very steady on both oranges and lemons. Cold.

NAVELS—	Avge.
Orchard, Or National O Co	2.60
Whittier, S T, Whittier	2.15
Pony, A F, Bloomington	2.15
Hunter, A C G, Charter Oak	1.50
Violet, D M, Duarte	1.80
Parrot, S A Ex	3.10
Standard, Sd, National O	2.10
Hawk, S A, Pomona	2.00
Pointer, A C G, Charter Oak	1.60
Pointer, A C G, Glendora	2.30
Iris, D M, Duarte	2.45
Jasmine, D M, Duarte	2.05
Mountain Crest, S A Ex	2.25

ST. LOUIS, Monday, Jan. 23.—Cool. Market easier. Six cars navels and two cars lemons sold.

NAVELS—	Avge.
Lochinvar, R H, E Highland	2.40
Pointer, A C G, Charter Oak	2.10
Belt, R H, E Highland	2.15
Possum, A C G, Charter Oak	1.80
Mutual, fy, Red M O Dis	1.95

LEMONS—Red Mountain, $2.45; Quaker Girl, S T, Whittier, $2.85; Greenleaf, $2.75; Pet, S A Ex, $3.00; Arab, $2.90; Duck, $2.50.

PHILADELPHIA, Monday, Jan. 23.—Six cars navels, one car lemons and twenty-nine cars Floridas sold. Floridas sold at 95c@$3.00, average $1.50. Grapefruit—$1.75@3.25, average $2.50. Tangerines—$1.00@1.75, average $1.20. Market easier on oranges and tangerines.

NAVELS—	Avge.
Carmencita, S T, Fullerton	2.10
Whittier, S T, Whittier	1.95
Quality, S T, Nordhoff	2.15
Independent, Growers F Co	2.00
Colombo, S T, Fullerton	1.95
Carmencita, S T, Fullerton	2.15
Golden Flower, xf, Red G O	2.20
Constitution, Cleghorn	1.80

LEMONS—Blue Flag, Q C, Corona, $3.30; Silence, $2.90; Cry Baby, $2.40.

BOSTON, Monday, Jan. 23.—Nineteen cars sold. Snowing. Market unchanged on oranges, doing better on lemons.

NAVELS—	Avge.
Swan, R H, Redlands	2.35
Artesia, A H Arl	2.20
Eagle, A F, Highland	1.90
Laurel, Q C, Corona	2.40
Royal Knight, R H, Redlands	2.30
Newsboy, R H, Redlands	1.85
Priscilla, S B, Highland	2.50
Rey, S T, Fernando	2.00
Crocus, S B, Yerkes Spur	2.55
Orchard, Or, National O Co	2.65
Standard, Sd, National O Co	2.20
Golden Orchard, fy, Ind F Co	1.90
Independent, Growers F Co	1.80
Champion, A C, Denman Sons	2.10
Clover, xc, Red O G A	2.00
Newsboy, R H, Redlands	1.90
Sweetheart, A F, Highland	2.15
Yankee Doodle, A F, Highland	1.60
Princess, Q C, Corona	2.15
Ben Hur, R H, Redlands	2.05
Tiger, S B, Colton	2.10
John Alden, S B, Highland	2.05
Tunnel, S T, Fernando	1.95
Cosmos, S B, Yerkes Spur	2.10
Orchard, Or, National O Co	2.60
Rose, xf, Red O G A	2.20
Constitution, Cleghorn A	1.80
Constitution, Cleghorn	1.75
Peacock, Or, Worthley S	1.75
Independent, Growers F Co	2.10

LEMONS—Homer, Q C, Corona, $3.55.

CHICAGO, Monday, Jan. 23.—LEMONS—Under a moderate supply the market is firm. A fairly active trade continues. Boxes, California fancy, 300s, $3.50 asked; 360s, $3.25 asked; off sizes, $3.00 asked; extra fancy, $3.75; extra choice and choice, 25c per box discount.

ORANGES—For navels there is a steady market. Demand is fairly active, and they are in good supply. Boxes, navels, California fancy, 96s, $2.25@2.50; 126s, $2.50 asked; smaller sizes outside in rather a small way,

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What is it? A clearing house of agricultural data.
What does it do? Helps farmers to help themselves.
How can it be used? By sending your farm problems and puzzling questions to the Bureau.
We are co-operating with the highest agricultural authorities and every source of information will be made available to help solve your difficulties. We shall be pleased to have an opportunity to assist you. Write the I H C Service Bureau

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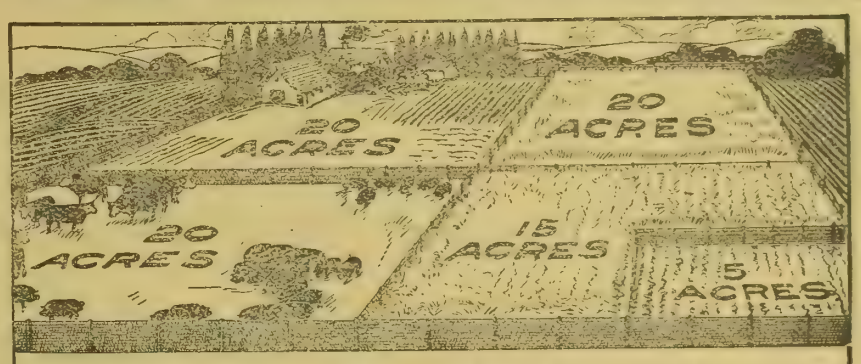

One Animal and Three Hogs to an Acre

THIS is a fair estimate of the average feeding ability of the soil. On a farm of 80 acres the highest limit of efficiency is 20-acre fields. Large fields diminish the earning power because two small fields alternated will furnish much more support for stock than the same average in one big field. The fence is the important factor; and with the liberal use of gates, unlimited extension and alternation is simple.

The steel in Ellwood fence is specially made from carefully selected stock. It is hard, elastic, tough and springy. The line wires, composed of two or more wires twisted into cables, give each individual wire the shape of an elongated, coiled spring. The fence is therefore sufficiently elastic to take care of expansion and contraction, and yet so rigid when properly stretched as to prevent sagging. The small and permanent mesh is made by weaving one continuous wire throughout the fabric. The mesh or stay wires are so interwoven that slipping is impossible. The triangular truss is the strongest form of construction known. For this reason, Ellwood fence will stand the hardest usage and still retain its shape.

Ellwood Fence is sold in your town. Look for the Ellwood dealer and let him show you his different styles of fence and quote you his low prices. Get his expert advice on your special needs. He is on the spot, buys in large quantities, gets the lowest carload freight rates, demonstrates quality before your eyes and is the man from whom you will get the most for your money.

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Does It Not Seem Reasonable

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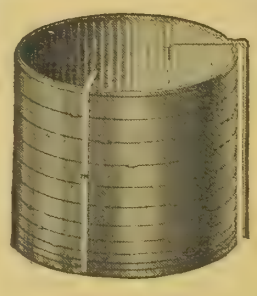

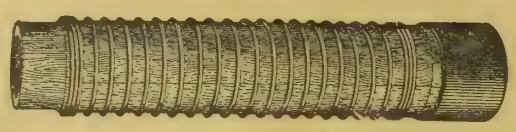

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Include the Pomona Deep Well Pumps and Cylinders. Pomona Patent Pressure Gates and Valves for Cement Pipe Lines.

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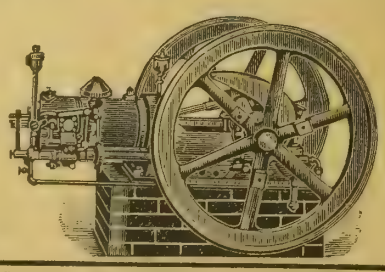
If so, see us in regard to Pumping Problems. We are headquarters for the Otto Gas Engine. The best engine made; Economical, Reliable.



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Western Machinery Company

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We sell all kinds of **Second Hand Pumps, Std. Pipe and Screw Casing, Anvils, Forges, Rubber and Leather Belting, Wood and Iron Working Machinery.**

Write for catalogue and prices.

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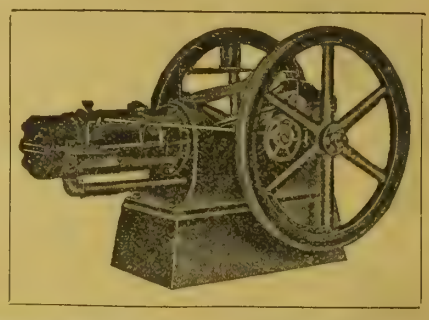

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California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

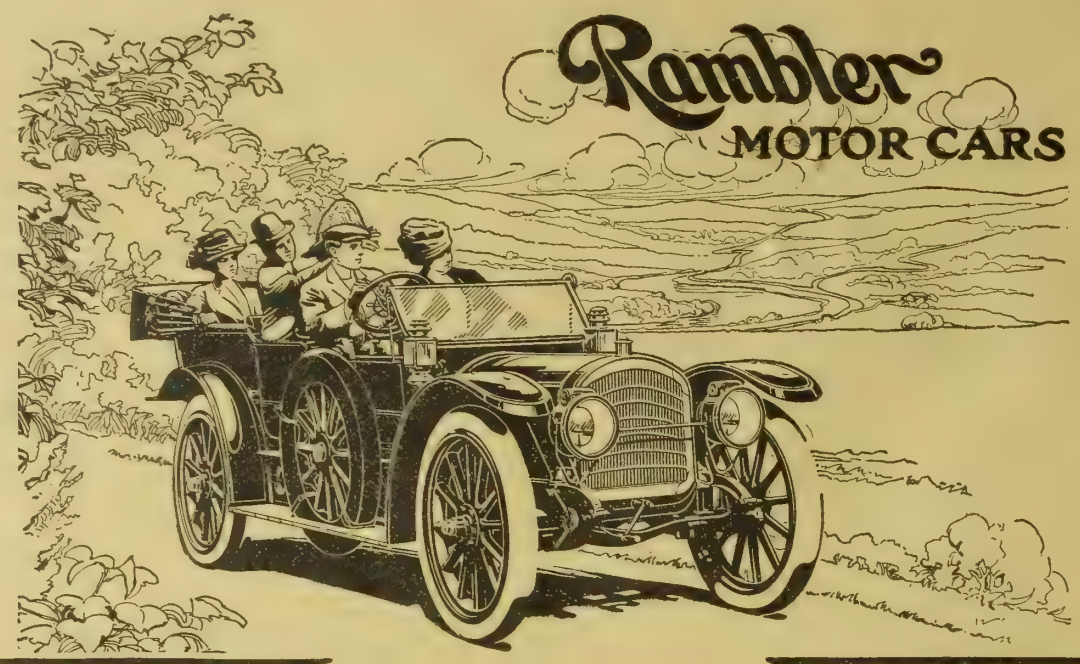
LOS ANGELES FEBRUARY 2, 1911 SAN FRANCISCO

STANDARD BRED S. C. BROWN LEGHORN COCK.

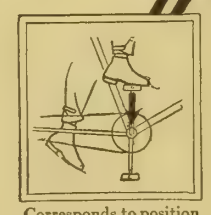
It was the intention to publish this "counterfeit presentment" of a pure-blooded Brown Leghorn cock in the Cultivator for last week, but our friends being unusually generous in their contributions to the annual poultry number, it was unavoidably crowded out. No breed of poultry has a stronger following in this state than the Leghorns, the white variety of which predominates almost to the exclusion of the Browns, Buffs, Silver Duckwings, Piles, Cuckoo, Mottled and the Blacks. Barring the last five which are bred but sparingly (and that chiefly by fanciers), the Browns and Buffs possess economic values quite as pronounced as the White. In type, head and leg points, habits and temperament, there is no great difference, the line of cleavage being almost wholly in the color scheme in plumage. Bred to feather, both varieties are indeed handsome birds, appealing strongly to the fancy. They "come" true to type, but in feathers there is still a tendency to mealiness in under color, with here and there an "off" feather in the surface. When, however, up to Standard, the bird is an object of beauty and admiration.

The Leghorns are proverbially rapid growers, good foragers, light eaters, and, what is of more consequence, prolific layers of white-shelled eggs. It has been said that, bird for bird, they require less attention from the caretaker than many of the heavier breeds. They like freedom, hence, when kept in close quarters, care must be exercised in keeping them active—in other words, at work. In Petaluma, where the Whites are kept in large numbers, the colony plan is quite generally practiced, which affords range and activity. In the early days Brown Leghorns were not uncommon in California, but of late years other breeds have outnumbered them in popularity, which is nothing against the breed. There are fashions in hens, as well as in ladies' hats.

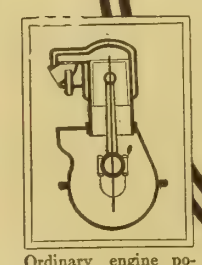
Rambler MOTOR CARS



Rambler Sixty-five Forty-inch Wheels



Corresponds to position of crank shaft in ordinary engine at explosion center.



Ordinary engine position of crank shaft at explosion center.

THE Rambler Offset Crank Shaft is a necessary advantage in a car to be used on country roads or in crowded city traffic. It enables you to throttle down on high gear no faster than a man usually walks, or glide along slowly on high gear behind a heavily loaded wagon. You take the hills easily, as there is no need to rush the hard pulls, and much gear shifting is avoided. Notice a man about to mount a bicycle. He always adjusts the pedal in that position where it will receive to best advantage his full weight on the first downward stroke. This position for the pedal is slightly forward of the center of the crank shaft of the bicycle. If he mounted when the pedal was directly over the center of the crank shaft, his weight would fall directly on the bearing and the first downward stroke would be retarded and, therefore, weak. In the Rambler motor, at the time of greatest pressure the connecting rod is perpendicular, and the crank shaft in a position to receive the greatest power from the explosion. This feature, with the Straight Line Drive, big wheels and tires, Spare Wheel and accessible Engine, is most appreciated by the experienced owner.

The new catalogue is ready. Send for it. Tell us the kind of car you like and we will mail you the Rambler Magazine.

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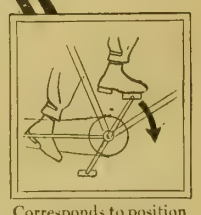
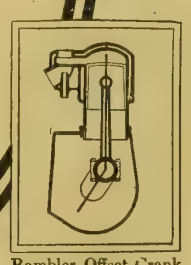


Corresponds to position of crank shaft in Rambler engine at explosion center.



Rambler Offset Crank Shaft. Position of crank shaft at explosion center.

WATER PIPE

Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c	per foot
10,000 feet	⅜-inch Standard, at	1c	per foot
25,000 feet	½-inch Standard, at	2c	per foot
20,000 feet	¾-inch Standard, at	3c	per foot
36,000 feet	1-inch Standard, at	4c	per foot
20,000 feet	1¼-inch Standard, at	5c	per foot
30,000 feet	1½-inch Standard, at	6c	per foot
50,000 feet	2-inch Standard, at	8½c	per foot
10,000 feet	2½-inch Standard, at	15c	per foot
15,600 feet	3-inch Standard, at	17c	per foot
15,000 feet	3½-inch Standard, at	19c	per foot
20,000 feet	4-inch Standard, at	25c	per foot
30,000 feet	5-inch Standard, at	35c	per foot
20,000 feet	6-inch Standard, at	45c	per foot

Oil Well Casings

1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00	per foot
1,000 feet	11⅝-inch Casing, at	$1.00	per foot
1,000 feet	9⅝-inch Casing, at	75c	per foot
2,000 feet	7⅝-inch Casing, at	45c	per foot
20,000 feet	5⅝-inch Casing, at	32c	per foot
30,000 feet	4-inch Casing, at	19c	per foot
20,000 feet	3½-inch Casing, at	16c	per foot
20,000 feet	3¼-inch Casing, at	15c	per foot
25,000 feet	3-inch Casing, at	14c	per foot
50,000 feet	2-inch Casing, at	6½c	per foot

WATER PIPE—Riveted Dipped Pipe

10,000 feet 24-inch Riveted Pipe, dipped, good as new	80c
10,000 feet 12-inch Riveted Pipe, dipped, good as new, 10-guage	35c
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10,000 feet 8-inch Riveted Pipe, dipped, good as new, 16-guage	24c
10,000 feet 6-inch Riveted Pipe, depped, good as new, 16-guage	20c
10,000 feet 4-inch Riveted Pipe, dipped, good as new, 16-guage	10c

20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.

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20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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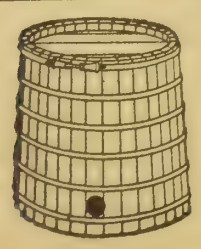

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Tanks Tanks

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Water Tanks, Wine Tanks made from carefully selected stock by careful and experienced workmen. "Tanks that are well made last a long time." It will pay you to get my prices before buying.

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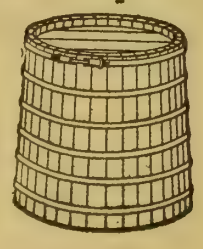

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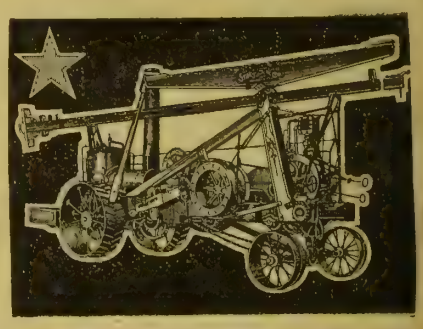

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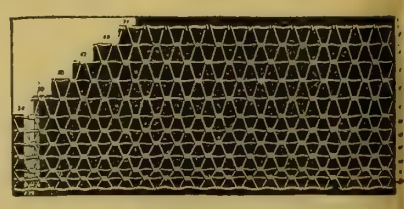

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California Cultivator

Vol. XXXVI. No. 5. LOS ANGELES: THURSDAY, FEBRUARY 2, 1911 One Dollar the Year

The Horticultural Value of a Great Institution

An Organization formed Five Years ago which has had Wide Influence for the Good of the Citrus Industry of California.—A statement from G. Harold Powell, secretary and manager of the League.

The Citrus Protective League of California is a voluntary organization, formed in March, 1906, by representatives of growers, shippers and shipping organizations in nearly all of the citrus growing localities in the State to handle the public policy questions that affect the industry as a whole. Its purpose is to represent the grower and shipper in handling such questions as, railroad rates and transportation problems; customs tariffs and other governmental relations; State and Federal legislation that applies directly to the business, and all other questions of a general nature that affect the upbuilding of the industry, except the marketing of the fruit.

The League is directed by an executive committee of nine and by a secretary and manager, the executive committee having been appointed by an administrative committee of thirty of the principal growers and shippers who act as a governing committee.

The citrus industry represents from $150,000,000 to $200,000,000 capital invested, 10,000 growers are interested in the cultivation of the fruit, 100,000 people depend on it for a livelihood, and nearly 50,000 carloads are expected to be shipped from the State during the present season. No other agricultural industry in America is so highly specialized. None is more closely tied together by common interests. None is brought more closely in contact with organized business interests from the grower to the consumer, and as a result has larger and more far-reaching general questions confronting it.

The League is supported by funds raised by general assessment based on the number of cars of fruit shipped by each member during the preceding year. Fourteen assessments were levied to December 31st, 1910, and $68,654.88 have been paid in by the members in the five years since the League was organized, of which approximately $65,000 was expended in the management of its business to December 31, 1910.

The League has played an important part in the progress of the citrus industry in the past five years. In 1907 it induced the railroads to reduce the freight rate on oranges 10c per hundred pounds, from $1.25 to $1.15. This rate became effective February 26th, 1907, since when it has saved the shipper from $28 to $30 per car. The gain to the industry from February 26th, 1907, to December 31st, 1910, from this reduction has been about $3,175,000, or about 45 times the entire cost of the League, from the date of organization to the present time.

Following the reduction in the freight rate and as a result of the succeeding agitation accompanying the refrigeration rate question, the railroads changed the refrigeration tariffs allowing 32,000 pounds of fruit to be shipped in a 40-foot car at the same rate per car for refrigeration as applied before on 27,650 pounds. This change became effective July 5, 1909. It is estimated that the value of this change to the shipper is approximately $35,000 to date, or more than half of the entire cost of the League since its organization.

In 1908 the League began a movement to prevent the duty of one cent per pound on oranges from being reduced by Congress and to secure an increase of one-half cent per pound on lemons for the purpose of covering the extra cost in labor expended on the lemon above the labor cost expended on the orange. Through the aid of the Senators and Representatives from California the League was successful in both of these efforts, the duty in the Payne-Aldrich bill standing at one cent per pound on the orange and one and one-half cents per pound on the lemon. The new tariff law became effective August 5, 1909.

"The citrus people of California are making history. You who are in close touch with this great industry, have no conception of the influence this organization and its methods has upon the people of the East and of Europe, who are watching it. My connection with the Department puts me in position to know the great number of inquiries made as to methods and successes in handling the citrus business, and which have to do with the entire industry."

The above words were spoken by G. Harold Powell, the new head of the Citrus Protective League. Mr. Powell has been drawn to this work from his important position as acting head of the Bureau of Plant Industry by a desire to be a factor in the history making which the citrus industry is engaged in. It is true that all believe Mr. Powell will be a great factor in his new field. It is not, however, entirely new, for all know of his great work under the Department in the successful campaign made to prevent decay of citrus fruits while in transit. That campaign saved millions to the citrus industry. Mr. Powell is taking hold of his new work with characteristic vigor. Facts are being gathered, while data already in the office is being systematically classified ready for use at a moment's notice. This page gives a statement by Mr. Powell as to the past work of the League, as well as its future problems.

The League made an investigation of the methods used by the Government in determining the amount of decay in imports of lemons and in refunding the duty to the importer on the same. The League determined that the Federal system gave an advantage to the importer that was detrimental to the California citrus interests. It presented the matter to the Honorable Secretary of the Treasury before whom it laid the data accumulated. A great deal of consideration has been given the question and it is expected that the Honorable Secretary of the Treasury will promulgate new regulations in the near future which will safeguard the interests of the Government and protect the California industry from further unfair competition.

Two months after Congress advanced the duty on imports of lemons from one cent to one and one-half cents a pound, the railroads, through the Transcontinental Freight Bureau, attempted to absorb part of the duty granted by Congress by advancing the rate fifteen cents per hundred pounds. The League secured a temporary injunction through the Circuit Court of the United States for the Southern District in California restraining the railroads from collecting the proposed increase in rates until a hearing was had before the Interstate Commerce Commission. An action was then brought before the Commission challenging the reasonableness of the increased rate on lemons, and at the same time the reasonableness of the rate of $1.15 per hundred pounds on oranges; the reasonableness of the charges for refrigeration and the lawfulness of the precooling charge of $30 per car were challenged.

The Commission found that the rate of $1.15 per hundred pounds on lemons was unreasonable and that the rate ought not to exceed $1.00 per hundred pounds. The railroads then secured a temporary restraining order in the Circuit Court of the United States with and for the District of Kansas preventing the Interstate Commerce Commission from making its findings effective, and the Circuit Court referred the case to the new Interstate Commerce Court, which is now being organized, for a hearing on the various points involved. In the meantime, the original injunction restraining the railroads from enforcing the $1.15 rate is in effect. Since the granting of the original injunction, the shippers who are parties to the action, have given bond, the 15 cents in dispute have been collected through the League on all shipments and is held by a surety company. The difference between the $1.00 and the $1.15 rate will be returned to the growers and shippers if the finding of the Interstate Commerce Commission is sustained by the higher tribunal. The Commission also failed to find that the present rate on oranges is unreasonable. The Commission has made a special investigation on the refrigeration and precooling charges, the arguments on the cases have been concluded and a decision on these points is expected at any time.

These cases were forced upon the growers by the action of the transportation companies in attempting to absorb a part of the customs duty which Congress plainly intended should benefit the producer. An enormous amount of testimony has been taken by the Interstate Commerce Commission and it now has before it the most comprehensive and accurate data on the problems involved in the production and distribution of the fruit, both from the standpoint of the producers and the railroads, that has ever been brought together. The railroads have been represented by the ablest legal talent in the country and the growers have been forced to protect their own interests at every step in the litigation. The final decision in these cases will have a far reaching influence financially and in other respects on the future of the citrus industry.

The League has had an important part to play in many other questions that vitally affect the citrus industry. It made it possible for the State Commissioner of Horticulture to eradicate the white fly from the State in 1909 by paying the bills as they were incurred, the State Treasury at that time having no funds with which to bear the expense. The Legislature later reimbursed the League for the money so expended.

The problems before the League at the present time are far reaching in scope. The rate cases will require attention until they are finally settled. A determined effort is being made by the importers to have Congress reduce the duties on citrus fruits. A large fund is being raised by the importers, through a tax of 5 cents per box on imported fruit to influence public opinion. The importer is seeking through newspaper and magazine articles, by the employment of special counsel and agents and in other ways common to the use of funds of this character to bring about the desired result. The League is preparing to meet the efforts of the importers. It will endeavor to safeguard the common interests of the orange and the lemon grower by every honorable means whenever the question of citrus duties is raised either by the tariff board or by Congress.

The League will use every effort to bring to the help of the grower special investigators from the State and Federal Governments to study the diseases, the insects, the soil problems, and other cultural, fruit handling and fruit transportation problems that affect the industry. It will maintain an agricultural reference library without expense to the grower and will develop a bureau of information showing the international movement of citrus fruit and other fruits that have a relation to the industry.

The League is the only organization that has been formed by an agricultural industry in America, and probably in the world, to look after the general public policy questions that affect it. It represents 90 per cent of the growers and shippers of the State. The organization is a vital part of the industry, formed to protect and advance its interests. The problems that confront 90 per cent of the industry confront the remaining 10 per cent with equal force, and it is the earnest desire of those who have organized the League, and of its members, that every shipper and grower in the State should stand shoulder to shoulder in meeting and solving their comomn problems.

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Citrus and Tropical Fruits

CHERIMOYA.

Several fruit growers in California have been successful in raising the custard apple, cherimoya, cherimoyer, or anona cherimolia, Mill. It is considered by many the finest of subtropical fruits and its extended development is expected in sections of California which are comparatively frost free. The fruit sells in the East from $9.00 to $14.00 per dozen, but in California markets usually brings from 30 to 50 cents apiece. One tree which has attracted considerable attention is that on the ranch of the Chas. F. O'Brien Co. at Beverly in the outskirts of Los Angeles. This tree is 15 years old and has large round leaves, six inches in diameter, which makes of it a most striking tree. It has a spread of 20 feet and exceeds 25 feet in height. The fruits on this tree will average 30 ounces in weight, some of them running as high as 37 ounces. It will doubtless be a valuable tree from which to reproduce others of this attractive fruit of the tropics. It is known to grow at an altitude as great as 5000 feet but succeeds best lower than that. The trees are reproduced by grafting two-year old seedlings.

ANONA CHERIMOLIA

HOW FROST IS FORMED.

The atmosphere of the earth always contains more or less moisture in an invisible form. When at a considerable elevation above the earth this moisture, or aqueous vapor, is condensed, clouds are formed; when the process of condensation is more active and the temperature of the air is above freezing, rain falls; and when the temperature of the air is below freezing, snow is produced. When the moisture of the air in immediate contact with the earth is condensed at temperatures above freezing, dew is formed; when at temperatures below freezing, frost is deposited. Frost is, therefore, the moisture of the air condensed at freezing temperatures upon plants and other objects near the surface of the earth.

In the process of frost formation the temperature of the air a few feet above the earth is commonly several degrees above freezing. The surfaces upon which frost is deposited must, however, possess freezing temperatures. The manner in which frost is deposited on plants and other objects is very similar to that in which the air moisture of a room is frozen and deposited upon window glass, the temperature of which has been reduced to freezing by the out-of-doors cold. In the case of the frost on the window glass the process is one that can readily be understood. Some explanation, however, is required of the formation of frost, which requires freezing temperature, when at times a temperature above freezing is registered a few feet above the surfaces upon which frost appears.

There are several processes by which the temperature of plants may be reduced below the temperature of the air which surrounds them. The most important of these processes is radiation, by means of which heat escapes from objects and passes into the surrounding air.

In the frost-forming process heat from the sun which is absorbed by the earth and by plants during the day is lost by radiation at night. During the day the earth both absorbs and reflects the heat received from the rays of the sun, and the lower stratum of air is warmed by this reflected heat. During the night when no direct heat is received from the sun's rays the lower air stratum receives no reflected heat, and, at the same time, heat which has been absorbed by the earth is radiated, or, in other words, it rises through the overlying air, though not necessarily and entirely as sensible heat; that is, heat perceptible to the senses. In the frost-forming process there is another very important factor in the production of cold; that is, the evaporation of moisture from the earth and from plants. The nature and composition of frost require that the air in immediate contact with the surfaces upon which frost forms shall contain moisture. This is moisture that has been stored in the earth in visible form, i. e., in the form of water, and which has escaped from the earth, not as visible moisture, but by the process of evaporation and in the form of aqueous vapor. Some part of the heat stored by the earth during the day is, therefore, lost in evaporating the moisture

contained in plants and in the earth. The heat expended in this process is not sensible, but latent. Heat is rendered latent when it is used to boil away water, and it becomes sensible or liberated heat when the water vapor again condenses into water. It appears, therefore, that the temperature of surfaces upon which frost forms, and of the air in immediate contact with them, is lowered by the evaporation of moisture from the surfaces. The influence of the process does not extend to air a few feet above the ground.

Another method by which plants lose their heat is by convection, by means of which they are chilled by contact with colder air. This process, while important in the presence of freezing air temperatures, can scarcely be considered a factor in the formation of frost proper, which is usually accomplished when temperature observations show the air to be above freezing.

Air arranges itself according to its density or weight. Air in immediate contact with the earth becomes heavier as its temperature is lowered by the radiation of heat and settles in depressions or valleys and over lowlands, causing, at times, frost in lowlying districts, while neighboring higher grounds escape the visitations.

A given quantity of heat absorbed by several substances of different specific heat will produce a different temperature in each; the lower the specific heat of the substance the higher will be its temperature; and besides, different substances have different coefficients of absorption and of reflection. Therefore under the same insolation rocks, clay, vegetation, and other substances come to temperatures that often differ by many degrees.

The air next to earth largely partakes of the temperature of the surface, and in consequence, when the sky is clear, so that incoming and outgoing radiations may progress freely, and the air is but little disturbed by wind, wide variations in the temperature of the thin stratum of lower air may occur over adjacent plots of ground of precisely the same elevation but different covering.—Farmers Bulletin No. 104.

A GAMBLE.

We have interviewed a number of growers lately as to what they were doing for frost protection in their orchards. The majority of them were just taking chances, while a few had a little lightwood scattered through their groves. This is an awful gamble, with the odds against the grower. On one hand he stands to win—what? The saving on the cost of pots that would last for at least five years. These pots cost all the way from $20 to $45 an acre, say the average is $30 and that it would cost $300 to equip a ten-acre grove, and that the cost of oil and tanks would bring it to another $100 or even $200. If the pots last five years and no oil has been used it has cost the grower an average of $100 a year, or $10 an acre and the has been protected all the time and has felt safe. He stands to lose—what? this year's work and a crop that might be worth on the trees $3000. A grower who does not protect his orchard is betting $3000 against $100 that there will be no frost and the chances are against him.—Florida Fruit & Produce News.

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LET US SEND YOU ANY OF THESE SPRAYERS—to try for 10 days, then if you buy, you can pay us cash or we'll wait till you sell your crop, then you can pay us out of the "extra profit." *We pay freight. Wholesale dealers' prices.*

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Fits any barrel or tank. Has pressure, [illegible] ball-valves, plunger, strainer, etc. Automatic [illegible] *"Rubber"* about any of our sprayers. Furnished plain, mounted on barrel, or on wheels as shown. *Two years to pay. Not cost a cent* [illegible] *in your orchard. Get one free. See about.* **Write today.**

FREE—**Get a sprayer FREE.**—After you have tried the sprayer and are satisfied that it is just as we recommend it, send us a list of the names of your neighbors and we will write them and quote them price and have them call and see your machine work, and for every Fitz-ALL Sprayer we sell from your list we will credit you with $2.00 or send you check if you have paid cash.

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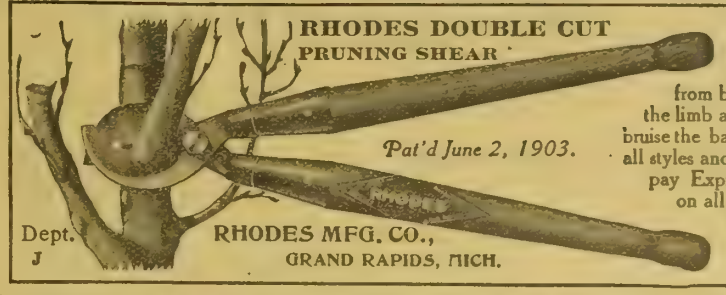
OLD MACHINERY.

Old defective machinery in a packing house is oftimes the cause of more bruising of the fruit than in the prior handling though that often is bad enough. The writer once heard G. Harold Powell of the Bureau of Plant Industry say that he had examined a lot of fruit from the grove of a certain grower as it was delivered to the packing house and found 87 per cent of clipper cuts in the lot, meaning that 87 out of every hundred oranges were punctured.

There was once a certain orange district, with only one packing house, which had a bad reputation for the keeping quality of its fruit. The climate, the soil and various other reasons were blamed. The growers were in despair. They knew they had fine oranges but they would not keep. All kinds of washes were tried without avail. Finally Mr. Powell was called in and upon looking over the plant advised them to put in new machinery. When the old overhead machinery was taken to pieces it was found that bolt and screw heads had been taking their tribute from each orange as it passed through and the reason of the decay was shown at once. Since the installation of the new machinery the fruit from this house is one of the leaders in the markets of the country.—Fruit and Produce News.

Three and one-half tons of manure adds one ton of organic matter to the soil.



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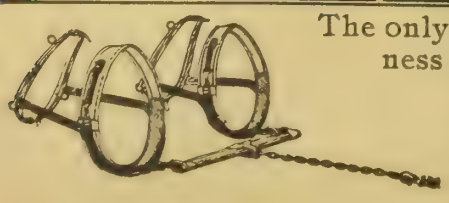

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Deciduous Bush-Tree Fruits

PREVENTING INJURY TO YOUNG TREES BY RABBITS.

Considerable loss may occur by rabbits girdling trees. Painting the trunk of trees with either of the washes mentioned in the following formulas will prevent the injury if properly done and in time.

Formula No. 1. Slake in water over night the quantity of unslaked lime needed for the work. In the morning add enough water to make a good thick wash. Stir the mixture well, and to each 2½ gallons of the wash add two tablespoonfuls of Paris green. Take care to mix well in the wash. Apply to the trunk of the tree with an ordinary paint brush; keep the wash stirred up so the ingredients will not settle to the bottom of the pail.

Formula No. 2. Slake the lime as above and stir in just before using in place of the Paris green from one-half pound to one pound of arsenate of lead to each pailful of the wash. A handful of salt added to the wash will make it stick better to the trunk of the tree. Apply this wash in the same manner as in No. 1.

Formula No. 3. Take equal parts of unslaked lime and cow manure and add enough water to make a thick wash, and apply with a brush. This makes a cheap and effective remedy to keep rabbits from gnawing young trees.

Formula No. 4. Make a wash of equal proportions of sulphur, stove soot, and unslaked lime. Put in enough water with these ingredients to make a thick paint. Apply with a brush in the ordinary manner.

It takes no extraordinary skill or practice to make and use any of the washes given in the above formulas. All the care that will be necessary will be to mix them carefully and apply in a workmanlike manner. In formulas 1 and 2, two ounces of strychnine may be added instead of the Paris green or arsenate of lead.—J. E. Mundell, New Mexico, Col. of Ag.

ENGLISH DEMAND FOR AMERICAN FRUIT.

The fruit crop this year probably will be the largest ever known in the history of the Niagara peninsula; and Niagara district fruit will be plentiful in the British market. One shipment will be a large consignment of apples and peaches. Another shipment of 675 cases of St. Catherines peaches will be sent to London, Liverpool and Glasgow. The fruit will be specially wraped in wool and will be packed in boxes.

A report was received at the Department of Agriculture, Toronto, from one of the largest commission houses in Great Britain, stating that the fruit crop there had been a failure, and figures received from all parts of the United Kingdom show that the apple-crop is the worst that has been known for many years.

The scarcity and damage are great and the crop almost a failure. The report states further that the British markets are ready to receive American and Canadian fruits when attainable. Early varieties, landing in good condition, should arrive at an exceptionally good market.

The total exports of apples from Canada in the fiscal year ending March 31, 1909, aggregated in value $2,804,282, representing 1,092,066 barrels. They all went to the United Kingdom except 19,233 barrels to the United States, 8,365 barrels to Newfoundland, 5,924 barrels to British Africa, 3,110 barrels to Cuba, and 7,069 barrels to all other parts of the world.

Canada also shipped in the same year $305,426 worth of dried apples, mostly to Holland, and $204,246 of canned or preserved fruit, almost all to Great Britain.—Counsul W. H. H. Webster, Niagara Falls, Canada.

CUTTING BACK OLD PEACHES.

After the lapse of three or four years, unless peach trees have been carefully pruned every year, they are generally of a straggling appearance, without bearing wood only at the extreme ends. This is not desirable, and with proper management need not be. However, when trees are in this condition they can be made as good as new by a good pruning when they are dormant, say toward the approach of spring. Saw them back to near the lower ends of the branches, when new shoots will follow, resulting in trees full of vigorous young shoots. When the cutting back of all that appear to require it would result in the loss of a crop the season approaching, there may be a compromise in pruning. Instead of cutting back all the limbs, take the worst only, letting the rest go until the year following. The appearance of the tree would not be as good as it would were all the limbs cut back at the same time, still the getting of fruit is of more consequence than the appearance, oftentimes. To prevent trees getting "long-legged," as gardeners call it, is easy. In summer, when the growth of shoots is being made, go over the trees, nipping off the ends of those that seem growing out of line. A pinching back of the shoots that need it causes the side buds to break the tree thus making a symmetrical tree and one from which the fruit is easily gathered. It is shaped in this way easier and quicker than when growth is let form as it will, trusting to the knife to set matters right later; and this applies to all trees as well as to peaches.—Practical Farmer.

ORCHARD WAGONS.

Don't overlook the vehicle that is to transport the fruit from the orchard to the packing house. This wagon should have low, broad wheels so arranged that they will cut under and permit a short turn. The low wagon can be driven through the orchard without rubbing the branches, fruit can be put on and unloaded without the back-breaking work that is required by the old high wheels. Bolster spring can be supplied, so that there will be no unnecessary jolting of the fruit in hauling to the packing house.

One type has a bed or platform that extends out over the wheels, and permits a larger load of fruit to be put on. See to it that there is a small strip nailed around the edge of the platform to prevent the boxes from sliding off in case there is an up or down-hill haul to the packing house.—Green's Fruit Grower.

Huntington Beach poultry raisers are planning for a poultry show.

TREES

Mr. Farmer

It's Raining

And the prospects are splendid for continued wet weather.

Perhaps you have been somewhat dubious over the weather prospects, but of course everything looks brighter to you now. Better see to your wants in trees, vines and the other things you intend to plant, and send your order along quickly. This wet weather is going to swamp us with business, and you had better take due notice and send us your order so that you can depend on getting just the stock you want to plant before the supply is exhausted.

Figs

Did it ever occur to you that of all the fruits planted there is none that will one year after another bring such sure returns as the fig orchard? Living under your own "Vine and Fig Tree" is one of the attractive similes of "California Horticultural Life." It is literally true with the fig, that the owner of this class of property has only to care for it during the winter months, for it is becoming a common practice in all the fig districts to sell the crops on the trees, while the trees are clothed in their winter garb, the buyers paying from one to two dollars per tree for the future crop, and assuming all responsibility for its maintenance, and for the harvesting of the crop. Doesn't this appeal to you, Mr. Fruit Grower?

If your land is all planted to other fruits, put in a border of fig trees; there is nothing like it for a permanent income. The failure of a fig crop in California is an unknown quantity.

We not only stand in the Lead as

headquarters for the growing of the CALIMYRNA FIG, but it is an actual fact, we have the largest stock on the Pacific Coast of Mission or California Black Figs, White Adriatic, White Endich, all of which are very profitable. We also carry numerous other varieties.

Let us figure with you

Peaches

During the season of 1909 and 1910 the Canneries here sold out their output at very remunerative prices. There has not been enough fruit to meet their demands and they are now entering into contracts on terms of ten years to guarantee a supply of fruit.

Can you afford to let an opportunity like this slip by when you can buy Peach Trees at lower prices than they have been offered for in past years? The stock we are offering for sale this season is not only more complete than it has ever been before, but our trees are better; have a fine root system simply because of the care we have exercised in growing them on selected soils, adapted to their most perfect development.

NO MATTER HOW SMALL OR LARGE YOUR ORDER MAY BE, IT WILL BE A PLEASURE FOR US TO FIGURE ON IT.

Illustrated Annual Price Catalogue

Just the book you have been looking for, because it briefly tells what the various fruits, as well as ornamental stock is like, and then gives you prices for them. Just drop a line today and secure this book, and begin lining up your order.

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Box 12 Fresno, California, USA

Popularity of Deciduous Fruit Varieties

The question of value of any variety of fruit for any section is best answered by trial of that fruit in the section. California has such diverse conditions, often but a few miles apart, that "a favorite in California" might yet be a complete failure in a particular locality of the state. However the general consideration of values may be profitable. The following list shows the estimate in which certain varieties are held by California growers and California nurserymen. by growers in Oregon, Washington, Utah and Idaho.

The list was originally compiled by Prof. E. J. Wickson, dean of the Agricultural College.

This list is valuable only in a general way and chiefly for the light it throws upon the trade in trees, although it will be found to have clear indications of important pomological inquiries to be subsequently taken up as to why certain varieties are high in one place and low in another. Some cases of this kind are easily explained, such as the precedence of American grapes over the vinifera varieties in the northern portions of the Coast, but even these vinifera varieties have a place, because some localities favor them. A more puzzling proposition is the popularity of the Moorpark apricot at the north. This variety stands even lower in California than the tables indicate, because of shy bearing; but in some interior regions at the north it is said to be more trustworthy, which may be explained by climatic conditions which give it more definite periods of dormancy and growth. This is a matter which is as yet purely conjectural and needs to be inquired into. There are many other similar studies to be made of the behavior of varieties of all fruits, both from cultural and commercial points of view.

	California Growers	Cal. Nurseries	Oregon	Washington	Utah and Idaho
APPLES	Newtown Pippin	Newtown Pippin	Newtown Pippin	E. Spitzenberg	Gano
	Bellflower	Bellflower	Jonathan	Newtown Pippin	Jonathan
	W. W. Pearmain	Red Astracan	Gravenstein	Gravenstein	Rome Beauty
	Gravenstein	W. W. Pearmain	E. Spitzenberg	Baldwin	Yel. Transparent
	R. Astracan	Gravenstein	W. W. Pearmain	Jonathan	Ben Davis
	R. I. Greening	R. I. Greening	Red Astracan	King	Winesap
	E. Spitzenberg	Red June	Ark. Black	Rome Beauty	W. W. Pearmain
	Mo. Pippin	Jonathan	Rome Beauty	Oldenberg	Newtown Pippin
	W. Astracan	E. Spitzenberg	Winesap	Yel. Transparent	Ark. Black
	Red June	Ben Davis	Wagener	Wealthy	Wealthy
APRICOTS	Royal	Royal	Royal	Royal	Moorpark
	Blenheim	Blenheim	Moorpark	Moorpark	Royal
	Moorpark	Hemskirk	Tilton	Blenheim	Blenheim
	Hemskirk	Tilton	Blenheim	Hemskirk	Hemskirk
	Peach	Moorpark	Peach		Peach
	Newcastle	Newcastle	Hemskirk		Acme
	Tilton	Peach	Newcastle		
CHERRIES	Royal Ann	Black Tartarian	Bing	Royal Ann	Royal Ann
	Black Tartarian	Royal Ann	Lambert	Bing	May Duke
	Black Republican	Bing	Royal Ann	Lambert	Early Richmond
	Rockport	Black Republican	Purple Guigne	Black Tartarian	Black Tartarian
	Bing	Early Richmond	May Duke	Black Republican	Black Republican
	Chapman	Chapman	Black Tartarian	May Duke	Bing
	Purple Guigne	Gov. Wood	Black Republican	Early Richmond	Lambert
	May Duke	Rockport	Gov. Wood	Centennial	Eng. Morello
	Centennial	May Duke	Centennial	Eng Morello	Windsor
	Black Bigarreau	Lambert	Chapman	Late Duke	Montmorency
	Lambert	Knight's Early	Knight's Early	Gov. Wood	Gov. Wood
GRAPES	Muscat	Muscat	Concord	Niagara	Concord
	Tokay	Tokay	Delaware	Concord	Muscat
	Cornichon	Cornichen	Niagara	Delaware	Tokay
	Thompson	Emperor	Muscat	Moore's Early	Black Prince
	Emperor	Malaga	Tokay	Muscat	Niagara
	Malaga	Rose of Peru	Black Hamburg	Tokay	Black Hamburg
	Rose of Peru	Sultana	Black Morocco	Malaga	Rose of Peru
	Zinfandel	Zinfandel	Isabella	Rose of Peru	Sweet Water
	Black Morocco	Mission	Campbell's Early	Sweet Water	Black Ferrara
	Sweet Water	Thompson	Rose of Peru	Campbell's Early	Campbell's Early
	Verdal	Black Morocco	Worden	Agawam	Delaware
	Carignane	Mataro	Moore's Diamond	Black Hamburg	Rogers
	Black Prince	Black Hamburg	Moore's Early	Moore's Diamond	Moore's Early
	Alicante	Sweet Water	Agawam	.....	Worden
	Sultana	Black Prince	Black Prince	.....	.....
PEACHES	Muir	Muir	Elberta	Elberta	Elberta
	Phillips	Phillips	Muir	Early Crawford	Foster
	Salway	Tuskena	Salway	Muir	Early Crawford
	Lovell	Lovell	Early Crawford	Phillips	Late Crawford
	Early Crawford	Elberta	Late Crawford	Alexander	Orange Cling
	Tuskena	Foster	Foster	Hales	Triumph
	Foster	Early Crawford	Alexander	Triumph	Utah Orange
	Elberta	Salway	Triumph	Foster	Globe
	Late Crawford	Orange Cling	Susquehanna	Tuskena	Alexander
	Orange Cling	Late Crawford	Phillips	Late Crawford	Muir
	Susquehanna	Heath	Mary's Choice	Susquehanna	Salway
	Nichols	Alexander	Heath	Sellers	Sellers
	Sellers	Sellers	Wheatland	Heath	St. Johns
	Lemon	Hales	Lovell	California Cling	Hales Early
	St. Johns	Susquehanna	Orange Cling	Briggs' May	Heath
	Henrietta	Nichols	Lemon Cling	Charlotte	Wheatland
	Mary's Choice	St. Johns	California Cling		Chair's Choice
	Hales	Triumph	Globe		Carman
	Alexander	Wheatland	Tuskena		Willett
	Heath	Strawberry	St. Johns		China Cling
PEARS	Bartlett	Bartlett	Bartlett	Bartlett	Bartlett
	Winter Nelis	Winter Nelis	D'Anjou	Winter Nelis	Seckel
	Seckel	Seckel	Winter Nelis	Clapp's Favorite	Barry
	Easter	Winter Bartlett	Flemish	B. Hardy	D' Anjou
	Du Comice	Easter	Du Comice	Winter Bartlett	Winter Nelis
	Doyenne D'Ete	Barry	Seckel	Seckel	Keiffer
	Clapp's Favorite	Du Comice	Easter	Easter	Flemish
	Glout Morceau	B. Hardy	Clapp's Favorite	Clairgeau	Easter
	Barry	Madeline	Winter Bartlett	Flemish	Du Comice
	Comet	Clapp's Favorite	Clairgeau	Keiffer	Clapp's Favorite
PLUMS	Wickson	Wickson	Peach	Bradshaw	Hungarian
	Hungarian	Burbank	Bradshaw	Peach	Yellow Egg
	Kelsey	Hungarian	Green Gage	Hungarian	Satsuma
	Yellow Egg	Kelsey	Cherry	Yellow Egg	Peach
	Tragedy	Climax	Yellow Egg	Washington	Bradshaw
	Washington	Green Gage	Burbank	Coe's Golden	Burbank
	Satsuma	Yellow Egg	Coe's Golden	Burbank	Wickson
	Burbank	Satsuma	Blue Damson	Green Gage	Jefferson
	Jefferson	Tragedy	Hungarian	Columbia	Grand Duke
	Climax	Blue Damson	Wickson	Climax	Coe's Golden
	Grand Duke	Jefferson	Maynard	Duane	Blue Damson
	Clyman	Washington	Washington		Green Gage
PRUNES	French	French	Italian	Italian	Italian
	Imperial	Sugar	French	French	German
	Sugar	Imperial	Sugar	Sugar	Silver
	Giant	Robe de Sergeant	Silver	Silver	French
	Robe de Sergeant	Silver	Imperial	Imperial	Sugar
	German	German	Giant	Giant	Giant
	Silver	Italian	German	German	
	Splendor	Giant	Splendor	Tennant	

Citrus Fruits.

In citrus fruits in California and Arizona, especially Southern California, the two leaders are the Washington Navel and Valencia, followed by the Thomson's Improved and the Mediterranean Sweet and St. Michaels. Commercially, the first two are far in the lead. In lemons, the Eureka stands first, with the Villa Franca and Lisbon contending for second place. The Mexican is the only lime grown in any appreciable quantity. In pomelos Marsh's Seedless stands first, closely followed by the Triumph and Imperial.

TREES

Walnuts

Perhaps you have never realized that for a permanent investment, there is nothing in the nut line more profitable than walnuts. Our supply includes all the leading types of California and French origin, in seedling trees, and also grafted trees on California Black Walnut root.

Pecans

For the great interior valleys—on damp alluvial lands, the PECAN undoubtedly holds the premium as a money-maker. The trees are not only beautiful ornamentals, strong growers, heavy producers, but they are also very profitable, the Paper-shell Pecans bringing no less than forty to fifty cents per pound. We grow an immense stock not only of the best seedling varieties, but also of the budded sorts like Stuart, Frotscner, Success. PLACE YOUR ORDER NOW BEFORE THE SUPPLY OF TREES IS EXHAUSTED.

True to Name

It is a great advantage to be able to get home-grown trees and vines, from a reliable concern, who use the greatest care and save no expense to supply their customers only healthy, clean stock "TRUE TO NAME." We have had wide experience in this business and thousands of satisfied customers all over the west can testify to our record for square dealing and superior stock.

Burbank Trees

Some of those new plums are without question the finest for table and shipping ever introduced. We cannot say too much in praise of the SANTA ROSA PLUM, and as to the FORMOSA, we are so enthusiastic over the future of this great plum, that it is no exaggeration to say it is not only a great grower, a wonderful producer, but it has fine size, exquisite cherry red color, most excellent flavor and aroma, as well as being a good keeper and shipper. Of all the plums in the market today, it stands out pre-eminently as the Drum Major.

You cannot afford, even if your space is limited, to miss this chance of securing a few of these trees at the exceptionally low prices we are offering them at this season. The New "STANDARD PRUNE" surpasses any drying prune we have ever seen, and unquestionably will rank in the lead of all varieties.

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To all practical fruit growers and horticulturists, our book, "CALIFORNIA HORTICULTURE—THE FRUIT GROWERS' GUIDE," is most valuable, containing concise and definite data for planting, pruning and care of stock, and in addition, describing the assortment of some two thousand varieties of trees and plants we handle. The price is only 25c postpaid, but worth many times this price in its wealth of Common Sense Information. To anyone referring to the name and date of this publication we agree to send a copy of this book without charge.

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E. H. LEARNED ***R. F. D. No. 5, Los Angeles***

Grower of Strawberry Plants only, and only the best.

Garden and Field Crops

PLANTING POTATOES.

The natural home of the potato is the mountain valleys of South America. Where natural conditions are favorable for the growth of a plant, there it will reach the highest degree of perfection.

Preparation of the Soil.

In providing a suitable soil for potatoes, the question naturally arises, How shall we perfect and husband fertility? Live stock is the real basis of success in every agricultural district of the world. The feeding of grains and grasses on the farm replaces in the soil the vegetable matter which produces the humus and furnishes the nitrogen that keeps up the fertility of the soil. In the mountain country, where water is a prime requisite, it should be remembered that there is no better storage for water in the soil than decayed vegetable matter, and if one grows grain crops and ships them off every year, his land will become less porous and harder to work, and fungous diseases will find more readily a lodgment there. It is utterly impossible to grow good potatoes without an open, porous soil.

Nothing but the legumes—alfalfa or clover—should be used as a foundation crop.

Planting.

The writer plants the potatoes about two or two and one-half inches below the surface of the soil. Experiments with potatoes planted in rows all the way from thirty-six to forty-two inches apart indicate that the best distance depends upon the seasonal conditions and type of soil; it is a problem for each grower to solve for himself. The distance apart the potatoes should be planted in the row also depends so much upon the variety, the fertility of the soil, the availability of water, etc., that each farmer must determine this from his own experience. I plant them eight inches apart in rows thirty-six inches apart. This gives the largest tonnage of potatoes of desir able size.

Cutting Seed; Planting Whole.

The writer's experience has been that seed of large size (two to six ounce) produce strong, vigorous shoots, as they furnish an ample supply of plant food to sustain a strong and vigorous growth until the feeder roots can take up the food from the soil. An insufficient supply of plant food in the seed may cause the plant to become stunted before the root system becomes so developed that it can take up the plant food from the soil.

During the last two years the best results were obtained from planting medium-sized whole seed. While the cost of the seed has been considerably greater, the stand has been approximately perfect. Experience has proven that from one or two eyes only are sprouts developed in uncut seed. The seed end furnishes a strong vine; the other eyes usually remain dormant.

One of the greatest advantages of using whole seed is the protection from disease which may be present in the soil and which may attack the more tender exposed parts of the cut seed. The potato grower can ill afford to grow a crop of potatoes and lose from 20 to 40 per cent of a stand on account of using poor seed, or improperly cut seed, or seed of weak vitality. It is a matter of vital importance to get the plants started into strong, vigorous growth in order that they may better withstand adverse conditions later in the season.—Farmers Bulletin 386.

IRRIGATION OF POTATOES.

Generally speaking, irrigation water is cold, and it is highly important not to irrigate too frequently, since the water not only causes the soil to run together, but lowers the temperature to a point that is not favorable to the growth of potatoes. Irrigation water is applied only when the condition of the plants indicates that they are in need of water, as by darkening of the foliage. Or one may dig down in the hill and press a handful of soil in the hand; if it fails to retain its form, irrigation is needed. Care should be taken not to wait until the ground is too dry, because one cannot cover the whole field of potatoes in one day's irrigation, and some are likely to suffer for water before being reached. The writer's experience is that if potatoes are grown as rapidly as possible, so as to become strong and well established early in the season, they withstand the maximum of unfavorable weather conditions later on, when the hot, dry winds become a menace to the crop.

When the time for irrigation arrives, a V-shaped trench half-way between the rows should be opened in alternate middles, with an eight or ten-inch list plow; that is, a narrow plow with a double moldboard which throws the dirt each way. In these furrows the irrigation water is run so that the soil will not become solidified by flooding, and the necessary amount of water may be properly distributed. For the second irrigation furrows are opened in the middles that were not opened at the first irrigation, and this alternation is continued for succeeding irrigations. At the head of each field is a feeder ditch from which the water is admitted to these irrigation furrows between the rows. It is essential that the right quantity of water be used, and that it be uniformly distributed. Cultivation should commence as soon after irrigation as the soil will permit, so as to insure rapid and uniform growth without check. This will not only result in the production of smooth, uniform tubers of attractive appearance, which are always in demand at high prices, but will also result in large, profitable yields and at the same time keep the soil in good mechanical condition for future crops.

If great care and scientific methods are necessary for best results in the production of market potatoes, they are tenfold more important in growing seed stock for next year's planting. Uniform growth of tubers for seed purposes, without check in development, produces a seed potato of higher vitality than tubers of uneven growth; and the clean, smooth tuber with tough skin, free from clinging soil or dirt, keeps better and is freer from disease germs during the long season before next year's planting.—Farmers Bulletin 386.

Two tablespoonsful of molasses will help a spice cake to keep moist much longer. It should also be used in fruit cake, whether the recipe calls for it or not. Shutting it up in a tight tin box before it is quite cold will also keep a coffee or spice cake moist until it can be entirely used.

BULBS

for Fall and Winter planting

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Now is the time to sow **Pansy, Stock** and **Christmas Flowering Sweet Peas.**

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10 in. long, 7 in.wide	$ 9.50
12 in. long, 7 in.wide	10.50
14 in. long, 7 in.wide	11.50
16 in. long, 7 in.wide	13.00
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24 in. long, 7 in.wide	17.00
30 in. long, 7 in.wide	20.00

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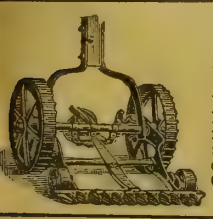

THE CLIPPER
Will cut tall grass and weeds and do all the trimming along the walks and drives. Your dealer should have them—if he has not drop us a line and we will send circulars and prices.
Clipper Lawn Mower Co
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"The Best Blood Plum Yet Produced." Write for descriptive circular.

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ORNAMENTAL TREES AND ROSES,

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Placentia Perfection Walnuts
Grafted on California Black
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Home Grounds Beautiful

DISCOVERING A NEW CROP.

In Harper's for February, Professor Robert Kennedy Duncan tells how the great camphor industry has been recently revolutionized by a simple discovery. Heretofore the camphor had been extracted from the wood of the tree and its branches, thereby destroying the tree. Dr. Duncan, after visiting Jamaica, found a new method by which the tree is preserved and an annual crop guaranteed.

"In order to solve these questions I brought back with me to the University of Kansas nearly a ton of material, which we worked up to the last ounce. We extracted the best of the camphor and the oil of camphor from the wood of the trunk, from the branches, the twigs, the green leaves, the dry leaves, and the dead leaves, and we obtained results which afforded us profound astonishment and great joy. We thought we had made a great discovery, and as a matter of fact we had, though, unfortunately for us, these results had just been anticipated by the work of Messrs. Campbell and Eaton in Malaya, and by the director of the Biological Station at Amani, East Africa. Since, however, our results absolutely confirm the work of these gentlemen, and since they are so important to the whole great camphor-growing industry, I give them here. As a matter of fact, and speaking in averages, our results analyzed out as follows:

Wood	0.61% crude camphor
Twigs	1.05% crude camphor
Green leaves	2.37% crude camphor
Dried leaves	2.52% crude camphor
Dead leaves	1.39% crude camphor

"These results are extraordinarily high, owing partly to the fact that the material had undergone a considerable amount of drying in its long transport from Jamaica to Kansas, and partly, too, I believe, to the ideal conditions that obtained in Jamaica for the growth of essential oils. But it is the proportional amounts to which I draw attention. The wood of the camphor tree contains an insignificant fraction of the camphor contained in the green, dry and dead leaves. This is to be correlated with the indisputable facts, as proved by Mr. Malcolm of Jamaica and others the world over, that the leaves can be harvested regularly without any injury to the tree. These two facts, taken together, place both the huge camphor monopoly of Japan and its synthetic manufacture in Germany and elsewhere in a position that would be laughable were it not rather pitiful. Both types of organization proceeded on the assumption that the centuries-old traditional method of extraction was the only one. In order to continue it, the Japanese felled only trees fifty years old and extracted the drug from the wood only, leaving the leaves out of consideration. In order to carry out this destructive work, they ran deadly electric wires through the forests to keep out the savages, they placed armed men with every camp of camphor workers, and they paid these workers ninety cents a day for a native Formosan and $1.99 a day for a Japanese. The price of labor in Jamaica is a shilling a day for a Japanese. Now, as a matter of fact, in a five-year-old tree the mass of its leaves weighs 7.05 per cent of the total bulk of the tree. The proper method, therefore, without destruction of the tree, is to regularly harvest its leaves for their excessively large camphor content; costly expeditions into savage interiors and the total destruction of mature trees are wholly unnecessary."

THE COMPOST PILE.

Now is the time of year when the air is redolent with disagreeable odors and at times almost suffocating with smoke from burning leaves and rubbish in the streets and alleys near village and suburban homes. While this desire for neatness of surroundings is commendable the result may be accomplished with less time and labor and without the accompanying offensive smoke. There can also be secured a large amount of fertility for the gardens which should not be wasted. We highly esteem leaf mold and wood's earth from the forests, yet leaves and other surplus vegetation are but the material from which leaf mold is formed. An out of the way corner of the garden should be chosen where the leaves may be piled in a broad flat heap and held in place with a sprinkling of earth until the dampness of fall rains keeps them from blowing away.

A convenient receptacle for holding the leaves while being carried from the raking pile to the compost heap may be made from an ordinary bran sack such as can be purchased for a few cents at the seed stores. Cut the seams and spread the sheet of burlap on the ground and tack or sew a lath at each end. Better than laths, because stronger, are strips of hard wood or straight short poles from the woods. At the center of one end fasten a piece of rope and make a hole in the fabric next the middle of the other end. Place your carrier near the leaf pile, heap on it a sufficient quantity of leaves, then double the carrier around the leaf pile and secure the ends together with the rope. A grown person can carry all such a receptacle will hold or two children will find it light enough to handle.

Mighty stalks of cosmos, dahlias or other plants may be placed on top to keep the leaves from blowing away and add to the store of fertility. If it is convenient to pour house slops on the compost pile they will promote decay and add to the store of plant food. Soot from the stove pipe, feathers from dressing fowls, lawn clippings, surplus weeds from the garden, all should be given the pile in the summer to promote decay. If hot beds are in order on the place the spent heating material is another source of fertility for the home garden. And it would be worth while to have a hot bed because of the increased fertility made available where an ordinary manure pile would be considered a nuisance.

Because of the slower decay of the compost pile means of fertility are made available when the quickly heating manure pile could not be permitted.—Wisconsin Agriculturist.

Apples have been found to keep better if well colored and ripened, though not over-ripe. Picking should not be delayed till this fruit commences to fall.

Do not sell all the best. If anyone is entitled to the best fruit produced on the farm it is the home family.

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3,000,000 Eucalyptus for immediate planting.

Deciduous and Citrus Trees in quantity.

Write us your wants and we will quote you prices. Descriptive catalogue free on application.

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over 20 styles, hand and power. They will make your 1911 fruit crop better and larger. Order from your dealer, or write us now. Pumps for all uses.
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We want you to try our Prize Seeds this year and have selected 50 best varieties and put up 10,000 seeds especially to grow Prize Vegetables and Flowers. They will produce more than $25. worth of Vegetables and 10 bushels of Flowers.

800	Seeds	Cabbage	3	Best Varieties	3 pkts.
2,600	"	Lettuce	4	" "	4 "
800	"	Onion	2	" "	2 "
1,000	"	Radish	4	" "	4 "
300	"	Tomato	3	" "	3 "
2,000	"	Turnip	4	" "	4 "
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EUCALYPTUS

Large, well rooted plants; best varieties; some with balled roots for distant shipment. Price moderate.

Large lots grown by contract.
Circular Free.

HENRY SHAW

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The best that 40 years experience can produce, being grown slowly, in the cool atmosphere of the coast, are more hardy and more vigorous than those grown in the hot interior of the State.

Correspondence Invited.

W. A. T. STRATTON, Petaluma, Cal.

SUPPLY OF COTTON.

Census Bulletin 110 on the supply and distribution of cotton in the United States for the year ending August 31, 1910, will be issued in the near future by Census Director Durand. The statistics were collected and compiled under the supervision of Mr. William M. Steuart, chief statistician for manufacturers, assisted by Mr. Daniel C. Roper, expert special agent.

This annual bulletin forms the complement to the report on production, compiled from the returns of the ginners. It is the sixth of the series, and completes the statistics collected by the bureau relative to the cotton crop of 1909.

The supply of cotton in the United States for the year ending August 31, 1910, was 12,188,021 bales, a decrease of 20 per cent under the previous year, when the supply amounted to 15,312,885 bales. This decline apparently measures the difference between an adequate supply and one insufficient for the normal demand. The loss of 3,124,864 bales in the supply of cotton for 1910 is practically equal to the difference between the 1909 and 1908 cotton crops of the United States. Although the production of cotton in India last year was about 650,000 bales in excess of that of the previous year, nearly all of this increase was required to offset the loss in the crops of Egypt and of other foreign countries.

The Importation of Cotton.

The total quantity of cotton imported into the United States during the year ending August 31, 1910, amounted to 172,075 bales of 500 pounds each. Of this cotton the equivalent of 20,680 bales of 500 pounds each was re-exported, leaving in the country 151,395 bales, valued at about $15,500,000. This is an unimportant decrease in quantity of 14,056 bales compared with the number in 1909, and it is more than accounted for by the loss in the imports of Egyptian cotton.

Nearly all the cotton imported is Egyptian, used largely in the manufacture of thread, knit goods, and machine lace; and Peruvian, which is used as a substitute for wool in the manufacture of woolen goods. Recently a number of manufacturers have been experimenting with Chinese cotton in the manufacture of upholstering materials and in some instances in the manufacture of knit underwear. The direct importations from China for the cotton year 1910 amounted to 7,129 bales and the direct importations of Indian cotton, used, among other purposes, for mixing with the American fiber in the manufacture of cheaper grades of goods, amounted to 8,756 bales of 500 pounds each, a very large increase over any previous year.

Distribution of Cotton Supply.

Of the total supply of cotton for 1910, 4,808,953 bales, or 39 per cent, including that destroyed by fire, were consumed in this country; 6,339,028 bales, or 52 per cent, were exported, while 1,040,040 bales, or 9 per cent, remained in the country at the close of the year. Of the supply for the preceding year 34 per cent was consumed at home, 56 per cent was exported, and 10 per cent remained in this country.

The total consumption of cotton in the United States for the year covered by the report, including that destroyed by fire, was 446,323 bales less than during the year ending August 31, 1909.

The exports during the year were 2,234,996 bales less than for the previous year and were the smallest for any one of the last five years.

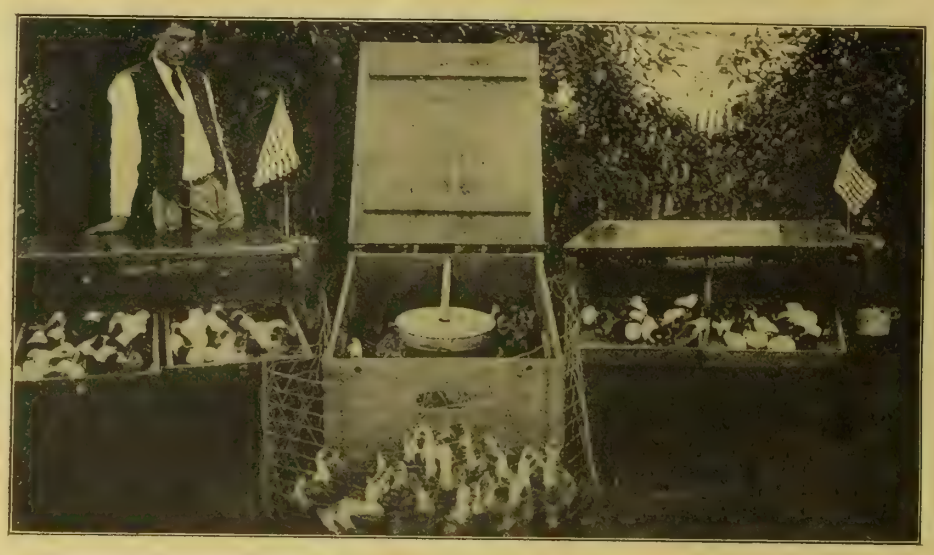
The stocks of cotton in this country at the close of August 31, 1910, amounted to only 1,040,040 bales, compared with 1,483,585 bales on the corresponding date of the preceding year. Those held by manufacturers in the cotton-growing states at the end of the year were 35 per cent less than in 1909, and by manufacturers in all other states, 43 per cent less. The quantity of stocks, 533,232 bales, held by all the manufacturers on August 31, 1910, was the smallest for any of the last five years and represents less than six weeks' supply for the American cotton mills operating under normal conditions.

The report states it is evident that the tendency in the United States is to employ ring rather than mule spindles, the latter forming but 17 per cent of the total number in 1910, as compared with 23 per cent in 1905, 29 per cent in 1900, and 38 per cent in 1890. About 77 per cent of all the mule spindles are in the New England states and most of the others are in New York and New Jersey.

The quantity of cotton consumed during the year ending August 31, 1910, was 4,798,953 bales, compared with 5,240,719 bales in 1909, a decrease of 441,766 bales, or 8 per cent. The average weekly consumption of cotton in the United States in 1910 amounted to about 92,000 bales, compared with 108,000 in 1909, 97,000 in 1908 and 96,000 in 1907.

This is a photo of Victor Smith, of Creswell, Oregon, and his two "Success" Incubators, and brooder. Note the nursery full of chicks, brooder full of three-weeks-old turkeys, brooder yard full of month-old Indian Runner ducklings. Success Incubators will hatch all kinds of eggs. No guesswork.

(Since this picture Mr. Smith moved to Santa Cruz, Cal., 16 Towne avenue.)



This man hatched 2,415 chicks between December 1, 1909, and July 1, 1910.

Mr. McClanahan. Creswell, Oregon, July 11, 1910.

Dear Sir: With these two machines I hatched 2,415 strong, lively chicks between December 1, 1909, and July 1, 1910. After giving your machines a thorough test alongside of other incubators, I am satisfied that the Success machine is one of the best hatchers on the market today. I will probably place an order for six more of the large machines for this coming year. Our hatches averaged well every month, which shows your machine can be depended on at any time of the year. The brooder has proven satisfactory in every way.

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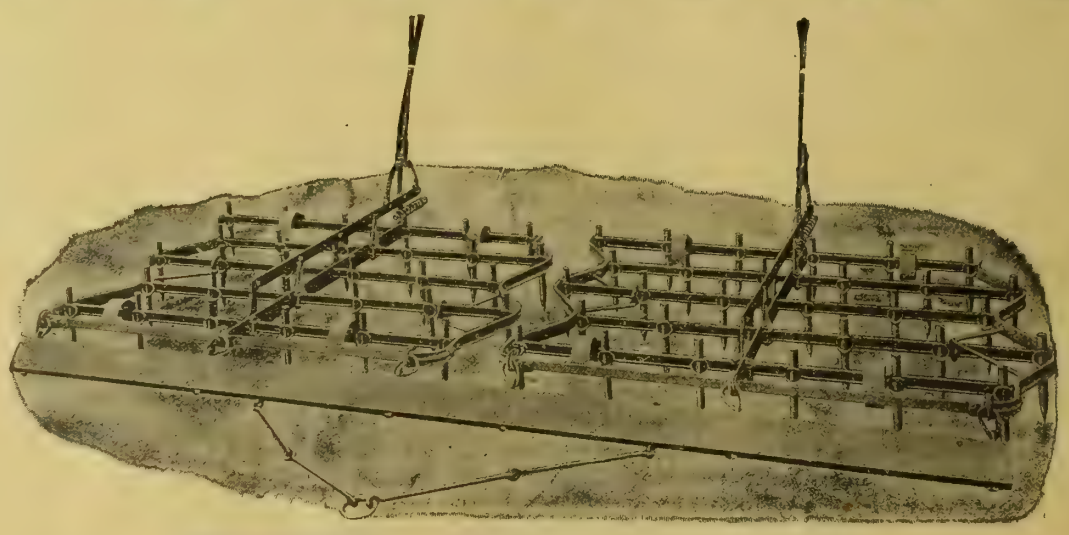
HARROWS



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No. 3 Sunshine Drag Harrows are strong, staunch, and reliable.

The teeth are fastened by wide mouth clips to special heavy rolled U Bars.

Strain and consequent wear are almost wholly removed from the frame by a steel strap across the front of each section, and a strap connected to the draw bar which runs from front to rear of each section, and through which each U bar runs. Two half-inch wrought iron—not malleable—braces are used on each section. The teeth may be set at eighteen different angles, sufficient for every kind of work. The Strap Ratchets and Lever connections are very strong.

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Remember that some harrows are poorly constructed—not necessarily cheap—and are a source of endless trouble.

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Implements——Wagons——Spring Vehicles

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Live Stock and Dairy

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MIXED RANCHING.

By Mrs. M. E. Sherman.

When one stays at home constantly he loses sight of the wonderful development by the new settler going on in all parts of California. Everywhere the country is coming under cultivation, almost by magic, it seems. One year a grain field of uncultivated land, the next year a few shacks appear, and in five years the palms are growing, the orchards are there, with alfalfa, and, best of all, the pretty cottage home, and near by the stately school house. The school houses in many of the tiny towns are fine structures of brick, concrete or stone, with considerable architectural beauty. The interest in dairying and swine raising is intense among the newer arrivals. They feel that cows and hogs are something they understand better than the California ways of growing fruits. It shows conservative wisdom to follow the known lines in securing a living. These men often say to me: "I know I can make a living at that, and next year I will plant an orchard, for then I will have had time to understand better what to do with it." On the last run of the demonstration train we went to Colfax and the intervening towns, then to Placerville, and then to Milton, and then down the San Joaquin valley as far as Merced, stopping at the smaller places between these main points.

After the crowds going through the train had passed, there were always a few that lingered to talk live stock. It is often amusing to see the disgust of some of the Cultivator readers when they find I am a horticulturalist and viticulturist instead of a live stock demonstrator on the train. It seems to be a California idea of ranching that one must grow only one thing, instead of having a ranch of varied industries. The three hundred acres of vineyards and the olive orchards are as important financially to the ranch as the cows, horses and pigs. The ranch is balanced, and something is always paying good returns. The products of vineyards and orchards are gradually being renewed as the older plantings grow less productive, by planting the alfalfa lands to trees and vines. The land in trees and vines for twenty-five years is being turned gradually into alfalfa fields. It is a rotation, a very long one, that is in use on the older ranches. Thirty acres of vines, twenty acres of trees and fifty arces of alfalfa will make the new planting this season. After the fourth year the orchard and vineyard will become profitable, while the alfalfa is profitable the first season.

The cows and horses follow the law of nature to multiply and increase their kind. This season the forty cows have raised forty-five calves from December 1, 1909, to December 1, 1910. There are few years in which they do not do as well. Ten sows last spring gave eighty-six pigs that reached a hundred or more pounds in weight before being sold. Fifteen sows this fall have dropped one hundred and twenty-three pigs, now weighing from forty to sixty pounds each. These increases are not given as anything wonderful, but to show what results of healthy stock, raised out of doors with sufficient food, will do on the regular ranch. One mistake that ranchers all make is not feeding regularly. If feed is scarce, always sell the stock, and give to those retained enough to keep them growing. Do not try to stretch the feed to keep a larger number merely alive. In the first place, it is cruel to have animals having less food than they need. In the second place, it is not economical to stunt an animal, particularly a young one, for it never fully recovers, even with additional feeding and care, the growth lost before maturity.

In mixed farming there are no seasons of rest. The raisin growers go for a month to the seaside, while the dairyman must stay with the cows. The green grape grower has a long rest between the time of Malaga shipping and the late Emperor season. Yet the live stock belongs with the orchard and vineyard as a source of fertility. The orchard trees are stronger and the crops heavier when well fertilized. The bills for grain to feed the live stock take the place of the bills for commercial fertilizers. The need of humus is met in a measure by the strawy manure, while the nitrogen is at once available in the liquid secretions that are carefully saved for the land. The manure spread in the orchards during the summer starts into growth from the seeds in it at the first rains. If a few pounds of burr clover or of common field peas are mixed in with every load, a great mass of green is grown without any cost of sowing. This humus is needed in all the soils even more than all else—for, as Dr. Shaw says, "it is the minus quantity."

In selling butter fat from the cows one is not selling the fertility of the soil as he does when he sells hay or milk. The feeding of hay at home to cattle increases the manure available very greatly. The corrals can be scraped and regraveled or sanded cheaply. The scrapings go out to the fields as readily available plant food. The man at the head of the dairy is, after all, the important person in determining the actual success or failure of the cows as butter makers. Careful handling and plentiful feeding make it possible to develop all there is in a cow as a butter producer. The people are slow to grasp the idea that the best bred cows as butter producers are as surely man-made as an automobile. The constant selecting of the best cows ages ago resulted in the formation of different breeds. Then man got busy and said, "Let us make herd books." These herd books took in the cows of one country, usually those that had made so much butter or given so much milk. Then, after ten years, only cows that had dams and sires in the herd book were eligible for registration. Then certain forms and markings were considered as desirable. After a time, within the breeds, grew up certain strains that were considered superior. Then came the testing of the cows as butter makers, first at fairs, then by owners, and finally by the officials of the experiment stations making what have been known as official tests. These tests are recorded in the society and

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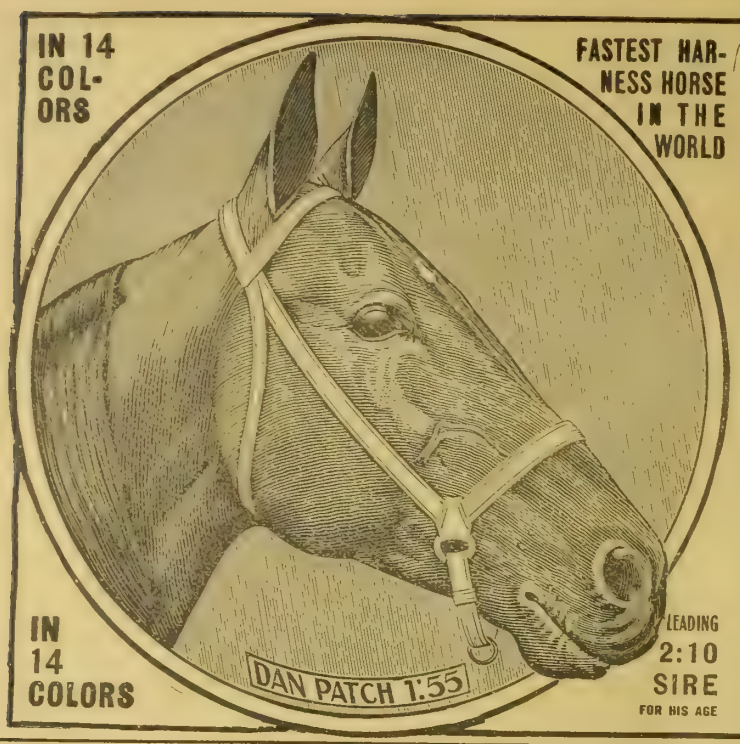

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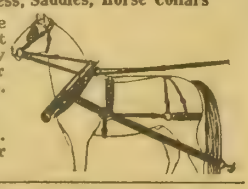

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association herd books, and are now the standard of performance. Like tuberculin testing, they are soon likely to become almost imperative in the securing of good prices for cattle.—M. E. Sherman.

BEEF CLUBS.

By Charles Dillon, Kansas State Agricultural College.

The farmers of Kansas, one of the first live stock states in the Union, buy from the butcher shops, annually, from three and one-half million to seven million dollars worth of meat. They produce this meat themselves. It consists, chiefly, of breakfast bacon, ham, salt pork and fresh beef. These meats will retail at from 35 to 40 per cent more than they cost wholesale at the packing houses, if the figures of Secretary Wilson are correct. It is safe to say that, allowing for transportation from the farm to the packing house, the killing, selling, etc., these meats, when returned to the farmer through the retailer, are bought by him at an increase of at least 50 per cent.

In doing this they contribute to the profits of the other man one-half the value of the stuff they themselves produce.

Beef Clubs Needed.

The foregoing somewhat startling facts were part of a carefully prepared address delivered a few days ago by Henry J. Waters, president of the Kansas State Agricultural College, speaking to the Improved Live Stock Breeders Association at Topeka. The title of this address was "The American Farmer as a Meat Packer." President Waters told the interesting answers from a series of questions he had sent to all the farmers in Kansas, in every one of its 105 counties. The replies came from 97 counties.

Summarized, they show that very few farmers cure all the meat that can be cured for their use; that there is very little co-operation in killing, as might be the case if beef clubs were organized. It is the common practice, these statistics show, to depend upon the butcher shops and farm poultry for meat in from six to nine months of the year. Estimates as to the meat bought by the average farm family of five persons varied from $10 to $300 a year. The average was $55. This would make the Kansas farmers' total meat bill $7,335,000 a year; enough to support the state government and the schools for two years.

Why have the farmers ceased to cure meat for themselves? President Waters inquired. Being an expert in this work himself, and believing in imparting the knowledge of it to others, President Waters was more than ordinarily concerned. In former years, he said, when the farm was more nearly the center of family life, when the family lived more completely upon the produce of the farm and less upon breakfast foods and canned goods, it was the practice to cure all the meats required by the family for the year, except that from poultry. Beef clubs co-operated in such work. But the increased prosperity of the farmer and the recent high prices of animals on the hoof have permitted the meat-curing industry to become almost a lost art.

Not Much Equipment Needed.

President Waters' first questions to the farmers brought out the answer, generally, that they did not know how to cure meat. The second largest number told of the lack of necessary facilities, smoke house, etc.; some reported that the meat spoiled, another way of confessing ignorance of how to cure it. Others said insects interfered with its keeping, another detail of knowing how; it became too salty and unpalatable; it was strong in the summer; all confessions of ignorance.

What They Miss.

President Waters declared it was a mistaken idea that an elaborate equipment was necessary in curing meat. A wooden smoke house with earth floor would answer every purpose, and the profit paid to the packing house and the butcher shop for one year, on the basis of $55, would buy all the equipment needed by any farmer, although not the best or most convenient. Killing should be done by the end of January, and for best results by Christmas time. This will allow time to cure and smoke the meat and put it away before the arrival of the flies which produce the skippers about which so many farmers complain. You should have a March or April hog weighing 200 to 225 pounds. The curing is a matter of personal detail and attention, President Waters says. There are a great many ways to produce ham or bacon with very superior flavor. One of the first essentials is plenty of time.

The reason the packing house ham is so lacking in flavor is that it is cured rapidly and quickly sold. There

Do your cows milk hard? Send .50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

are two methods in curing meat, the dry cure and the brine cure. Both are good. The meat curer should take the one he happens to fancy, but for production of the highest quality and richest flavor the dry cure is superior. Brine destroys a considerable quantity of the soluble protein in meat, and that is what gives the flavor. Any piece of meat soaked, or even wet, is never again as good as it was.

There is no just right and no just wrong way in curing meats. It is largely a matter of taste and judgment.

Here Is the Approved Dry Cure.

To 1,000 pounds of meat take the following:

40 pounds common salt.
10 pounds New Orleans sugar.
4 pounds black pepper.
1½ pounds salt petre.
½ pound cayenne pepper.

Weigh the meat, and take such part of the ingredients as that is a part of the 1,000.

Let the meat cool thoroughly. After thoroughly mixing the ingredients, one-half of the amount should be rubbed well into the meat. Put the meat in a dry, cool place (never in a cellar). Let it remain two weeks, then rub on the remainder of the cure, and let it lie about six weeks, when it is ready to hang. Smoking should be done slowly. It should occupy four to six weeks, a little every day, and with little heat. Slow smoking gives a delicate flavor. After the smoking is finished, wrap each piece in paper, put in an unwashed flour sack and hang in a dry place.

The brine cure requires the same materials minus the pepper. When the meat has cooled, rub it with salt and let it drain over night. Pack in a clean barrel, with the heavy pieces, hams and shoulders, at the bottom. For every 100 pounds use 8 pounds of salt, 2 pounds brown sugar and 2 ounces salt petre. Dissolve in four gallons of water and cover the meat with it. Thin sides should remain in this four to six weeks, and hams six to eight weeks. After it has dried thoroughly, smoke as in the dry cure.

Here are a few figures showing what should be procured from a 250-pound hog:

35 pounds ham @ 17c	$5.95
30 pounds shoulder @ 10c	3.00
25 pounds thick sides @ 10c	2.50
21 pounds thin sides @ 20c	4.20
30 pounds lard @ 15c	4.50
40 pounds spare ribs, head, feet, backbone @ 7c	2.80
18 pounds sausage @ 20c	3.60
	$26.55

The hog was worth at home $18.10. Had the meat been cured there, the farmer would have cleared the ham at reasonable prices—$5.95—and almost the hams and shoulders, or about 40 per cent profit. The weights quoted here are green weights. The joints will increase in salt and decrease in smoke, so it is about an even break by the middle of the summer.

DRYING OFF THE COW.

In drying up cows, one "iron-clad rule" may not be just the thing for all breeds of cows. Nature would not, of course, cause the secretion of milk to stop immediately. So we must get down to nature in this as near as we can. So should it be in all dealings with our domesticated animals.

Now in drying up a cow, a few questions may be asked. What causes a good flow of milk? You answer: (1) Good succulent foods; (2) an abundance of pure water is also a necessity. However, it must not be inferred that these must be discontinued. They should be reduced in bulk. So much for feeding.

In milking, the attendant should know how much milk the cow has been giving at each milking. Three-fourths should be milked out, the remaining one-fourth allowed to remain in the udder. In a short time milk out still less. Then make the milkings farther apart, and so on, until the cow no longer secretes milk. It must be understood that the gradual scale is the one to use. No abrupt methods should be used.

No specified time as to how long between milkings can be offered, from the fact that no two cows are the same. One is a heavier, the other a lighter milker. One is easy to dry up without any danger of injury to her udder—the other cow is just the opposite. The dairyman knows each individual cow in these respects, and consequently only his good judgment can be followed here.—Jersey Bulletin.

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.

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The all-around superiority of the DE LAVAL Cream Separators, in farm as well as factory sizes, has now become so generally recognized that would-be competitors have, almost without exception, adopted the pretext of merely claiming that the machines they offer are "like the DE LAVAL", or "as good as the DE LAVAL", while some even go so far as to claim that their machines are made under a patent license from the DE LAVAL Company.

All of these claims and pretenses are false and a fraud upon the buyers of such machines, except to the extent that each and everyone of these would-be DE LAVAL imitators is using some ten to twenty-year-old patent expired and now abandoned type of DE LAVAL construction, though lacking all the essential elements of the improved DE LAVAL machines of today, or for that matter the DE LAVAL machines of the past five years, while none of them do or can use the still patent protected "split-wing" distributing shaft feature of all DE LAVAL machines since 1900.

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DE LAVAL Cream Separators are as much in advance of all attempted competition today as at any past time, and their use is speedily becoming as universal on the farm as it has long since been in the larger sizes in creameries and milk stations the world over.

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Now add to this great improvement the fact that the United States Separator is the only successful separator that distributes the incoming volume of the whole milk **evenly outside the cream zone,** thus preventing any remixing of cream and skim-milk, and you will see why it is that the Interlocking Style U. S. Separator is gradually displacing every other separator on the market.

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A Journal of Horticulture and Agriculture.

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,830 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, February 2, 1911

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FENCE LAW.

We referred in last week's Cultivator to the peculiar law regarding fencing against stock, and stated that to secure damages against owner of trespassing stock, it was necessary to have good substantial fences around premises. This condition is entirely contrary to the general idea though the law has been in force for the past four years. After looking up the question, Mr. Payne who answers legal questions for Cultivator readers, says:

"The Act of March 23rd, 1907, to be found in the Statutes and Amendments of that year, p. 999, gives a right of action for damages by any animal 'which breaks in and enters upon any land owned by or lawfully in the possession of any person, firm or corporation, other than the owner of vines, fruit trees or vegetables, and is, at the time, entirely inclosed by a substantial fence or other inclosure.'

"It has been decided by our Supreme Court in the case of Merritt vs. Hill, 104 Cal., 184, approved in Wigmore vs. Buell, 122 Cal., 150, that there is in this state no common law right in the owners of land to recover for the trespassing of animals on their land.

"I therefore conclude that no damages can be recovered for trespass committed by animals, except under the statute of 1907, as that law repealed prior statutes giving right of action for damages, and therefore no damages can be recovered unless the land is fenced or enclosed, as provided by that statute. Such a state of affairs is certainly outrageous, and calls for remedial legislation.

"The statute of 1907 ought to be repealed and a law enacted giving damages actually sustained by the owner or possessor of any land from trespassing animals regardless of any question of fence."

The Antelope Valley Ledger says that residents in that section are thoroughly aroused over this fence law and have sent many protests to senators and assemblymen at Sacramento. We do not believe the better element among the stockmen in the state would ask for any law which would compel the grower of crops to fence against his stock.

A HUMMER.

Did our readers notice last week's Cultivator? It was full from cover to cover of valuable material. Of course this one issue was largely given over to the poultry industry, but much of the material was not only original, but fresh and crisp and very valuable to the poultry raiser. Another issue which will center largely upon one line of California's industries will be that of February 22nd which will be given over almost entirely to citrus conditions in this state. Some of our brightest fruit growers have written of their willingness to join in this issue, and we will give the value of a year's cost of The Cultivator to the citrus grower in that one issue.

Speaking along another line, may we refer to the advertising pages of the same issue. Sixty-seven columns of announcements, 217 separate ads, of things of interest to fruit grower and farmer. That feature itself makes the Cultivator of great value to the farmer who would be up-to-date. Too many readers consider the space given to advertising in a paper as to a certain extent lost from a cultural standpoint, but we do not think the up-to-date farmer would for a moment part with the announcements which our advertisers give. The advertiser is almost invariably the handler of things which make for success in agriculture. The intensity of competition necessitates every soil tiller producing at the very lowest. This can only be done by keeping up-to-date and that means keeping in touch with the modern advertiser. Our little liner page alone exceeded its greatest limit. In fact, instead of being a liner page, it was a page and a quarter of agate type. The Cultivator takes just pride in this manifestation of its popularity with reader and advertiser.

MORE WATER.

The people of Covina are looking to a larger and more permanent supply of water by damming a section of San Gabriel Canyon. Their water supply is good, but they wish it to be better. This is the part of wisdom notwithstanding the extravagant claims made for dry farming. One writer in Los Angeles has made the statement that it is possible to secure crops of grass or grain with three and a half inches of rainfall. This writer is apparently talking of something which he knows nothing about, for no crop was ever produced with such rainfall. Of course dry farming methods used in California are beneficial in the conservation of water, but we cannot conserve that which we have not. As we heard C. C. Chapman of Fullerton remark recently, "I cannot afford to grow oranges on high-priced land without abundance of water and fertilizer." Agriculturally, our state is great and has been made so by irrigation. The counties which have shown the greatest growth are those which have given the most attention to the development of water. Too much of our wealth has been allowed to waste away to the ocean at time of winter floods. Let every possible means of impounding these waters be developed.

IRRIGATION.

One citrus grower of Riverside county reported to the Cultivator recently that the past year showed twelve irrigations of his lemon orchard. Furthermore, the coming year, no matter how much it rained, would see the same number. His idea is that during the winter season every bit of water which can be stored in the soil and subsoil should be conserved in that way. Formerly fruit growers felt that irrigation for the season should terminate by the first of October, or, under unsatisfactory conditions, not later than November. If we get a heavy rainfall such treatment of the trees will produce no ill effects, and it is the cheapest insurance to fill the soil with water.

THE NEW STANDARD.

Mail and telegraphic advices give The Cultivator to understand that at about the time this issue is passing through the press, the new revised Standard should be on sale at the supply houses in Los Angeles. Needless to add that everyone having to do with pure-blooded fowl should be in possession of a copy and learn its requirements. This edition contains much new matter, gives correct colored plates of the plumage of different breeds and varieties, disqualifications of all recognized breeds, instructions to judges, and half-tone plates of all the breeds recognized by the American Poultry Association. If you are in the game either along utility or fancy lines, you will find the book useful in developing your business. Yes, indeed.

ORGANIZING APRICOT GROWERS.

The success of the Orange County Dried Fruit Association during the past season has put that organization on its feet so that it is now trying to perfect an organization of all apricot growers of the state. Mr. J. G. Berneike, of Santa Ana, largely responsible for the formation of the Orange county growers, is sending out a circular of which the following is the principal part of text. A special effort is being made to get Santa Clara county organized. That is the largest producing section in the state. The success of the Orange county organization is evident when it is understood that ten cents was practically the minimum price received for last season's dried cots while some sections took as low as six and one-half and eight cents. We believe that if growers will join in the movement started by the Orange county association they will save thousands of dollars.

From Mr. Berneike's circular we quote:

"Are you interested in forming an apricot growers association? If so I would like to correspond further with you. Our association was organized before last year's crop, but too late to put in a packing plant, yet we were eminently successful. We have over 100 members, sold our fruit at a minimum of ten cents, and are still holding about seven carloads for eleven cents. Some is moving now at that figure. We are now getting ready with a packing plant for the coming crop, and shall add a pit-cracking plant as soon as possible. Ventura county has organized. They got ten cents and better and are now holding 9 to 10 cars for twelve cents."

FINANCING THE UNIVERSITY.

It is reported that several lobbyists of the state university are in Sacramento looking after the interests of that great institution. Possibly this is necessary, but for an institution of that kind it is most regrettable. The funds to support these men in their lobbying work come from some source and presumably from the treasury of the university from money appropriated for purposes of education. This is a use not contemplated in the appropriation. If the people are not awake to the needs of the institution, this is not the proper means for awakening interest. Let our state legislature be generous with the university; let not the university educate the people of the state in this kind of political work.

Fresh fruit handlers the state over are alarmed at the effort in the state legislature to pass an eight-hour law for labor in orchards, canneries and dry-yards of the state. With the shortage of labor that obtains at fruit curing time, such a law would mean untold loss. It is hoped that our legislators will apreciate California's greatest industry's needs to the extent of suppressing this bill.

The people of San Bernardino are planning for a National Orange Show to be pulled off in that city March 6 to 11. $4000 for expenses and premiums has been raised. Features of the show will be free distribution of oranges and a general boost for the greatest fresh fruit industry of the state.

Tree Warden Reed of Riverside county asserts that attractive street trees are the greatest factors in adding value to rural property.

Agricultural News Notes of the Pacific Coast

Northern California

The Davis almond growers association has just sent its last car of almonds.

A farmers telephone line is being constructed near Paradise, Butte county.

Pomona Grange of Sonoma county met in Santa Rosa last week in all-day session.

A Niles poultryman has just made a shipment of 100 White Leghorn pullets to Honolulu.

The Live Oak almond growers association shipped a car of almonds last week, netting $2500.

One rancher of Germantown, Glenn county, has sixteen pumping plants on his 640 acres of land.

Representatives of the state board of health have been investigating conditions in the dairies at Chico.

It is reported that eucalyptus men are endeavoring to secure a successor to G. M. Homans, state forester.

A number of dairymen along the Eel river near Ferndale, Humboldt county, are installing a telephone system.

Large numbers of "market hunters" are securing and shipping great quantities of ducks from Sutter county.

Bishop Bros. of San Ramon, Contra Costa county, have just made extensive purchases of pure bred Shropshires.

Cloverdale people will give more attention to their citrus fair and expect a bigger success than from any former event.

Timber men near Redding, Shasta county, are doing winter burning in the forests to lessen the danger of summer fires.

The Farmers Union of Gridley recently installed officers, W. F. Randolph being president and George Larson, secretary.

Twenty-five thousand acres of land near Lowery, Tehama county, will soon be under irrigation with waters from Elder Creek.

Speaking of drouth, a good place to grow things should be at Branscomb, Mendocino county, where they have an average annual precipitation of about eight feet. On a favorable year like 1903-4 the precipitation was 132.62 inches, or over 11 feet.

The report that the assemblyman elected from Sonoma county was working for a bill in effect that it should be a misdemeanor for any dealer to offer more for white eggs than for brown, is a fake. At least so declares the aforementioned assemblyman.

The California Creamery Operators Association is fathering a bill introduced in the legislature which will fix a license on the manufacture of oleomargarine at $300 per year and a license of $200 a year on wholesalers and importers. Retailers must pay $50.

The Sebastopol Berry Growers' Association recently elected its old board of directors as follows: W. I. Newcomb, W. H. Hotle, J. R. Rosie, J. P. Carvalho, Mrs. L. E. Barlow, D. D. Sinclair and F. F. Clayton, and the officers selected are: I. Newcomb, president; J. R. Rosie, secretary, and I. N. Cable, manager.

Central California

The gradual increase in the price of barley is gratifying to grain producers.

Vineyard pruners in Fresno county are concerned over the shortage of labor.

Visalia is still working for its large pavilion to be ready for future citrus and other exhibitions.

For the first time in months water is running in the People's Ditch in Hanford, Kings county.

The Pajaro Valley is extending its apple planting more than at any other season for several years.

Orange trees are selling in Tulare county at about $1.00 each in lots of 1000 for five-eighths stock.

Owing to the few prunes being offered, market is firm and holders not at all anxious to make sales.

The veterinarian of Santa Cruz county reports dairies about Watsonville in the best condition ever.

Some fruit growers of the Santa Clara Valley are replacing their orchards with alfalfa and dairies.

Big orchards of Merced county have been proving profitable and extension of plantings will be made this season.

Raisin men of Fresno held a meeting last Friday to discuss the question of a boosting campaign for another Raisin Day.

The big sugar factory at Spreckels has just put on 100 additional machine repairers to overhaul the factory for next season.

Ranchers in the southern part of Monterey county along the Salinas river are getting excellent results from pumping plants.

A petition is to be presented to the board of supervisors of San Joaquin county asking that a reward be offered for coyote scalps.

Orange trees in carload lots are arriving at Porterville and other Tulare county points. The planting will be heavier than any former season.

A system of canals through the San Joaquin Valley is being discussed more seriously, not only the one coming close to Fresno, but several others are now being outlined.

A Chinaman who has made a fortune in packing salmon in Alaska has purchased a seventy-acre tract near Terra Bella and will plant it all to oranges.

The charges of graft in the Tulare county horticultural commission work seem to be simmering down to a feeling on the part of the board of supervisors that the horticultural commission's power was too great.

Watsonville hollers very loud because the latest boosting pamphlet issued by the Southern Pacific leaves Watsonville entirely off the map, while other towns much smaller are given in big type. Watsonville pays the Southern Pacific on one item, the apple crop, nearly $2,000,000 annually.

A Salinas valley cattleman is calling attention to the fact that while prime steers are quoted in San Francisco at 5¾ cents, the trade quotations were full loins 14 to 14½, short loins, 8 to 20, full ribs 10½, rounds 9 to 9½, and other prices in proportion. This gives the meat dealer an opportunity to make immense profit.

Southern California

Citrus sections report white frosts but nothing of a damaging nature.

The creamery at San Luis Rey, San Diego, received 3,600,000 pounds of milk last year.

A beet sugar factory with a capacity of 500 tons is to be erected at Perris, Riverside county.

A drainage district has been formed to reclaim 3000 acres near old Newport, Orange county.

The Imperial Valley has already turned out something in excess of 4000 bales of cotton.

Tustin, Orange county, asserts its importance as a bean producer by showing a $400,000 crop last year.

The gentle showers which have fallen over Southern California have started all kinds of ranch work.

J. W. George, one of the largest beekeepers of Imperial county, has declined the appointment of bee inspector.

El Centro creameries produced and shipped during the month of December 200,000 pounds of high-grade butter.

The Imperial Valley Oil and Cotton Company seems to have difficulty in financing and establishing its oil mill at El Centro.

Grape growers of Escondido, San Diego county, have agreed to co-operate in the pre-cooling and shipment of grapes next season.

The superintendent in charge of the viticultural experiment station near Brawley, is preparing ten acres for experimental planting this spring.

Settlers near the Mojave river are agitating for conservation of waters of that river and urging the reclamation service to take up the matter.

Many seedling walnut orchards will be grafted over to the more desirable varieties of blight resistants this season.

The celery industry of Orange county is about 20 years old and has reached the magnitude of about 3000 carloads annually.

The foothills above Yorba, Orange county, are proving a good section for the production of Bermuda onions for the early spring trade.

Ventura apricot trees are already coming into bloom. If given a favorable season, these blossoms may give some remarkably early fruit.

The planting of cotton in Imperial Valley this spring will be heavier than ever. Many of the growers are combining to secure seed of improved varieties.

With C. C. Chapman as president and G. Harold Powell as secretary, the Citrus Protective League promises to be of great value to the citrus interests of California.

A Fullerton orange grower claims some damage is being done by the orange worm. This worm has been in California many years and is not thought to be a menace.

The Limoneira lemon ranch at Santa Paula has always affiliated with the Southern California Fruit Exchange, but not until this season has it placed its entire marketing operations with that organization.

The Coast

The gate receipts at the recent Spokane poultry show were $5000.

Shipments of cattle out of Montana this year have been the greatest ever.

Fruit growers of Colorado met at Greeley recently and formed an Anti-pest Association.

Engineers are at work preparing for irrigation work in the Colorado river reservation in Arizona.

The Carey act is responsible for the reclamation of over a million acres of land in the state of Nevada.

The annual meeting of the state horticultural society of Utah will be held in Brigham City, February 16, 17.

The Farmers Union of Pendleton, Oregon, is perfecting details for a farmers insurance company with $250,000 capitalization.

Residents near Parker, Arizona, are working for the opening of the Colorado River Reservation.

The egg market in Seattle dropped from 40 cents to 35 cents in one day, prices being affected by frozen eggs offered.

A big tract of land on old Yaquina bay in Oregon has been purchased and will be subdivided and sold in small parcels.

So great have been the depredations of coyotes in the Inland Empire about Spokane that an organized campaign is on with bloodhounds.

Members of the Farmers Union of Walla Walla, Washington, have combined and ordered 3,000,000 grain sacks for the crop of 1911.

The Roosevelt Reservoir in Arizona is rapidly filling since the last rain. It is estimated that over 150,000 acre-feet have already been stored.

Steps are being taken to improve the Columbia river at Rickey Rapids, so as to permit transportation over them. It is claimed it will cost only about $20,000.

Northern Idaho is planning for a series of farmers institutes under the direction of Dean Carlyle of the university from January 20th to the last of February.

The reclamation service headquarters at Boise, Idaho, has been notified by Secretary Ballinger that $1,000,000 is available for reclamation work in that district.

The Salt River Valley, Arizona, and in fact practically all of Arizona, received a great flooding during the recent storm. The benefit will be incalculable.

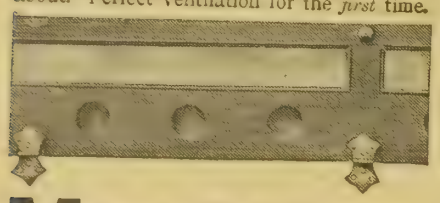
The coyotes of the Wallowa forest reserve in Oregon are infected with rabies and a fund has been provided and a force of ten men are making it their constant business to hunt them down.

A ditch digging machine on the Cudahy tract in Central Mexico just below the American line in the Imperial Valley, has a capacity of a mile of ditch a day. The ditch dug is six feet deep and twelve feet wide.

Portland claims the biggest wheat export figures for 1909 for any city in the world. The total exports for last year from that port were 5,120,826 bushels, which was about a half million bushels short of the preceding year.

More Inventions by Lee

Here's his new Incubator door all are talking about. Perfect ventilation for the *first* time.



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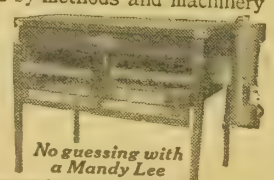

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R. I. Reds	15.00	14.00
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Practical Poultry Culture

BREEDING AND FEEDING OF DUCKS.

By Vincent G. Huntley, Petaluma.

We have no record to show that Adam and Eve kept ducks, or if they started with the birds themselves, or purchased the eggs. So we will presume that the stock would be most likely and start in the same way.

The question arises as to breed. Which is the most profitable to raise for market? There are scores of varieties and many that will pay for raising, but as in chickens, some are more suitable for table purposes and some for egg production. For the former we have to go to the following whose value may be taken in the order given, viz., the Aylesbury because of its great length and size and its quick maturing properties, together with its very fine quality of flesh. It is possible to produce an Aylesbury duckling at from eight to nine weeks old to weigh seven pounds and at the same time not be overfat. In the general way, providing the stock they are bred from are fair average birds, the young ones should weigh five and one-half to six pounds at eight weeks.

Next comes the popular Pekin which has been the favorite in the American market for some years past and is still in great demand, and is the general market duck at present, having been established for many years in this country and thus eclipsing the Aylesbury in numbers. Their flesh is very similar to the Aylesbury, but the fat is more yellow and the body shorter. The birds when running should have an upright carriage nearly perpendicular. They are very hardy and quick maturing and at eight to nine weeks old should weigh four and one-half to five and one-half pounds.

There is a class of duck commonly known as the Mammoth Pekin which is evidently a cross between the Aylesbury and Pekin, having a longer beak and a more level carriage than the true Pekin type, which should be upright with a short, well-set beak, and the color as near canary yellow as possible. At the shows across the water a pure white Pekin is not tolerated and very seldom wins a prize. The Mammoth probably is as good a bird for market purposes as any, because it is the medium between the foregoing breeds and therefore should be very hardy and easy to raise. I have produced some wonderful table birds from the first cross between Aylesbury and Pekin.

Next in order, or probably equivalent, according to some in this country, comes the Buff Orpington duck. This, of course, is a newly manufactured breed of which the late Mr. William Cook claims to be the originator. Now here I must tell you a little tale. Somewhere about 1895 M. Wm. Cook was judging a country show near my home in Wilshire, England, and consented to be my guest for a day or two to look around the ranches in the district, and also to inspect my stock of Orpingtons, ducks, etc.

I had that season an odd pen of Aylesbury and Pekin ducks which were running with some spare Rouen drakes. The eggs were hatched so as to have young stock for table purposes. Among the offspring were ducks of many colors, but the majority were either blue or buff and a very even color. These latter at once attracted Mr. Cook's attention and the price was asked, set and the deal made in no more time than it takes to write it. After he had purchased he said: "I have a great idea if we can breed these ducks true to color. I have a notion they will take well, and if so we'll have some Orpington ducks as well as chickens." I remember rightly about this time he found some more of these ducks in the north of England that had been bred for some years, probably originating from the same cross as in the drakes. You can distinctly trace the markings of the Rouen head and ring around their neck. In my first cross I had some of the best buffs I have ever seen.

The Buff Orpington ducks do not generally grow as large as the Aylesbury or Rouen. When I say Rouens I do not mean such as I have seen in California, as they are more after the type of a good-sized wild Mallard duck. My "Champion Jumbo," illustrated in the American Poultry Monthly some years ago, weighed thirteen pounds. A good Rouen should be about the same size and weight as the Aylesburys exhibited by me around California. I hope some day to show some good Rouens as soon as I can get them out here.

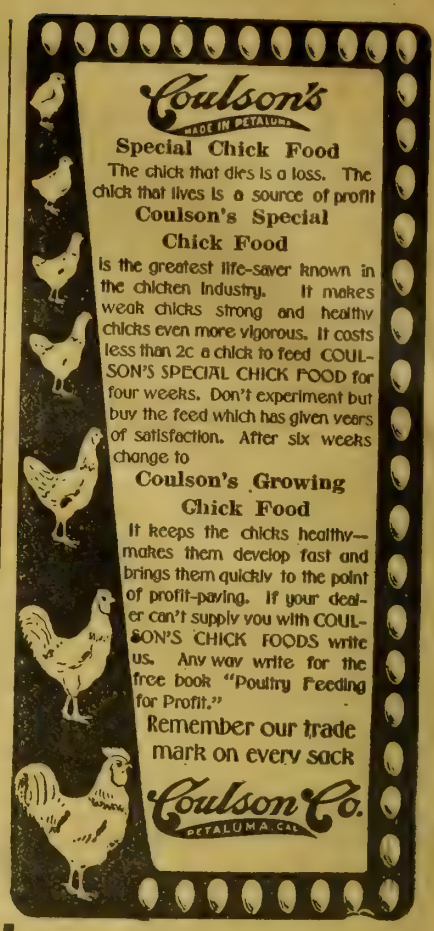
Returning to the Buff ducks. They should prove a grand bird from a utility point of view, although of course, if not taken in their right moult their pin feathers would show more than the white ducks when dressed, but their flavor is all that can be desired. They are easy to fatten and though not quite as large become very plump.

The Rouen can claim, although mentioned at this stage, to be the king of waterfowl when beauty and utility are combined. The beautiful green head and round claret breast divided by a three-quarter ring of even pure white, followed by a body of beautifully laced French grey shaded to perfection with the wing bars of Peacock green and white, is enough to dazzle the eyes of a prince. It is generally supposed that the Rouen has a deeper flavor than the Pekin or Aylesbury, but when dressed at the proper stage it is as white in flesh as either of the above mentioned.

For fancy eating the East Indian makes an excellent little duck, fine in flavor and texture of flesh. These are generally kept on lakes on estates in England as an ornamental fowl and are not commonly used as a commercial bird. The Cayaga is a similar species, but larger and greener in color. The Muscovy is liked by some, but as a rule has a fishy or strong flavor.

Now we come to the egg proposition. There is no doubt that the Indian Runner is the top notch as a layer, and providing you can find a market for the eggs at a reasonable price will pay as well as any. Many of these birds have a record of 220 to 250 eggs in one year. Their flesh compared to that of the Aylesbury, is like the White Leghorns compared to the Rock or any of those table breeds. You can seldom find the two things run together and the bird that lays the eggs has generally a tougher texture of flesh.

Now a word as to hatching and raising. The eggs require 28 days for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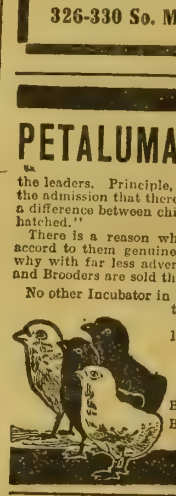

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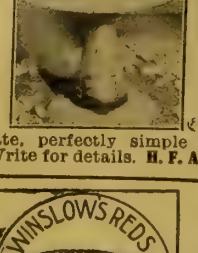

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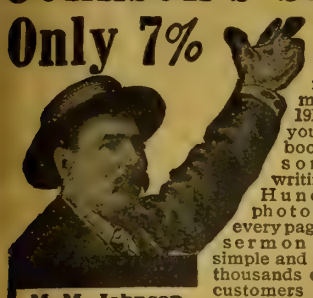

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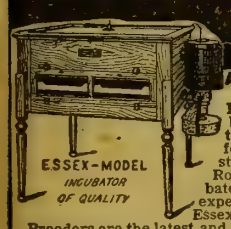

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The World's Greatest Egg Producers—First, California State Fair, 1909. First, display pen; first, breeding pen; first, drake; first, duck and second, duck, at the Los Angeles Show, 1910. Eggs for hatching. White and Barred Rocks and White Minorcas. Eggs for sale in season. C. O. Winters, 5807 Washington Ave., Los Angeles, Cal. Phone, Sunset East 1197.

incubation and in small numbers are best hatched under hens which they will not require after they are a week old. In fact, I very often raise them without any mother at all, being careful the first few nights to see that they are fairly warm. In raising large quantities the ordinary hot water brooder is used for the start. Top heat preferred, but do not run as hot as a chicken brooder, 75 to 80 degrees I reckon is sufficient. Let them have straw or some such chaff to run on when small, substituting whole straw as they grow bigger.

Duck eggs in the incubator require more moisture than those of hens. It is a good plan to dip a flannel in water 105 degrees or more, then wring it out moderately dry. By that time it will be about the temperature of the eggs in the machine. Place this over the eggs just as they are due to pip. In addition to this you govern your moisture by the air space in the egg during the course of incubation and do not run the machine too high; 101½ to 102 just below the top of the egg is a fair temperature.

In feeding young chicks they do not need to stay so long as chickens before feeding, about the next day after hatching you can start them with a little milk and water sprinkled over with breakfast rolled oats. Be sure to have the oats pure and free from wheat, as the start makes a whole lot of difference in a duck. A good start means that they will be ready three or four days sooner than without. Follow the oats with soaked bread and milk if you have it. Feed alternately for a week with oats and soaked bread and fine chopped green stuff. By that time they will be able to take a mash composed of the following porportions:

1 part bran;
1 part shorts;
1 part finely ground corn;
1 part ground barley.
1 part meat (fresh preferred);
½ part bone necessary for frame growing;
¼ part clean sand.

Wheat and cracked corn may be fed mixed. Table scraps and green food can be fed to advantage.

Regulate your feed while growing to produce bone and frame and for the first six weeks let them have range and swimming water if you like. Then have your fattening sheds so that you can let them out to feed and have a bath. Many say do not let them have water to swim in, but I have found that a duck does better when clean, and will fatten and grow as quick if allowed to have a bath once or twice a day.

The plan used in Buckinghamshire and districts where the prime ducks are raised for the London market is something are follows: Barns, from twelve feet to twenty feet square are used to accommodate 230 to 500 ducklings. Outside of these barns are cemented pens with baths at the ends, usually water running right through them. In the early stages the ducklings are allowed to run in and out at liberty, but when they become about six weeks old they are only let out in the yards twice or three times a day according to the number of times they are fed, at which time they can eat and take their bath, then they retire to the barn on nice clean straw where they sleep and graze until the next meal time. Where a lot are kept in one barn divisions are made use of, and lots of 50 to 100 are kept in a section. Great care is taken not to disturb them during their sleeping

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The best—bar none. First car load just arrived. Come in and see them—or send for Prairie State Catalog. We also have a carload of the

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50-Egg Incubator for $7.00

Did you ever hear the like? And with this guarantee, too: "Purchaser can operate it for forty days, and if it does not meet with his entire approval, it may be returned to us and the price paid will be promptly refunded." They will go like hot cakes. If you cannot come in, send for a Buckeye Catalog. "Anybody can hatch chicks with a Buckeye."

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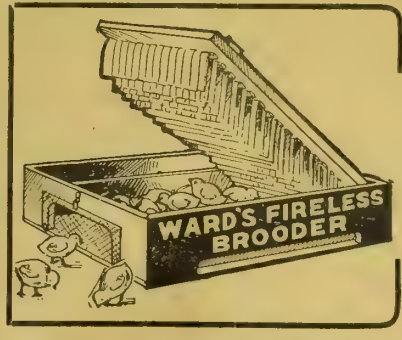

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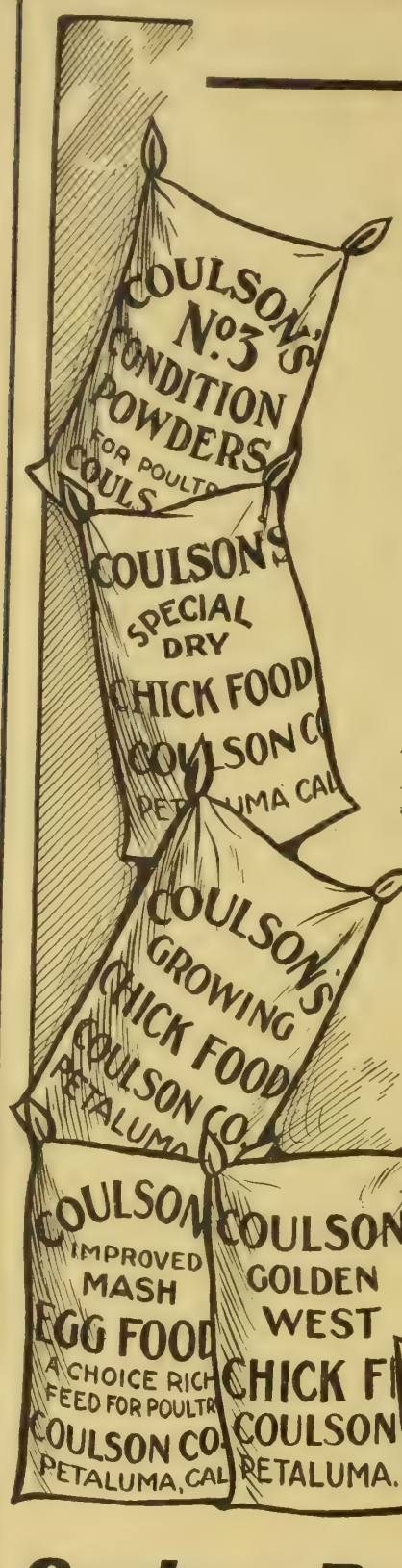

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210 acres, beautifully situated in the Valley of Mocho Creek, four miles from Livermore, Alameda County.

30 acres now in Almonds, producing last year nine tons, and capable of much greater production. Crop has never been lost on account of frost.

Improvements: Good house of five rooms, stone milk house, windmill with steel tower, two water tanks, large barn, cow barn, granary, tool shed containing almond huller, gasoline engine, lug boxes, trays, etc., and a number of farming implements.

House is beautifully situated in grove of oak trees, on an elevation commanding a fine view of valley and mountains.

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School in one corner of the tract.

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An extra choice assortment of toms and hens from my best matings. Large bone, long body, full-breasted, well-marked birds which are strong and vigorous, from the best strains in the East. Prices reasonable. GEO. A. SMITH, Corcoran, Cal.

hours and strangers are only allowed to peep through the keyhole, as it were. When near the finishing point an extra allowance of meat, green bone or fat is given them. Then finally they are killed, dressed, and packed for the market. But before packing they are shaped, that is to say, laid on their backs to set so as to have the best appearance when on show. Ducks are seldom scalded for plucking as when exposed to the air afterwards they turn a bad color. Contrary to the chicken a duck is easiest to dry pick when cold and after being fasted for at least two days before killing. Fasting is a most important thing before killing, as the meat not only keeps better but when kept does not get any taint from the food that may have been passing through it. To keep ducks best when killed do not draw their entrails, but fast at least 24 hours before killing, giving water the first twelve hours, then nothing. By this means there will be nothing but the plain gut inside of the bird, which will help to keep the bird sweet and moist, and there being no opening the flies have no chance to enter and leave their disease germs and eggs. When once the bird is opened the inside is the part that will taint first, so that if you want to keep your bird until it is fit for use and when rigor mortis is out of the system, adopt the above method.

ABUNDANCE OF GOOD THINGS.

Our poultry friends found abundance of good things in the last issue. Nor were they all used up in that one number. The provision had been so liberal—like a Thanksgiving feast—that some of the best is yet to come.

This week one of the holdover features by Vincent Huntley tells of ducks and their care.

Next week Mrs. Basley, for years in charge of the Poultry department, again greets her friends, who are many, in The Cultivator family. She will talk of disease prevention. It's a good article.

Other articles on turkeys, geese and then some yet to come, make The Cultivator of value to the poultryman.

By the way, had our poultry readers thought that The Cultivator's weekly visits bring as much or more poultry information into the home than the exclusive poultry monthlies? Besides it has a great fund of information along other lines.

Do not forget that a balanced ration is just as essential for poultry as it is for other live stock.

It is poor economy to keep old hens or old roosters. Hens are past their best at three years old, and when kept longer, are apt to give poor returns.

Before using a disinfecting spray in hen house or coop be sure to remove every particle of rubbish and filth; otherwise your spraying will do but little good.

Give fresh and clean water to the fowls several times a day and especially let the first drink in the morning be clean water. Water standing over night or for part of a day is liable to be full of dust, poison and parasites. These are not good for chickens.

Timely Ranch Suggestions

POPULATION AND SUBSISTENCE.

Frequent assertions that the fertility of the soils is washing into the streams and that the productivity of cultivated land is diminishing are misleading the public into the belief that the agriculture of this country is decadent and that there is life in the old formula that population must tend to increase at a greater rate than subsistence. So states the chief of the bureau of statistics of the department of agriculture in his annual report for 1910 at the beginning of a discussion of the ability of agriculture to maintain population in this country.

Historical Phases.

The situation can not be understood, he says, until it is examined historical. This is a country in which millions upon millions of acres of fresh land have been coming into production faster than the domestic consumption has required, and at times beyond the takings of importing foreign countries. As eminent a man as Gen. Francis A. Walker expressed the belief that under such circumstances farmers on the fresher soil were economically justified in robbing the land.

All of the historical phases of agriculture now exist in this country. First, the "soil robber;" next the diminishing production per acre on "inexhaustible land," which surprises the farmer; next the agricultural scientist, who points the way to a better agriculture and larger production per acre, with poor responses from the farmers.

In the course of time, especially when the next and perhaps the third generation takes the farm, important advances are made, at first irregularly and mostly on farms of the leading class and subsequently with increasing diffusion and accelerated speed.

For many years there have been fresh lands with rather high but stationary production, older lands with declining production, old lands beginning to improve, and some lands well advanced in improvement. As the proportions of these classes of lands have varied in relations to the entire cultivated area of each crop the national average production per acre has varied.

In the meantime the competition of new land consuming some of its capital in the production of crops has retarded, if not prevented, the improvement of old land needing conservation and a gain in fertility. The improvement of the older land is not an academic question of conservation of national resources, but it is to be worked out in the endeavors of farmers to get a living, and a better one, an end that can not be attained by a sudden high production per acre large enough in the agregate to be overproduction, with unprofitable if not losing prices for the farmer.

Recent Increased Production per Acre.

A marked change in the production per acre of all crops appeared in the decade 1896-1905 in comparison with the mean of the preceding ten years. The production per acre of corn increased 7.7 per cent; of wheat, 6.3 per cent; of oats, 15.6 per cent; of barley, 11.1 per cent; of rye, 21.3 per cent; of buckwheat, 23.1 per cent; of hay, 22 per cent; of potatoes, 15.3 per cent; of cotton, 3.8 per cent; and of tobacco, 5.2 per cent.

The weather and other crop conditions of the four years 1906-1909 were not as favorable for crop production as they were in the preceding ten years, so that the production of oats per acre declined, that of hay remained stationary, and that of cotton and barley barely increased. In the case of other crops the mean production per acre continued to show large increases, the mean of these four years over that of the preceding ten years being an increase of 7.1 per cent for corn, 9.6 per cent for wheat, 6.5 per cent for rye, 6.6 per cent for buckwheat, 15.5 per cent for potatoes, and 9.7 per cent for tobacco.

Actual Population Increase.

Corn production per acre increased from 1886-1895 to 1896-1905 at a rate which quite or very nearly equaled the actual increase of population in ten states. The list for wheat contains 22 states distributed in all parts of the United States. In the list for oats are 16 states; for barley, 15 states; for rye, 21 states, for buckwheat, 18 states; for cotton, only 1 state, Oklahoma, containing new land; for tobacco, only Wisconsin; for potatoes, 15 states, all in the potato belt; and for hay, 25 states. The average for the four years following 1905 is not based on a number of years large enough for comparison.

Decreasing Birth Rate.

There is a prevalent misunderstanding with regard to the nature of the increase of population in this country. It seems to be assumed that the net immigration is to continue indefinitely at the rate of one-half to three-fourths of a million people annually. How quickly immigration can be reduced was shown by the industrial depression of 1908. No one who would take a far sight into the future would reckon upon an indefinite continuance of a considerable immigration.

Normal Population Increase.

A prevalent oversight in a consideration of this subject concerns the birth rate. The census of 1900 points to the conclusion that the birth rate of this country, after eliminating the influence of the foreign born, is about 1¼ per cent a year ,or 12½ per cent for a decade.

A comparison of production per acre with the normal increase of population, that is to say, with the increase unaffected by immigration and the high birth rate of the immigrants, is the form of the problem as it will present itself more and more closely as the years elapse.

From 1886-1895 to 1896-1905 the mean production per acre of wheat increased in a greater degree than the normal increase of population in 28 states. Two other states are very near inclusion.

In the case of corn production, increased production per acre has exceeded the normal increase of population in 14 states, and very nearly the required increased production was made by 5 other states.

A long list of states gained in production of oats per acre in a greater degree than the normal increase in population. They are found in New England and along the Atlantic coast to Georgia; in important states of the Ohio valley, north and south; in the

"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gang-plow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

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Nitrate of Soda

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"The Cost of Available Nitrate," Sent Free

It is worth dollars to you. In this book Prof. Voorhees shows how the American farmer could have saved $17,000,000 on the cost of nitrogen in 1909. Address

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mountain states, and in Washington.

With regard to barley, 21 states are found in a similar list; for rye the list of states numbers 30, buckwheat 19, and 3 other states are near the requirement for admission to the list. Wisconsin is the only state that has produced tobacco with an increase during the time under consideration which is larger than the normal increase of population, but the increase of tobacco production per acre is very nearly equal to this population increase in the case of 5 other states. Increase of cotton production per acre above the normal increase of population is found in 3 states, with a supplementary list of 4 states almost able to enter the list.

The list of states that produced potatoes with an increase per acre above the normal increase of population contains many of the states in the potato belt, and the number is 24, with 4 states almost eligible for admission.

The largest list of states in the consideration of the various crops in which production per acre during the period under consideration exceeded normal increase of population is found in the case of hay; 35 states are in this list with 5 more states having increases nearly sufficient for their entry, so that the hay crop of nearly the entire United States has increased in production per acre faster than the normal rate of increase of the population.

The ability of the soil and the agricultural arts and sciences, concludes the chief of the bureau of statistics, to produce crops at a rate of increase greater than either the normal rate of increase of population, or the normal as temporarily influenced by immigration, has been demonstrated times innumerable by the department of agriculture, by the experiment stations, and by the intelligent farmers all over the country.

Beaumont boosters are planning for a broom factory.

POCKET GOPHERS.

Poisoning with strychnine is the most effective means known for killing pocket gophers, and, as it involves the least expenditure of money and labor, the Biological Survey recommends it for general use. As a rodent poison to be used by farmers, strychnine has several advantages. Its action is sure, its deadly character is known to most persons, and its bitter taste is an additional safeguard against mistaking it for a harmless drug. Strychnia sulphate is the most convenient form of the poison, since it is freely soluble in hot water and in the natural juices of vegetables used as bait. To disguise its bitterness so that rodents may not be deterred from eating the baits, sugar is often employed, or the strychnine may be mixed with its own bulk of commercial saccharine. A sugar syrup poisoned with strychnine may be used with excellent results. It is prepared as follows:

Dissolve an ounce of strychnia sulphate in a pint of boiling water. Add a pint of thick sugar syrup, and stir thoroughly. The syrup is usually scented by adding a few drops of oil of anise, but this is not essential. If preserved in a closed vessel, the syrup will keep indefinitely.

The above quantity is sufficient to poison a half bushel of shelled corn or other grain (corn recommended). The grain is steeped in hot water and allowed to soak over night. It is then drained and soaked for several hours in the poisoned syrup. Before using, corn meal may be added to take up the excess of moisture.

Dry crystals of strychnine also may be used. They are introduced, by means of a knife, into small pieces of potato, carrot, or sweet potato, or into entire raisins or dried prunes. A single large crystal (or several small ones) is enough for each bait. Raisins are especially recommended because they are easily handled and contain enough sugar to disguise the bitterness of the poison.

Pocket gophers in ditch banks may be poisoned in the following manner: Select the freshest hill or mound and with a narrow garden trowel follow the soft earth of the tunnel until the main runway is reached. By noting the direction from which the earth was pushed out and locating the closed entrance, the burrow may be readily followed and the main runway quickly found. The poisoned raisin, corn, or small potato should be placed well back in the main runway and the opening closed. It is usual for one gopher only to occupy the burrows connected with a group of hills, and when the burrow remains open it indicates that the animal has been killed.

Trapping is a successful method when followed intelligently and persistently. It is especially adapted to small fields, orchards, gardens, and irrigation embankments, where only a few gophers are present; but in the case of large areas that are badly infested, the method involves too much labor.

For trapping gophers an ordinary No. 0 steel trap may be employed with success, but there are on the market several special gopher traps which are better adapted for general use.

In using the ordinary steel trap, the first step is to make an opening into the main gopher tunnel. The trap should then be sunk so that the jaws are level with the bottom of the runway and lightly covered with green clover, alfalfa grass, or even loose soil, care being taken that these do not clog under the pan, or trigger. No bait is required. The hole should be just large enough to receive the trap and should be covered so as almost to exclude the light. Scalding the trap frequently to remove the animal odor is important.

Some of the special gopher traps possess the advantages of ease and simplicity of operation, and kill the animals instantly. These special traps should be set in the laterals leading into the main tunnel of the gopher, or at the entrance of open burrows where fresh earth is being thrown out. The trapper should choose the freshest of a series of mounds and dig along the lateral until it is found clear of soil.

Carbon Bisulphid.

Carbon bisulphide has been employed for killing pocket gophers, and under favorable conditions its use is recommended. If the burrows are extensive or the soil dry, the gases

Avery Double Cylinder Engine Threshing Outfit

An Avery Threshing Outfit is a Thresherman's *"Money Maker"* and a Farmer's *"Grain Saver"*

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An Avery Outfit isn't the kind that's worn out by the time you get it paid for. Each year more threshermen are learning that the Avery Company builds strong machines and not the cheaply constructed kind.

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Ask any Avery Thresherman about the way an Avery Outfit handles the Grain. An Avery Engine is a strong puller, and there are no flimsy contraptions in the Separator to slow things down. You can do good work and a *big lot* of it with an Avery.

Suits Your Customers

That's one of the most important things. Does a good job in saving and cleaning and doesn't keep breaking down all the time, and piling up the expense. With an Avery you can *get there* and *get away*, and you leave a pleased customer behind.

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It Saves Your Grain

To show just what an Avery Separator will do in saving the Grain, we have made a number of canvas tests. These tests show an average saving of 99.92 per cent. *Almost Perfect.* The best proven record of grain saving that has ever been made.

Does Fine Cleaning

An elevator owner wrote us, "The Avery Machine sends me the cleanest grain that I ever received." Time and time again threshermen have told us that the grain threshed with an Avery brings a higher market price because it's *cleaner.*

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"No tinkering around" is what one farmer wrote about the work of an Avery "Yellow Fellow" and that tells the whole story. Does clean work and quick work and isn't always breaking down on your job.

FURTHERMORE—Avery Machinery is Also Backed Up By The Strongest Warranties Ever Given by Any Manufacturer

If you are a thresherman you should find out all about the money making Avery Outfit. Single or Double Cylinder Engine. Any size Outfit. *If you are a grain growing farmer* you should find out all about the fine work in cleaning and saving your grain that an Avery "Yellow Fellow" will do for you. Our catalog tells all about their construction, and shows them in colors just as they look. **Write for our complete free Color Illustrated Catalog. Address**

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are dissipated so rapidly that a large quantity of the liquid is required to kill the animals and the method becomes too expensive. If, however, the burrows are simple and the soil moist, bisulphid may be used successfully. For pocket gophers an ounce of the liquid for each burrow is sufficient. The carbon bisulphid is poured over a bunch of cotton, rags, or other waste material and this quickly pushed into the burrow, which should be closed at once.

Co-operation.

Any farmer may readily rid his premises of gophers by the use of poison or traps. Unless, however, the entire community unites in active and intelligent co-operation in the destruction of the animals, the cleared area will be sooner or later invaded from neighboring premises, and the work of destruction must be repeated. Co-operation only will effect a radical cure. When co-operative efforts for the extermination of gophers over a considerable area are attempted, careful attention must be given to waste lands along fences, streams, public highways, and railroads. Such places are favorite haunts of the animals, because in them are found loose, sandy soil, moisture, and succulent roots for food. It is from such resorts that adjoining premises are often restocked with pocket gophers.—Circular 52 Bureau of Biological Survey.

SIMPLICITY.

Simplicity is less dependent upon external things than we imagine. It can live in broadcloth or homespun; it can eat white bread or black. It is not outward, but inward. A certain openness of mind to learn the daily lessons of life; a certain willingness of heart to give and to receive that extra service, that gift beyond the strict measure of debt which makes friendship possible; a certain clearness of spirit to perceive the best in things and cleave to it without mistrust; a peaceable sureness of affection and taste; a gentle straightforwardness of action; a kind sincerity of speech,—these are the marks of the simple life, which is within. I have seen it in a hut. I have seen it in a palace. And wherever it is found it is the best prize of the school of life, the badge of a scholar well-beloved of the Master.—Henry Van Dyke.

COST OF FLIES.

Recently a little suburb of Salt Lake City experienced a serious outbreak of typhoid fever, the cause for which was traced to the milk supply; but no case of typhoid was found at the dairy. A correspondent at Salt Lake City writes that the season before a man at the dairy had typhoid, and his excreta had been dumped in an unused outhouse back of the barn. When the hot weather came, the flies, bred in that outhouse, carried the germs from the excreta a year old into the barn, and infected the milk, and through the milk twenty-six families had to bear the awful scourge of the dread typhoid, all because the contents of the one old outhouse had not been covered with netting.

HITS CARELESS FARMERS.

Secretary Wilson declares that many farmers in the West are using too much water, being inclined to rely too much on water and not enough on cultivation. The difference between the good farmer and the poor is just as conspicuous in these regions as it is anywhere else.

THE VALUE OF A FRIEND.

So long as we love, we serve; so long as we are loved by others, I would almost say that we are indispensable; and no man is useless while he has a friend.—Robert Louis Stevenson.

NOTHING.

Madge—Then you really believe in nothing?"

Softhead—"I believe in anything I can understand."

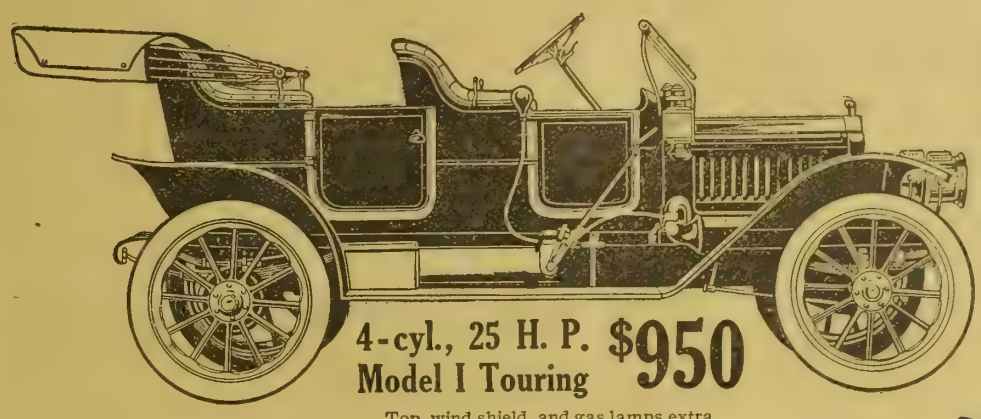
Madge—"What a frightful skeptic you must be!"—Brooklyn Life.

She—How do you make a Maltese cross?

He—By pulling its tail.—Judge.

Life appears to me too short to be spent in nursing animosity or registering wrongs.—C. Bronte.

I Built this Maxwell Especially for Farmers



Here's the Car you've waited for at a price you can afford.

4-cyl., 25 H. P. Model I Touring $950

Top, wind shield, and gas lamps extra

LAST year we sold 4,227 Maxwells to farmers. Think of it! This so stirred my enthusiasm that I resolved to design a car for *farmers especially*. One that would stand the hardships and terrific punishment of rough farm work, and yet stand up 365 days in the year.

Typical Farmers' Car

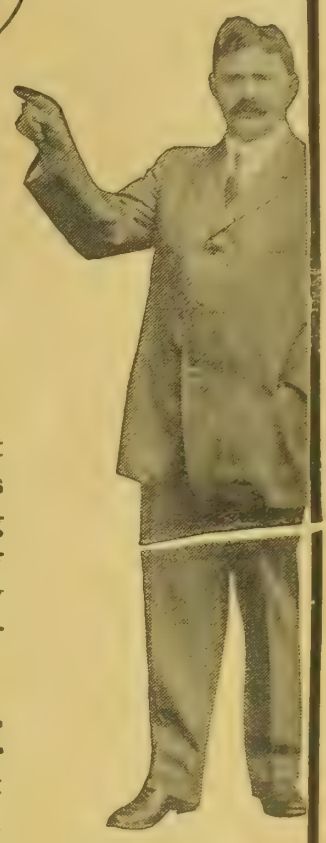
Operating a farm myself, I knew what was wanted. I knew the car must be substantially built of first-class materials. That it must be a big car, adaptable both for business and pleasure. That it must possess ample power. That it must possess simplicity and accessibility of parts. Above all, it must be a car of stylish lines and dignified appearance. Such a car I built. When I figured up manufacturing cost, to my great surprise I found that owing to the tremendous Maxwell facilities and output I could sell this car at the exceedingly low price of $950. Such car value was never before known.

Not a City Car

It doesn't pay to sell a car built for city use—fine boulevards and macadam roads—telling the farmer it is the ideal car for the country. This policy may sell the first car, but never the second.

Ask any Maxwell Owner

Ask any Maxwell owner what it has cost him, saved him and produced for him. How it has saved his horses. How it has kept young men with their father on the farm because of its money-making possibilities. Ask him how it compares in expense with horse-drawn vehicles—if it is a paying investment.



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Every hand farming tool on which you find the Keen Kutter trade mark is covered by a broad gauge guarantee. If a Keen Kutter fork, hoe, rake, scythe, snath, shovel, axe or hay knife, shows an imperfection of any kind, or fails to do the work for which it was intended, easily and fast, you get your money back. The same guarantee covers Keen Kutter shop tools, razors, shears, pocket-knives and table cutlery.

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You can readily see that the leaves, the seed, the seed receptacles, in fact they differ so widely that a blow which will thresh out grain will not be sufficient in threshing alfalfa, because it must be **rubbed out** and the **BIRDSELL** is the machine to do it.

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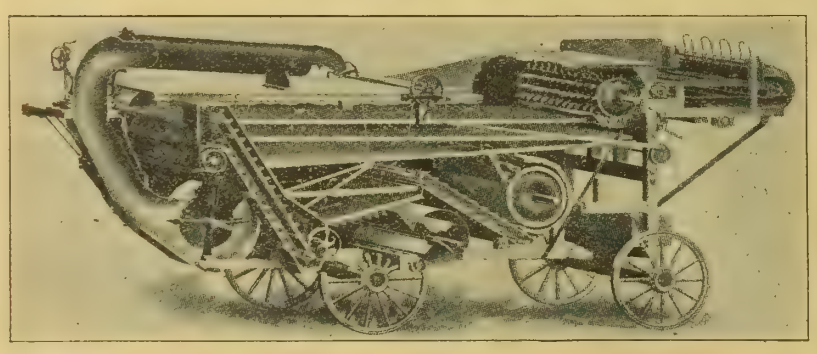

with the ordinary grain separator and you will agree with us that the **BIRDSELL** is the only machine made that will save all the seed and put it in the sack ready for market. We can sell you a combination machine if you want one. Get busy now, write or come in and see us, we will put our time against yours.

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WONDERFUL NEW PEACH

Wonderful new peach, "Shamrock," that comes in just after Salway, which keeps until February. It is a large yellow peach, highly colored, like Orange Kling, has a rich flavor, bears very heavily on all parts of the tree, and sells during winter at 10c and 15c a pound. Three growers near Los Angeles have had control of this peach the past four years and would not sell any trees, but they have netted $400 to $500 an acre each year. My trees are the first ever offered for sale. Price $25.00 a hundred, or 50c each. Also have Foster, Crawford, Susquehanna and Salway at $10 a hundred. All trees two years old.

O. C. LANE, R. F. D. Box 70, Burbank, California.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Pruning Apples and Pears.

Please give advice regarding pruning apples and pears. Subscriber, Modesto.

See Mr. Mills' article on deciduous page of next week's Cultivator.

Trap Nests.

Where can I buy trap nests, or are they simple enough so that I can make them?—Subscriber, Tustin.

An early Cultivator will have descriptions of trap nests and illustrations, so that it will be fairly easy for the subscriber to make them. This will be a reprint of a former article which proved helpful.

Miner's Inch.

How many gallons in a miner's inch under six-inch pressure; also how many gallons are thrown by a pump which is supplying twelve inches of water?—Subscriber, Lincoln.

An inch of water under six-inch pressure is 11 gallons per minute; under four-inch, 9 gallons per minute. At 11 gallons per minute your pump would throw 660 gallons per hour or 15,840 gallons in 24 hours.

Ferrets.

Where can ferrets be secured? I wish to use them in catching rats in dwelling house. Can you give me the price?—J. F. M.

We do not know of any breeder of ferrets in California. We see no reason why they should not be as satisfactory here as they are in the East. The ferret breeding center of this country is New London, Ohio. If J. F. M. will write us we will send him address of parties from whom he can secure them.

Scabby Potatoes.

Please give formula for treating seed potatoes to prevent scab.—Subscriber, Arroyo Grande.

If our subscriber will turn to the issue of the Cultivator of November 3, in which is a complete list of formulas for treatment of diseases and pests, he will find in Numbers 6 and 7 that formalin one ounce and water two gallons, or corrosive sublimate two ounces and water fifteen gallons will make a dip for seed that will prevent potato scab.

Peaches Out of Condition.

I send peach twigs. The trees from which they are taken are affected with gum trouble. First noticed it last fall while the leaves were still green. Every tree in the orchard is affected, also apricot trees.—Subscriber, Ontario.

This was referred to Mr. C. O. Smith, assistant plant pathologist at the Southern California Laboratory, and he answers: "From my observation I do not think the trouble is due to peach blight. It may be due to some bad soil conditions. I would advise pruning these trees back well and giving them especially good care."

Slow Moulting.

Is there any reason why my hens should be very slow in moulting? They have been moulting since the first of October and go shivering around for lack of feathers. The old feathers stick very tightly and new ones are lacking.—Subscriber, Campell.

A food very rich in protein, beef scraps or other meat ration, will perhaps help in the formation of feathers. Feed plentifully. Some poultrymen force the moult early in the season, claiming they can complete it more quickly by a starvation ration for a couple of weeks as soon as the moult begins to show, then at the end of that period rich and abundant ration is supplied to make feathers.

Seville Oranges.

Are the oranges known to the English trade as Seville or bitter oranges from which Scotch marmalade is made grown in this state? Where can they be procured?—P. B., Santa Rosa.

The Seville orange, usually called in this state "sour stock," is the stock on which many of the sweet oranges and lemons are budded. The seed may be purchased of seedmen, or citrus nurserymen advertising in The Cultivator can supply you with the stock. Some of the streets of the city of Sacramento are lined with this variety of fruit.

Scaly Leg.

Is there a way of removing scales from hens' legs, also of preventing them from forming again?—Subscriber, Campbell.

Application of kerosene to the shanks will accomplish this, though it is a rather severe remedy. Some prefer washing in warm soapsuds until scales are softened, then remove as many as possible, after which the shanks are covered with ointment of lard or vaseline in which a large quantity of sulphur has been worked. This treatment followed persistently twice a week will in a short time effect a cure.

Black Leghorns.

Please describe the Black Leghorn. Is it a good laying breed, and where can the eggs be procured?—Subscriber, Olive.

Black Leghorns have the same characteristics as the other Leghorn breeds, excepting as to color of shanks and plumage. They must have the true Leghorn shape. One great difficulty in breeding this variety is the tendency of the shanks to breed too dark. The usual Leghorn requirement prevails as to yellow shanks, though the Blacks will run darker than the others. The Cultivator knows of no California breeders, but perhaps they will make their announcements later.

Gophers.

What is the best way to get rid of gophers? Is the smoke gun practical?—Subscriber, Napa.

Trapping is the surest way but in large fields it is expensive. In such case, a liberal use of poisoned baits in potatoes, raisins, carrots or other food which the pests like, will be found satisfactory. Insert a small portion of poisoned bait, close the hole and go to the next, and so on. Smoking appliances have been used extensively, and successfully when the ground is wet, with squirrels. With gophers the success has not been so complete, though some people use them and consider them most satisfactory.

Ginseng.

Please give information regarding care of ginseng, how to start, whether to use plants, roots or seeds, and the kind of soil required.—Subscriber, Santa Barbara.

The culture of this peculiar plant has had its ups and downs, the down, we believe, usually following every

boom it has had. We would advise the subscriber to use care in planting, and know as to the market before making extensive plantings. If the promises made by enthusiasts were all made good, it would prove extremely profitable. A crop worth several thousands of dollars may be grown on one acre, but the culture is expensive.

The ginseng may be propagated from seed produced in the small berries. We believe seedmen can supply you with the seed, and those who have made a business of it, some of whom have advertised in the Cultivator, have the plants, twelve to eighteen months old, for sale. If you secure your seed and do not plant at once, keep in moist sand. They are often stored in a cool cellar for a period of twelve months, the sand being kept continually moist. After this period the seed begins to crack, when it is ready for planting in the soil. Some growers prefer to plant directly in the soil, keeping it well irrigated. The seed bed should not be over four feet wide, so as to permit of weeding and working from either side. There are 7,000 seeds or more to the pound. The fall months are the best for seed planting, also for resetting. The best results have been secured by giving partial shade under lath house—this for permanent bed. The care given the best of gardens is about what is required for culture of ginseng until maturity of roots.

In small quantities the roots may be dried about the stove or in the sun in dry sections, but if large quantities are produced, evaporators are necessary.

Removing Trees.

I have a fig tree and an orange tree four or five years old and wish to remove them. Can I do it successfully, and how and when?—Subscriber.

It is possible to remove both of these trees and successfully, though it will be expensive. The fig tree which will stand much abuse, can be dug and reset, shaking off the dirt and handling much as you would the ordinary nursery tree. The top should be greatly reduced after setting. It should be removed at once. As soon as it is in its new location thoroughly settle the dirt about it with water.

The orange tree should not be moved for a couple of months yet, say in the middle of March, and to be sure of success you should take up as large a ball of earth as possible around the roots. If the tree is large and thrifty it may be necessary to use a derrick in hoisting, first having constructed a box about the ball of earth to hold it together while moving. This method is expensive and unless the tree is very valuable or it is desired to give the grounds an appearance of having been planted some time, it probably would not pay.

Avocado in Sacramento Valley.

Will the avocado grow here? Orange trees grow very well, but the fruit is not as sweet as we would wish. Where may seeds be procured?—Subscriber, Napa.

We question as to the avocado doing its best in that section, though new varieties are being introduced, some of which are claimed to grow in high altitudes of Mexico where the temperature is sometimes very low. So far the successful plantings are restricted to Southern California near the coast where the temperature does not go low. Within a very few years growers will have sufficient experience to give more definite information. The seed may be had by buying fruit which is in the markets in San Francisco or Los Angeles. Probably the seedmen advertising in The Cultivator can also supply you. You must bear in mind that to get the best variety, it is necessary to bud, as, like the orange, the avocado seedling does not come true to the parent stock though a good variety may possibly be secured.

Grafting Walnuts.

I have ten acres of walnuts that have been set out for two years. They are Placentia Perfection, and are seedlings. I have been told that it is a mistake to plant seedlings. If this is the case, can they be grafted successfully? Have been told that trees of different varieties should be planted through grove for purpose of pollinating. Is this necessary?—Subscriber, Hemet.

So long as the trees have been planted and have had two summers' growth, it might be wisest to let them grow and see how they will bear. We would not, however, plant seedlings in the future. The majority of these trees will probably be of an indifferent kind, and may be grafted over and very successfully. Old walnut orchards have been made over in many sections, and the third year from grafting have produced far more than before the cutting back.

The walnut has staminate and pistillate blossoms separate. Some varieties have the fault of forming the staminate flowers first, and even so far in advance of the pistillate that the pollen loses its vitality. As a rule, however, the two flowers come near enough together so that self-fertilizing is accomplished.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Lameness.

A mare, four years old, has been lame in the right hind leg for the past two weeks. The pain has not been located, but seems to be in the hip. If a strain why lame so long? How can I hasten recovery?—Subscriber, Lindsay.

Examine the limb again beginning with the bottom of the foot and proceed upward to the body carefully and systematically. Remove the shoe; pare the sole and frog just sufficient to expose every part to the view, and search for puncture wounds by nails or other sharp objects. Note if the frog is separate from the flesh at the heel. Search the foot for deep and obscure injuries by pinching the sole and the wall with the horseshoer's large nippers. Above the foot view every part from all directions, looking for enlargements. Apply gentle but firm pressure, with the thumbs, upon every part of the limb, hoof-head, joints, leaders, etc. Treatment is out of the question without first locating the trouble.—F. G. M.

Abnormal Appetite.

A horse, about 4 years old, has been gnawing at the wooden parts of the crib since one week ago. His ration has not been changed. Is this a habit or do his teeth need attention? —Subscriber, Arroyo Grande.

"Cribbing" or "crib-biting" is a vice —an acquired habit of some horses— but such subjects rest one or two teeth upon a firm object and go through a motion, with the head and neck, peculiar to the habit of the horse in question. While wooden objects are usually selected no effort is made to bite off and chew particles of the wood. The teeth used are perceptibly worn by constant use. This habit is incurable.

Actually gnawing wood is not a habit, but implies derangement of the digestion or assimilation. Improper mastication may be responsible, hence putting the teeth in order may aid in correcting the trouble. Sometimes worms are held to be the cause. Give the horse, twice daily, in the feed, one tablespoonful of a powder made by mixing dried sulphate of iron 2 ounces, gentian 2 ounces, nux vomica 2 ounces, and fenugreek 10 ounces.—F. G. M.

MEXICAN LAND

States of Sonora and Sinaloa

Tracts of all sizes, at low prices.

We have several tracts of from 1000 acres up, at first cost. These would make ideal small colonies, for parties who contemplate co-operating in purchasing land in Mexico. They are fine soil, good water conditions, and close to the railroad. We can save you subdividers' costs and profits if you and your friends can handle one of these tracts. They are suitable for anything from general farming to fine fruit and vegetable raising.

Our Santa Teresa de La Concordia subdivision, near Hermosillo, the capital city of Sonora, is delta soil, and is watered by the flood water irrigation system, corn, bean, garbanzo, and cotton land, $5.00 and $10.00 per acre, easy terms, 160-acre tracts. Fine river bottom silt soil, in the State of Sinaloa, with gravity or shallow well water for irrigation. Prices in small tracts, $12.00 up an acre, according to location and improvements.

Arrange to join one of our excursions which we are sending down at frequent intervals. Write us for free illustrated booklets and bulletin of prices.

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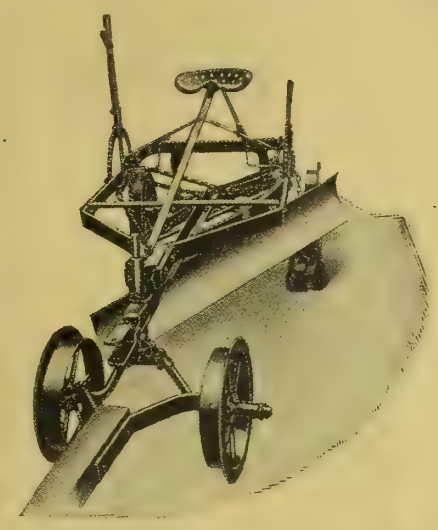

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Low priced, weighs 600 pounds.

After giving a machine a trial, a member of the city council here said, "It's a success, we will take the machine."

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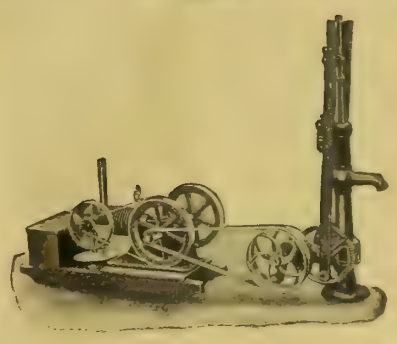

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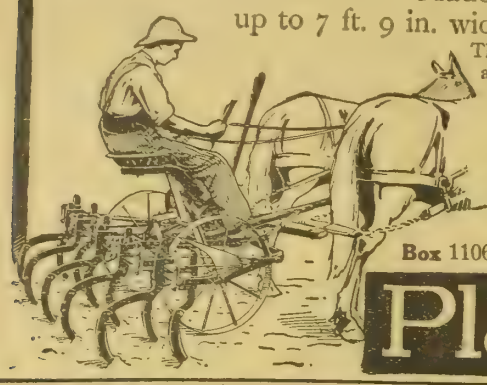

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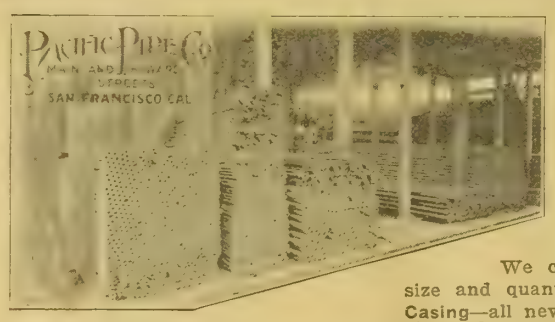

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We offer a large stock of the tree that made San Jose famous—the tree of the sudden saw log—the tree that will yield you an income as long as time shall last. The genuine Blue Eucalyptus; also the red gums Rostrata and Tereticornis.

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Irrigation and Forestry

WINTER IRRIGATION OF ORCHARDS.

When water is used outside of the regular irrigation period or, what is in many cases equivalent, outside of the growing season, it is termed winter irrigation. Over a large part of the arid season the growing season is limited by low temperature to 150 days, or less, and when the flow of streams is utilized only during this period much valuable water runs to waste.

It was for the purpose of utilizing some of this waste that the orchardists of the Pacific Coast states and Arizona began the practice of winter irrigation. The precipitation usually occurs in winter in the form of rain, and large quantities of creek water are then available. This water is spread over the orchards in January, February and March, when deciduous trees are dormant. The most favorable conditions for this practice are a mild winter climate; a deep, retentive soil which will hold the greater part of the water applied; deep-rooted trees; and a soil moist from frequent rains.

The creek water which was applied to some of the prune orchards of the Santa Clara Valley, California, during the winter of 1904 was measured by the agents of this office with the following results: From February 27 to April 23, 1241 acres were irrigated under the Statler ditch to an average depth of 1.58 feet. From February 12 to April 23, 2021 acres were irrigated under the Sorosis and Calkins ditches to an average depth of 1.75 feet. In the majority of cases the orchards which are irrigated in winter in this valley receive no additional supply of moisture other than about 16 inches of rain water.

In the colder parts of the arid region winter irrigation is likewise being practiced with satisfactory results. The purpose is not only to store water in the soil but to prevent the winter-killing of trees. Experience has shown that it is not best to apply much water to orchards during the latter part of the growing season, since it tends to produce immature growth which is easily damaged by frost. In many of the orchards of Montana no water is applied in summer irrigation after August 20. Owing, however, to the prevalence of warm chinook winds, which not only melt the snow in a night, but rob the exposed soil of much of its moisture, one or two irrigations are frequently necessary in midwinter.—Irrigation Age.

DANGER TO ALL INTERESTS WHEN FARMERS ARE POOR.

The American farmer never has received fair compensation for raising grain or producing milk, and it is only in the last five years that he has been decently paid for his meat production. Trained business men would not give their time and investment on any such terms as the farmer does. If middlemen—buyers, packers, merchants or carriers—are responsible for price inflation, they are the ones who should be brought to account.

In this new campaign for lower prices let us make sure that we are aiming at those who are to blame for the extortionate rates which have prevailed for the last few years. A cheapening of farm products will not help business conditions. It is quite possible that cheaper food will lessen the burden of city life for the poor, but not if it be at the expense of wages and business activity.

The low price of corn today is something of a blow to farmers, who are not purchasing goods freely or circulating money with as great liberality as they would if they were getting higher rates for their produce. When the producers begin to hold up their food supplies on account of depressed markets, business becomes slack in the country, money circulates slowly, storekeepers are unable to sell goods or pay bills, and bankers report bad times. This at once affects city wholesalers and manufacturers, who employ less help and cut wages. Times soon become bad all over under such conditions.

This is not a theory, but a fact which has been painfully demonstrated in the last few weeks of money stringency. Fortunately for producers, the low prices for country supplies have prevailed only a short time, and the purchasing power of farming commodities is not yet greatly crippled.—Irrigation Age.

LAND SHARKS.

The Cultivator recently received a letter from an eastern man asking as to the value of lands in a worthless portion of Mojave desert in which the methods of a so-called real estate agent, in reality a land shark, were given. Not only had worthless land been sold but a further hold-up had been worked in the "contracting" to grade up and seed to alfalfa for a further consideration. The desire of many in the East to secure some property in California which may later be sufficient to support a family, makes easy the grafting game which the conscienceless rascals are working. It is a disgrace to the state and should be stopped. It can be and should be by some of the promotion bodies which are urging settlers to come here.

Speaking of this evil a writer in the National Irrigation Journal says:

"'That man will make a failure,' said the successful farmer, speaking of a tenderfoot, who had taken up a homestead on the mountain side, far away from civilization. 'He cannot get enough water. Frost hangs on too long in the spring and comes too early in the fall. There are no roads fit to haul over. His place is on the route taken by sheepmen going to summer camps on the forest reserve. The sheep will destroy everything. And, it is nonsense to go out of human trails to build a home.'

"The new man had recently arrived from the East. He thought, as do many others, that the government owed him a farm, and proceeded to lay claim to a portion of the public domain. But failure marked that attempt at locating an irrigated farm. The site was not desirable. It lacked all the essentials of success. So, with many homeseekers. They join the bands of men and women going West to grow up with the country. Their destination is as uncertain as the wind.

"Canvas does not hold a sadder

Deep Well Pumping For Irrigation.

The past season has demonstrated more than ever the practicability and superiority of the Pomona Deep Well Pumps. It is fully proven that it is possible to lift large quantities of water from very deep wells with a surprisingly small amount of power. It has usually been considered that a plunger pump is only good for a 35-inch stream on a lift of say 200 feet, but the Pomona Manufacturing Company have demonstrated that it is no longer necessary to use a centrifugal pump, with its wasteful usage of power, to get a large quantity of water out of the ground, as this company is manufacturing extra large size cylinders including 12, 13, 14 and 16 inches in diameter, and capable of lifting from 50 to 100 miner's inches of water. Not only that, but they are prepared to go down after it to depths of 300 and 400 feet if necessary.

They have one plant at Claremont where the water stands 390 feet below the surface and the pump has a total lift of 450 feet, delivering 45 miner's inches of water with 60 H. P. on the motor, and doing it easily. There is another plant in Ontario lifting 60 miner's inches 300 feet with a 60 H. P. engine.

The parts below the surface have been so perfected that they are perfectly reliable and are giving as little trouble as it is possible for a machine to do. Other pump makers, noting the wonderful success of the Pomona Pumps, are trying to imitate them, promising something just as good, but they are only imitators and have not the knowledge or ability to make their claims good.

The Pomona Manufacturing Company has a large plant at Pomona, the only one in Southern California, devoted almost exclusively to manufacturing Plunger Pumps. They are a reliable establishment and are here to stay, to make good their guarantees and to supply your wants in the way of extras or assistance. Their machines and apparatus have been tried out and their value fully demonstrated.

Anyone needing pumping machinery should send to them for catalogs, or visit them in person.

Would ½ More Water
With the same power from deep wells **Interest You?**
It is accomplished with the Double-Acting
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It delivers full cylinder capacity both on the **Down**-stroke and the **Up**-stroke. It requires at no time more power than the up-stroke of a single-acting cylinder of the same displacement.
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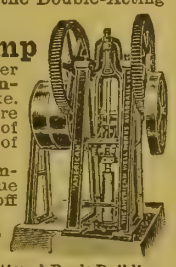
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310 Sansome St. San Francisco
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When writing advertisers mention the Cultivator

painting than that showing the home returning of a disappointed fortune seeking family. I have seen them. Pictures of distress, broken hopes and faded lives. A large family left one of the best counties in southern Illinois and went West. All the group of nine possessed, was converted into cash. That went into the hands of a land shark in a western city to pay for a tract on which no man could make a living. After spending one season that family left.

"Could the land agent have seen the misery in that family would he have felt enough pricking of conscience to give the children money to buy clothing? No, that is not a part of the program. Had the salesman set eyes on that emaciated, half-fed, poorly clothed and heartsick wife and mother would he have contributed five dollars to a fund for taking her back home? No, such things are printed in stories, but not enacted in real life. But I have seen even worse things among disappointed homeseekers."

POWER PERMITS.

A new form of water power permit and new regulations for water power plants on the national forests were approved yesterday by the secretary of agriculture. The important changes under the new regulations are that they provide for the issuance of a preliminary permit which secures to the party making the first application protection during the time necessary to make his final surveys and procure the data for the issuance of the final permit. The new permits will terminate at the expiration of 50 years, unless revoked sooner by the secretary of agriculture, and the charge will be based upon the net horsepower capacity of the plant, beginning with a charge of 10 cents per horsepower during the first year and rising gradually 10 cents per year to $1.00 per horsepower in the tenth year, which charge will continue thereafter. Computed for the 50-year period, the charge under the new permit is about 30 per cent less than that under the old form. Provision is made for a readjustment every ten years of the factors upon which the estimated capacity of the plant is computed. It is believed that the new regulations will encourage extensive water power development in the national forests under provisions which will fully protect the interests of the people.

PROSPECTS BETTER FOR IRRIGATION BOND ISSUES.

The general outlook for the better class of irrigation bonds has greatly improved. Buyers are turning away from low-priced issues of all kinds, and while they are no less discriminating than ever, their demand is for bonds of high earning power. This is a feature of the monetary situation the world over, and all governments have had to take notice of it.

Irrigation bonds as a rule are returning 5 to 6 per cent, and it is apparent that capitalists will be insistent on at least a 6 per cent basis. At such a figure there is likely to be a good market during 1911, for money is easier, and is likely to remain so for some months to come.—Irrigation Age.

The great dam in Mokelumne river near Woodbridge, has been completed and will supply water to irrigate 60,000 acres of land in the vicinity of Woodbridge, Lodi and other fruit districts in northern San Joaquin county.

TO BE RECLAIMED.

To reclaim 15,000 acres of land in the Wood River Valley, near Klamath Falls, Ore., a levee 24 miles in length is being built by Senator Abner Weed of Siskiyou, Cal. The work is about half finished. Senator Weed owns 15,000 acres of land in the valley, between the mouth of Wood River and the mouth of Seven Mile Creek, and this levee along the lake shore is to protect these large holdings from the lake overflow in the wet seasons. The levee will serve as an embankment to keep the water from overflowing the land, and the ditch will serve as a drain for the wet land lying along it.—Irrigation Journal.

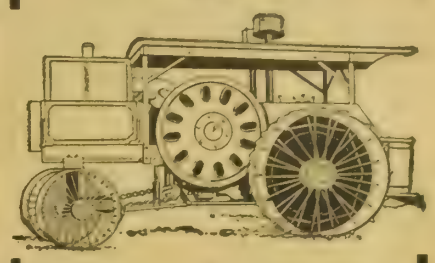
Up to the present time about 300,000 acres of land in Indian reservations have been reclaimed by irrigation works, of which amount 118,640 acres are being irrigated by Indians, and 42,080 acres by white lessees and purchasers. The area which will be irrigated when completed amounts to approximately 1,100,000 acres. The total appropriations for irrigation purposes during the past year amounted to $1,365,000. By act approved June 25, 1910, congress authorized the secretary of the interior to reserve from location, entry, sale, allotment or other appropriation any lands within Indian reservations valuable for power or reservoir sites, or which may be necessary for use in connection with any irrigation project. This authorization will be of great value in providing for and accomplishing the irrigation of arid Indian lands.—Secretary Ballinger's Report.

Fifty farmers, owning 20,000 acres of land on the Lower Eureka flats, southwest of Spokane, Washington, have formed a company to install an irrigation plant, costing $100,000. The land is too light for wheat and it is believed it can be used for alfalfa and fruit when supplied with water. Walter Reborn, city engineer of Walla Walla, and G. W. Winkle, engineer of Walla Walla county, have made surveys of the project. One plan is to convey the water from the Touchet river at Prescott by a 20-mile ditch, the other being to pump from the river at Lamar, lifting the water 200 feet to a ditch, which is to be 12 miles in length. The latter plan involves the construction of a reservoir to hold the water when the river is low.—Irrigation Journal.

The prospective home-maker of the East contemplating changing to the West should not believe all he reads or hears about the country. Richly colored prospectuses are sent out by good and bad irrigation promoters, for there are two kinds of irrigationists, even in the West. All classes get the best printing possible, becaues it pays to do so. The printers use their best paper and inks, and exercise ingenious methods of display, for the reason that it pays them to put out the best specimens of the printer's art. Yet all they print is not the truth.—Irrigation Journal.

A SLEEPY BOY.

"Up! Up, my boy, it's time to dress,"
Calls father in the morning;
And then, a second afterward,
There comes another warning.
"What! not up yet, you lazy boy?"
Says father quite severely.
"It's fifteen minutes since I called,
And breakfast's ready, nearly."
Now what I really want to know,
Is where those fifteen minutes go.

Distillate Traction Engine

Double Cylinder 50 H.P.
For Plowing or Hauling will do the work of Twenty-Five Horses
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Easy as an Automobile to Handle. Only Two Levers, One to Drive, One to Control Power Steering Gear.
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Walnut Grafting Wood
From highly productive resistant trees.
J. B. NEFF, Anaheim, Cal.

BE SURE to say where you saw their

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Registered Holstein Bulls; 1 to 2 years old. Some sired by Prince Juliana, brother of former world's record heifer, Juliana De Kol. Dam and granddam, A. R. O. cows. Three record-breakers in some of their pedigrees. M. E. Sherman, Minnewawa Vineyard, Fresno, Calif.

For Sale—Registered Belgian stallion, imported by Champlin Bros. of Clinton, Iowa. Coal black, a fine individual and in A1 condition. For particulars address C. F. Wood, R. D. 2, Compton, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, L448 Marden Bldg., Washington, D. C.

I Am Coming to Southern California, willing to do any kind of work. Wish to make an appointment with some farmer who has a position open for a good man 25 years old, good appearing and of good habits. Best of references furnished. In answering give full particulars regarding work. Address Theo Dzur, 1016 N. Lincoln St., Chicago, Ill.

Zanjero Wanted—Address as below, stating experience, age, family, nationality, wages or salary in previous or present position. References required as to reliability, honesty, faithfulness, all around ability and affability in dealing with water consumers. Lewiston-Clarkston Improvement Co., Clarkston, Washington.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

A Live Man with 15 years' experience in the planting and care of orange trees, both in nursery and orchard form will be open for a position about February 1st. Would prefer a big proposition. Address R., care Cultivator.

Help Wanted—We want several good solicitors to solicit for a high class suburban monthly publication. Good profitable employment to the right party. For particulars address Box H, Cultivator Office, Los Angeles.

Orchardist—Young married man with fifteen years' experience in management of best orchards of California wants position. Best of references. Address Elmer S., care Cultivator.

Wanted—12 Hereford bulls, not under 18 months or over 4 years. Quote price F.O.B. car. Daggett Ranch Co., Daggett, Cal.

Wanted—One pair full grown peacocks. State price. Mrs. Berger, R. F. D. 3, Santa Rosa, Cal.

Wanted—1500 Washington Navels for April planting. Write price and quality. Box 233, Exeter, Cal.

TREES.

For Sale—250,000 first-class rooted vines, Zinfandel, Tokays, Muscats, Black Morocco, Black Ferrara, Cornichons, and Emperors in 1,000 lots at $11.00, smaller lots $1.50 per 100. Geo. McArthur, Acampo, Cal.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Ballou's Nursery, 728 East Orange Grove Ave., Pasadena, Cal.

We Have Fruit Trees of all kinds from 18c to 25c. Send us your wants. Roses. Our new blue Marguerites, try them. Many more plants. Geraniums a specialty. Golden West Nurseries, 49 West Main St., Los Gatos, Cal.

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

Will Furnish Eucalyptus Trees and take a share in the land when planted for the trees. Or will exchange trees for anything of good value. Logan Russell, Pomona, Cal.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B Pierce, proprietor. Rare choice ornamentals and new fruits from all lands

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal

Iris—We will send postpaid (our selection) 8 distinct varieties for $1.00, 24 in six varieties for $2.50. The Dean Iris Gardens, Moneta, Cal.

FARM LANDS FOR SALE.

160-Acre Ranch in Tulare County Cal.—2 miles from Poplar, near Portersville. All under cultivation; houses, two barns, granary and blacksmith shop. Mail delivery and telephone. Irrigating ditch running across ranch with full water right. Especially adapted to raising alfalfa, deciduous fruits and eucalyptus. Citrus fruits are grown on adjoining ranches. One mile from proposed electric railroad. Being unable to locate on this ranch I will offer it for sale at the bargain price of $55 per acre. Write for terms and further information to H. F. Stubbs, Bradshaw, Neb.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars, call or address Paxton, 612 Lankershim Bldg., Los Angeles.

For Sale—$15,000 buys 80 acres of well improved land in Tulare Co. 45 acres in alfalfa, 9 acres in bearing Muscat vines, about 1500 one and two-year-old peach trees, 10 acres pasture land. All well fenced and cross fenced, with hog fence, big two-story barn, small house. School house near, 4½ miles southwest from court house. Plenty of water to irrigate with. Will sell as a whole or in part. Good terms. Wm. D. Green, R. R. 3, Visalia, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale—Or will exchange for Southern California Apiary. Olivecrest, a two-acre country home in Sonoma County. Five-room cottage. Fifty olive trees, thirty of mixed fruit. Five large oak trees. Two wells. View of mountains and valley unsurpassed. Was summer home of an author. Two hours from San Francisco. One mile from good town. Price $2000.00. Box 725, Brawley, Cal.

For Sale—815 acres in San Luis Obispo County. A typical dairy ranch. Plenty of wood, water, irrigable land, buildings, fenced and cross fenced. Orchards, vineyards, oranges, lemons and walnuts do exceedingly well here. Forty acres of land suitable for these. Price $21 per acre. For further particulars apply to Mrs. F. A. Clink, Pozo, Cal.

For Sale—The Fresno Meadows Colony is now opened for settlement in lots of 40 acres or more with water at $50 per acre. This is an opening price and is made to induce settlement. Arrangements can be made so that the first payment will carry the deal indefinitely. Call or write at once. Green & Webb, Gen. Sales Agents, 406 Laughlin Bldg., Los Angeles. Phone A8284.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Farms Wanted—Don't pay commissions. We find you direct buyer. Write, describing property, naming lowest price. We help buyers locate desirable properties free. American Investment Association, 12 Palace, Minneapolis, Minn.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

Cuba—Most productive soil. Delightful and healthful climate. Ample rainfall. Cheapest transportation facilities to the world's greatest markets. Particulars free. Sanderson, 13 Palace Building, Minneapolis.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Information where there is good state land in California now. Where? How to obtain. Send dime. Total cost $2.00 an acre. Joseph Clark, 830 M St., Sacramento, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

Parker & Sternberg live in the San Fernando Valley and sell bargains in Ranches, Houses and Acreage. Office 310 Brand, Glendale, Cal. Write or call.

For Sale—160 acres Imperial County, two miles from Palo Verde; $16 per acre, cash. Address Joseph Zalkovsky, Palo Verde, Cal.

Farms for Rent or Sale on crop payments. J. Mulhall, Sioux City, Ia.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans; cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

PIGEONS.

Carneaux Pigeons—Guaranteed thoroughbred; original stock purchased from Plymouth Rock Squab Co., Boston. Four weeks squabs, weight twelve to twenty ounces. Breed ten times a year. Guaranteed mated and working when sold. Write for particulars. W. C. Barrett, Carneaux Squab Co., San Pedro, Cal.

POULTRY.

Eggs from Select Trapnested Stock. No culls. Black Minorcas, Northrup strain; White Wyandottes, great winter layers; Barred Rocks, White Rocks, Buff Orpingtons, Rhode Island Reds, all $2.50 per 36 eggs, $6 per 100. White Minorcas, beauties, fine layers of the largest white eggs, $3.00 per 36, $7.00 per 100. White and Brown Leghorns, heavy laying strains, $2.25 per 36, $4.50 per 100. Buff and White Indian Runner Ducks. Took 1st and 2d prize pens and silver cup special for best ducks in show. $1.00 per 13, $6.00 per 100. Pullets and cockerels for sale. Enclose stamp for reply. W. D. Rose, R. D. 6, Santa Ana, Cal.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Sterling White Wyandottes—Save delay by sending in your order for what you want. If I cannot fill the order I will let you know by return mail. Remember, I guarantee my stock and eggs and will refund the purchase price if you are not satisfied. S. P. Moore, 958 Spence St., Los Angeles, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Silver Spangled Hamburgs, unsurpassed for beauty. Twenty years with Hamburgs. My stock pronounced by expert judges the finest in America. Eggs $5 per 13. C. J. Siegfried, Alameda, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

S. C. Rhode Island Reds, good stock, fine layers. Eggs $1.50 per 15, $6.00 per 100. Chicks hatched if ordered. L. Haynes, Madera, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

White Orpingtons—High grade stock. Heavy layers. Eggs $5.00 per 15; $25.00 per 100. Day-old chicks 75c each. H. E. Dickinson, R. D. 1, Napa, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

For Sale—A fine selection of Buff Orpington cockerels. This is thoroughbred stock and you will make no mistake in selecting one of these birds. Prices $2.50 and $3.50. Mrs. J. R. Snead, Dixon, Solano Co., Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

I Hatch White Rocks Exclusively—Baby chicks $15 per 100. Guaranteed pure bred and from heavy laying strain. Will book orders for stock one to ten weeks old. Circular free. J. Wesley Lord, Inglewood, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, R. I. Reds and Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Crystal and Pearl White Orpingtons—Eggs from mature birds direct from Kellerstrass and Byers farms. Settings $5.00 per 15, fertility guaranteed. Also some very choice cockerels. Address B. Striner, Glendale, or phone Sunset Glendale 4363.

R. I. Red Eggs for hatching from scientifically tested layers. The Luedkes, Anaheim, R. D. 1.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

Eggs for Hatching—Duckwing Leghorn, Buff Orpington and Black Minorcas. H. R. Leek, Escalona Ranch, Santa Cruz, Cal.

Orland Hatchery—Just hatched White Leghorn Chix. Booking orders for later delivery. P. L. Simpson, Box 13, Orland, Cal

For Sale—Ringed Necked Pheasants, "Mongolian." $5.00 a pair. Mrs. Geo. W. Jenkins, Route 1, Box 40, Sonoma, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

CHICKENS FOR SALE.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

For Sale—Some A1 Silver Penciled Wyandotte cockerels, from blue ribbon winners. Some fine ones at $2.50 and $3.00. Higher priced birds a matter of correspondence. Eggs $1.25 per 13. My stock are the winners of four first prizes, three second prizes and one third prize at the 1911 Los Angeles Show. W. C. Pagenkopp, Sherman, Cal.

Rock Haven—60 pens White Plymouth Rocks, 20 pens S. C. Rhode Island Reds. Our hobby is high capacity egg producers. Eggs the year round. Baby chicks every month in the year. Send for our booklet. Jos. E. Davis, Box 148, R. F. D. 11, Los Angeles, Cal.

R. I. Reds (Tompkins Strain)—Eggs and chicks. Rancho Casa Loma, R. D. 14, Box 56, Los Gatos, Cal.

White Rocks, Fishel strain, vigorous baby chicks, $15.00 per hundred. Eggs for hatching, $1.50 per setting, $6.00 per hundred. Several roosters for breeding purposes. R. F. D. 1, Box 220A, Long Beach, Cal. Telephone Sunset 4513.

Barred Rock Pullets and Buff Orpington cockerels for sale. Eggs for hatching. Popular prices. M. A. Young, Los Gatos, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Indian Runner and Buff Orpington Ducks—Stock and eggs. Rabbits. Book on rabbits. List free. Caldwell & Co., Los Angeles, Cal., R. D. 3.

Baby Chicks and Eggs for Hatching—Orders now taken for January and later delivery of R. I. Reds (Tompkins Strain), White Minorcas and S. C. Black Minorcas (Northrup Strain). C U. Chamberlin, Los Gatos, Cal.

Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

For Sale—White Rock laying pullets. Also breeding pen of choice White Rocks. Mrs. M. C. Shorey, Box 639, Colton, Cal.

TURKEYS.

Wanted—Turkey eggs from stock 2 years old or more. State number and price. W. Pappelbaum, R. F. D. No. 1, Box 203, Los Angeles.

White Holland Tom Turkeys, brothers to winner of first prize at Los Angeles Show, January 5, 1911. Eggs and poults later. Also French Houdan and Rhode Island Red eggs and cockerels. Red eggs $5.00 per 100; 75c per setting. Mrs. Hocking, Guasti, Cal.

For Sale—Young Mammoth White Holland Turkey Toms. Fine large birds of the celebrated J. C. Fischel Strain. None better as thoroughbreds, also excellent to cross with the Bronze for the market. Price $8.00 to $10.00 each. Foreman Bros., Box 213, Corning, Cal.

Mammoth White Holland Turkey Eggs for hatching, $5.00 per setting. Extra large and thrifty stock, not related. Toms weigh 26 lbs. at 7 months. Light Brahma eggs, $3.00 per 15; Barred Rock eggs, $2.00 per 15. A. H. Blakeley, Ontario, Cal.

For Sale—Few fine Mammoth Bronze Turkey Toms, standard weight. No eggs or hens at present. Mrs. A. C. Wisegarver, San Fernando, Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

NURSERY STOCK.

S. E. Courtney of the Capital Nursery, Hanford, Kings County, Cal., is now shipping first-class peach trees to his many customers in all parts of the state at the following low prices:

All varieties of Clings and Free Stones.

		Price.
Firsts	5 to 7 ft., freight prepaid	12c
Seconds	3 to 5 ft., freight prepaid	9c
Thirds	2 to 3 ft., freight prepaid	6c
Apricots	4 to 6 ft., freight prepaid	18c
Apricots	3 to 4 ft., freight prepaid	15c
Apricots	2 to 3 ft., freight prepaid	10c

Orange seed bed stock, Sour, per 1000 $12.00

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one year old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

For Sale—Alexander, Muir, Crawford's Early and Foster Peach, Royal and Blenheim Apricot on peach root. First-class trees true to name. Abell's Nursery, Arroyo Grande, Cal.

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Fine Dollar Strawberry Plants for Sale—$2.50 per 1000. Elmer Tull, Yuba City, Sutter Co., Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J. A. Powell, R. D. 1, Box 1, Ripon, Cal.

NURSERY STOCK.

For Sale—Sour, Sweet and Trifoliata citrus seed bed stocks. T. Jikihara, P. O. Box 215, Upland, Cal.

I Have About 2000 Crimson Winter Rhubarb plants left that I will sell cheap. Clair Bishop, Highland, Cal.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

ROSES.

FOR SALE—
NOW IS THE TIME TO PLANT
DORMANT

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The following is a list of Novelties of proven merit all of which have been tested at our trial grounds at Montebello for at least two years. Where prices are quoted $1.00 each, the rate will be $10.00 per dozen; 75c each, $7.50 per dozen; 50c each, $5.00 per dozen. The following set at $1.00 each:
LYON ROSE, Coral Rose Shaded Gold.
MRS. AARON WARD, Apricot Yellow.
MRS. ARTHUR WADDELL, Copper.
SOUVENIR de STELLA GRAY, Orange Salmon.
The following set 75c each:
ALICE ROOSEVELT, Deep Salmon.
HARRY KIRK, Yellow.
INSTITEUTER SIRDEY, Fine Yellow.
JOSEPH HILL, Copper.
JEAN NOTE, Deep Yellow.
MAD. SEGUND WEBBER, Pearly Pink.
MAD. CONSTANT SOUPERT, Golden Yellow Pink.
MRS. WILLIAM CROSS, White.
QUEEN CAROLA de SAXE, Crimson.
WHITE KILLARNEY, White.
The following set 50c each:
ANNIE MULLER, Pink Baby Rose.
BETTY, Copper and Pink.
CATHERINE ZEMET, White Baby Rose.
PINK CHEROKEE, Pink.
DEANE HOLE, Pink.
PEACE, White.
RHEA REID, Crimson.
The following comprise the best known of the older and newer varieties each 35c, $3.50 per dozen, extra strong:
Avoca.
Bessie Brown, Beauty Inconstante, Black Prince.
Clara Watson, Capt. Christy.
Duchesse de Brabrant.
Etoile de France.
Franz Deegan, Freiherr von Marshall, Franciska Kruger, Frau Karl Druschki, Florence Pemberton, Francis Levet.
Grusa an Teplitz, Gen'l. Jacqueminot.
Hugh Watson, Hugh Dickson.
J. B. Clark, Jules Margottin.
Kaiserin—A Victoria, Killarney.
Laurette, Lady Battersea.
Madame Abel Chatenay, Madame Caroline Testout, Madame Jean Dupuy, Madame C. Luizet, Madame Lambard, Madame Leon Paine, Maman Cochet, White; Maman Cochet, Pink; Maman Cochet, Red; Mrs. Benj. Cant, Mrs. Jennie Guillemot, Mrs. John Laing, Meteor, Marie von Houtte, Mamie, Magna Charta.
Pearl von Godesburg, Paul Neyron, Prince Camille de Rhoan, Prince of Bulgaria.
Rhea Reid, Richmond, Rhum der Gartenweldt.
Souvenir de Pierre Notting, Soliel d'Or, Sombreuil.
Ulrich Brunner.
Viscountess of Folkstone, Venus.
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Cl. Kaiserine.
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Cl. Mad. Caroline Testout.
Cl. Bridesmaid.
Cl. Wooton.
Cl. Papa Gontier.
Cl. Francais Crousse.
Cl. Mad. Driout.
Cl. R. M. Henrietta.
Cl. Reve d'Or.
Cl. Glorie D'Dijon.
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Cl. Marshal Niel.
Cl. Queen Olga of Wurtemberg.
Cl. William Allen Richardson.
Cl. LaMarque.
Cl. Dorothy Perkins.
Plants are all budded on wild rose root and will give twice the results of cutting grown plants. All two year old plants.
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Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

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In addition we can furnish four 20-H. P. D. C., one 10-H. P. D. C. and two 7½-H. P. D. C. Western Electric motors. All of these are in first-class condition, having been overhauled at our works.

Just the power for pumping several wells at a short distance from each other. We will sell one unit of 60 H. P.

This plant cost new $10,000, but we will sell complete for $4,000. The generators alone cost $2000. We can supply any extras as we have all the patterns of the parts. Will make prices on motors in proportion to the above.

Also one R. & V. 6-H. P. vertical gas engine, new, and one new 18-inch single-acting Addison pump head and cylinders. Price $360.00, which is 25 per cent discount on lowest purchasing price.

Do not miss this chance.

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For Sale—Second-hand windmills, tanks, pumps, engines, farm machinery that will do the same work as new at half price. Finest and largest stock of tanks we have ever had. We are overstocked on tanks and are selling them at cut prices. Especially fine 2,000 gal. redwood tanks at $19.50. Some 8,000 and 10,000 gal. brand new, never been put up, at half price. Round stock tanks 2x8 ft. for $10. Wine tanks, water tanks, oil tanks, pickle tanks, spray tanks.

WINDMILLS
8, 10, 12 ft. sizes, complete or separate.
ENGINES

1½ H. P. Lambert and pump complete, guaranteed A1, too cheap to quote. 2 H. P. complete or separate, 4, 6, 18, 20, and 32 H. P., also many others. Blacksmith tools, grading tools, 2 horse orchard sprayer, windlass, plows, scrapers, wagons, fine $325 stanhope, swap at $100, silver mounted harness $25, light double harness nearly new cost $35 for $19.50, header, baler, mower, 25 H. P. gasoline hoist, in fact, most anything you are looking for second-hand. If we haven't it, know where you can get it. Demmitt Co., upstairs, 120 N. Main St., Los Angeles.

For Sale—9 H. P. portable gas engine on steel truck. Almost brand new. Price right. Machinery Exchange, Main & Bruno Sts., Los Angeles.

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General Household Notes

AS YOU MAKE IT.

To the preacher life's a sermon,
To the joker it's a jest;
To the miser life is money,
To the loafer life is rest.

To the lawyer life's a trial,
To the poet life's a song;
To the doctor life's a patient
That needs treatment right along.

To the soldier life's a battle,
To the teacher life's a school;
Life's a "good thing" to the grafter,
It's a failure to the fool.

To the man upon the engine
Life's a long and heavy grade;
It's a gamble to the gambler,
To the merchant life is trade.

Life's a picture to the artist,
To the rascal life's a fraud;
Life perhaps is but a burden
To the man beneath the hod.

Life is lovely to the lover,
To the player life's a play;
Life may be a load of trouble
To the man upon the dray.

Life is but a long vacation
To the man who loves his work;
Life's an everlasting effort
To shun duty to the shirk.

To the heaven-blest romancer
Life's a story ever new;
Life is what we try to make it—
Brother, what is life to you?

STORY OF RAMESIS.

The Chateau de Ploerneuf was the terror of the Bretons. On passing it the peasants made the sign of the cross and murmured under their breath: "The Chateau of the Accursed!" Brambles grew about its boundary walls, which no living soul dared to pass. The valets moved about within like shadows, never raising their voices. No one ever spoke to the master.

Alone the young Comte Robert found grace before the lord of the manor, the old Duc de Kerberzoff, his uncle.

At this moment when the recital commences, Robert was at the feet of the old man, who, with livid face, glittering eyes, and marks of fear on all his features, sat in the great ducal chair, listening to what the specter of terror said to him.

By his side, upon a porphyry column, burned a small golden lamp, ornamented with precious stones, into the flames of which a tall negro poured, minute by minute, a drop of oil. In the old man's rude hand gleamed an axe; the negro would have paid with his life the least forgetfulness of his duties.

The duke was paler than usual. His long white hair clung to his brow, and from his eyes great tears rolled down upon his silver beard.

"My dear lord, are you in greater pain?" asked Robert tenderly.

The duke shuddered, listening still.

"Christmas! Christmas!" sang voices in the fields. "Christmas! Christmas-" sounded the church bells.

Then, drawing himself up, specter-like, he said:

"Listen, Robert, listen!"

For twenty years the old man had not spoken.

The sepulcral voice resounded in the great hall; the arms, struck by echo, gave out an iron plaint. The young count felt frozen with fear.

"Twenty years ago I had a son—handsome, brave and generous. He loved a young low-born girl, and wished to wed her, but I refused—I could not consent to such an outrage. My son implored me, but I remained inflexible. My blazon would have been shattered by such a shame! I was wrong, child—I was wrong! Never be arrogantly proud. It is a mortal sin!"

Sobs stifled the old duke's voice. But presently he went on:

"The girl was beautiful and virtuous. I offered her gold; she refused it. Then I had her abducted and shut up in a tower of the chateau. Months passed away. My son remained faithful to his vows, I faithful to my pride. I therefore resolved to kill the girl. To that end, I sent her secretly a message, advising her to escape. A silken ladder was conveyed to her, with minutely detailed instructions as to how she was to fasten it to her window. She prepared to fly, and then I invented an infamous trap!

"Listen, Robert—listen! I caused the stones which supported the window to be loosened, so that it should give way under her and she would be dashed upon the marble pavement of the courtyard below. It was Christmas, the night of that evil deed; and ever since I have slept in fear of God.

"That same night I was transported in dreams into an immense gallery of clouds. Vaults followed upon vaults in millions—extending, ever extending. Under these vaults hung little golden lamps, swaying gently. It would have taken years to count them. Some of them burned brightly; others were extinguished suddenly. Some shone with a violent glare; others flickered and spluttered a long while before they went out.

"Some of these lamps were guarded by angels, white and beautiful as beauty itself. Others of the lamps had angels, black, ugly and malevolent, who seemed to wait impatiently the moment when the flame should expire.

"'What does all this mean?' I asked my conductor.

"'All those lamps are human souls,' he replied. 'Those which burn so brightly are the souls of new-born infants; stainless angels guard them. Here are the souls of those who are at the age when, some think, the Spirit of Evil and the Spirit of Good contend for them; but, at the supreme moment, the last breath almost always returns to the Spirit of Good.'

"I then asked to be shown my own lamp.

"'Come with me,' said the strange being, and leading me under innumerable vaults, he made me traverse a great distance. At length, stopping me abruptly, he said: 'Behold! there is your soul!'

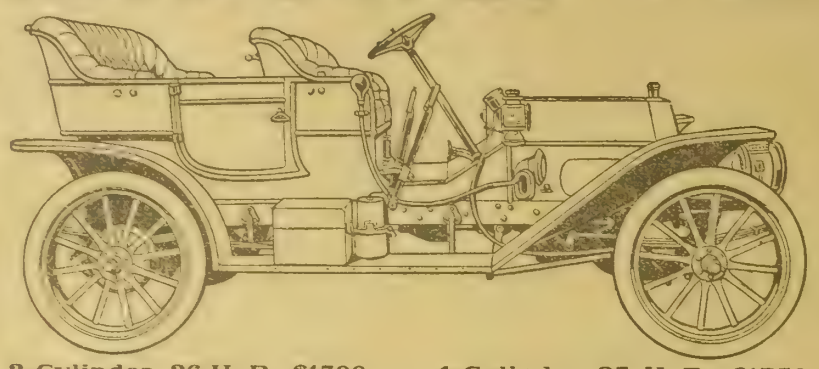
"I was petrified with terror. A single drop of oil remained in my lamp; and above it an angel with black wings blew upon the flame to accelerate its extinction. I was seized with dread—overtaken by cowardice—yes, cowardice!" said the duke, trembling in every limb.

"Listen, Robert, listen! Beside me burned a flame of purest light; that lamp of gold, protected by an angel with wings of spotless white. The Spirit of Evil whispered in my ear."

The old duke stopped—as if the voice were speaking to him again. His eyes became bloodshot, his hair rose on his head with horror, his teeth chattered with affright, and when he continued his voice was almost a shriek.

"I went to the lamp guarded by the

DUROCAR The Car for the Farmer



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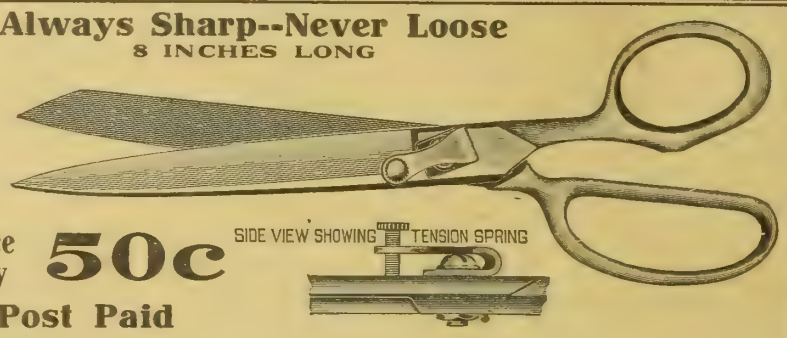

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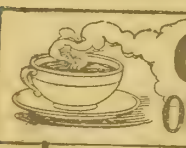

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THE LARGEST ASSOCIATION IN CALIFORNIA
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angel with the white wings, who looked at me sorrowfully; but the angel with the black wings still whispered in my ears. I saw nothing; I did not wish to see anything; I plucked a feather from the wing of the black angel and dipped it in the brightly flaming lamp and took from it the oil, drop by drop, and poured it into mine. My flame became glittering and red as blood; the other paled, but preserved still the brightness of a star. But when the drop of oil was left in it the angel that guarded it spread his white wings and would have stayed me, but an angel with pearly wings and bearing a golden sword suddenly appeared.

"'Let this human being do according to his will—God will judge him,' it said.

"I took the last drop of oil! Then fear seized me. 'What lamp is this?' I asked, pointing to the poor flame that was ready to expire, and the voice replied:

"'It is the soul of your beloved son.'

"At the same moment the clear flame of the lamp died out; the white angel took its last breath in his wings and flew away, uttering as he went with it a cry of distress. The Spirit of Evil replied with a cry of triumph.

"I awoke frozen with horror.

"In my chamber lay two bodies—crushed, unrecognizable. My son, informed by his fiancee, had tried to protect her in her flight, and my criminal snare had destroyed them both. It was Christmas, 20 years ago."

Saying this he made a sign to the negro tending the precious lamp to cease feeding its flame.

"I have made confession," he added, "and can now die, but will God forgive me?"

At that moment the bells of the chateau pealed forth and the voices of the singers in the church were heard. The doors of the great hall opened. At the back of the chapel of the old manor, resplendent with lights, the infant Jesus, lying upon his bed of straw, appeared radiant with celestial glory.

The old duke fell on his knees before the infant diety.

"Man," said the voice of the priest, "Jesus was born to suffer, and died for the redemption of sinners. You have sinned, you have suffered, you have repented—God forgives you. Your soul pass from you in peace!"

Then the old man turned his eyes toward the lamp, above which an angel with white wings was hovering. That angel he recognized—it was the guardian angel of the brilliant lamp.

The angel smiled sweetly and took within its wings the expiring flame, with which it flew heavenward.

The Duc de Kerberzoff was dead.—Sarah Bernhardt in Exchange.

When the gums are tender and bleeding, the mouth should be rinsed with warm water to which listerine has been added.

DRIED BEEF.

Seventy pounds of beef, preferably the tender or inside part of the round or thigh.

Four quarts of fine salt.

One pound of brown sugar.

One teaspoon of pulverized saltpetre.

Salt the beef by rubbing in the salt and other ingredients in a wooden tub, and let it remain in the pickle produced by the action of the salt on the meat, for eight or ten days. If the salt should all dissolve put more on (or do not put on all at the beginning, which then can be rubbed in subsequently). After thoroughly pickling, make a slit in one end or corner of the meat; through this pass a piece of stout string, or cord, then hang up to dry. A cool, dry place is to be selected for this process. Cover it with a piece of mosquito netting to keep off the flies. Smoking the meat the usual way might be done, but the result is more satisfactory without.

It is needless to add that should the quantity of meat be less or more than that mentioned above, the proportions should vary accordingly.

Pickling fish or herring can be done in the same way; some omit the saltpetre. In the case of herring, the scales are scraped off, a stout pair of scissors are used to cut off the fins and eviscerate. As soon as the entrails are taken out rub salt plentifully, until all the fish have been prepared. Allow to remain twenty-four hours, then wash thoroughly in running water. The salt will have purified the interior of the fish. Lay open part down on a board or table to drain, or else dry with a towel or cloth. Then rub in more salt in and outside and let them stand in a tub for two or three days, when the fish are to be placed where they will dry, protected from insects. After thoroughly drying, hang them in bunches, loosely, in a barrel with both ends knocked out, cover the upper end, where the fish are supported by strings or small sticks or rods. In a small furnace, pan or other receptacle build a fire, cover with damp or green wood to make as much smoke as possible, place the barrel with the suspended fish inside and let it stand for the necessary time to smoke the fish properly. When thoroughly smoked store them away in a dry place. If properly done they will keep for a long time. These are much better than the fish bought at the stores, having a peculiar flavor and taste not otherwise attainable.

The French Canadians of Louisiana prepare what they call "tassao" or "tasso," which is sun-dried beef. It is excellent, far superior to fresh beef. The process is not known to the writer, but I have understood that the meat is cut in slices and hung on clotheslines in a very hot sun. "Jerked beef" is similarly prepared, only the meat is cut into strips. "Pemmican" is beef thoroughly dried and then pulverized. This is made use of by French Canadians and others traveling in the far north.

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Business

AUTOMOBILE SALES.

Millions of dollars more will be invested in automobiles during 1911 than was invested during 1910, but the total number of cars sold will not be increased.

The whole tendency of automobile sales for the coming year will be away from cars of low value and low price, and toward cars of high value and better than average price.

This statement, made today by Charles T. Jeffery, president of the Thomas B. Jeffery Company, is based upon accurate information gathered from hundreds of dealers in every nook and corner of the country and from thousands of owners and prospective buyers.

The head of the Rambler Company has just concluded a conference with fifty representatives of the Rambler metropolitan distributing and service centers. From each of these was required a careful report of sales conditions in his territory. These men represent nearly every state in the Union, from Maine to California. To the information they offered has been added that gathered from a thousand sources, with the result that the following statement has been made by Mr. Jeffery:

"The volume of sales of cars above medium price will be larger than ever before, but the total number of cars sold will not be greater. Those who have previously purchased low-priced cars have been educated up to those of better quality.

"The Middle West will take a larger volume of the output during 1911 than ever before, but while the sales of cheaper cars will be more numerous, by far the greater volume of sales will be made of those averaging about $2,000 in price. This because the farmer will be the biggest buyer, and he wants weight, capacity and power.

"The Pacific Coast, where the better class of cars have always sold easily, will buy more than ever before, as present indications are that deliveries cannot be made fast enough.

"The Northwest, where the largest sales of medium priced cars have been made this year, will take about the same number as last year. Texas will show a small increase, from present indications, while in the Central States, the bulk of the sales will be those of the better than medium cars, and to replace those of lower price.

"Our sales for the past year have increased forty per cent. The largest increase has been shown by New England and the South."

POULTRY FEEDING FOR PROFIT.

The above is the title of a very useful book which should be in the hands of every poultry raiser in California. Issued by the Coulson Poultry and Stock Food Company of Petaluma.

It contains full information on the subject of feeding, together with an analysis of the various elements essential to chicken strength. It also contains a complete list of poultry remedies, supplies, incubators, brooders, etc. Mention the Cultivator and the book will be sent by return mail, free of cost.

NEW HOME.

A fine new building has just been constructed by the Pioneer Paper Company at 247-51 South Los Angeles St., Los Angeles. This building was designed and constructed especially to meet the requirements of the paper house. Five floors and basement extending the entire length of the building. Large plate glass windows, affording ample light. The building is equipped with modern conveniences and labor-saving devices. Two elevators have been installed, also an automatic "Lowerator." The lowerator is for carrying heavy boxes and packages from the upper floors to the shipping room on the first floor. This it does with the greatest ease. The basement, which is well lighted, has a 10-foot ceiling, and is used for storing heavy wrapping papers and paper bags. A modern sprinkling system has been provided on every floor. This system is sufficient to flood the entire floor in a few minutes' time, and materially reduces the rate of insurance.

These are only hints of some of the features in this new building, which is a deserved convenience of this company which has catered to the needs of paper buyers, especially the ready roofing buyers, in this state for the past 20 years. The business has continued to grow until this structure has been made necessary. Speaking of roofing, by the way, it would be well to drop a card to the company asking for information on the subject of ready roofing.

STRIKING CATALOGUE.

The latest issued catalogue of the Petaluma Incubator Company has only fifty pages, but it sure is a most striking booklet. The cover with its "Standard of the World" is a magnificent half-tone of California's great trees and the center page is a panorama of a train loaded with redwood logs. Underneath is the statement that in the train are logs sufficient for lumber to make 3000 Model No. 91 Petaluma Incubators. The Petaluma people have made much of the redwood construction of their incubators and the splendid quality of this lumber has been one cause of the success of its machines. The booklet is well worth asking by poultry people.

SECOND-HAND PIPE.

You can frequently buy second-hand pipe which is practically as good as new at greatly reduced prices. The Pacific Pipe Company, of San Francisco, is the largest company of this kind on the coast. When the pipe is brought to the works it is thoroughly cleaned, rethreaded and dipped in asphaltum to give it resistance against the action of water and other elements with which it comes in contact. In wearing qualities it is as good as new pipe.

The company carries a large stock at all times, and any quantity of any size may be secured.

Their specialty is second-hand pipe, but they also carry boilers, centrifugal pumps, gas engines and second-hand machinery. Prices are quoted on request.

SUCCESSFUL POULTRY BREEDING.

A novel and instructive booklet is that issued by the Poultry Breeders' Supply House, 845 S. Spring St., Los Angeles. It is "What to Use for Successful Poultry Raising," and on its title page we note it is a catalogue for 1911, and the first article listed is a striking portrait of Mr. Frank J. Ironmonger, in charge, and this is no joke, for Mr. Ironmonger is at the service of poultry keepers, and that means much to their advantage. He is an old-timer, having been with the Henry Albers Company for many years and has now succeeded to the retail business. We will assure our readers that he will also succeed in this business. The booklet is well worth the asking, and it will be sent by Mr. Ironmonger if card is dropped to his address.

NEW MODEL PETALUMAS.

The Petaluma Poultry Journal has a newsy description of several new models of Petaluma Incubators, which, as it says, are the culmination of over thirty years actual manufacturing and more than forty-five years' experience in incubator building. Amongst other points mentioned which are new and valuable, we give:

"The air filter through which the fresh air is admitted to the heater has its entrance some distance away from the lamp, therefore there is no possibility of any odors of the lamp entering the egg chamber.

"The heater is built in such a manner that the copper portion with which the heat of the lamp comes in contact has been pronounced by mechanical experts and engineers on heating and ventilation, to which it has been submitted for examination, as a perfect piece of constructive work in metal; the tools for making which are the invention of the Petaluma Incubator Co., made at great cost, and there is not another set of such tools and machines in existence.

"A revelation in incubator construction, admittedly in advance of all ideas, theories and methods, the surprise of the times, the greatest invention in this line since artificial incubation was first introduced by us, yet a marvel of simplicity."

Iron rust, mildew and ink, where the stains are not large and well defined, may be removed by repeated applications of lemon juice and salt, and exposure to the sun, that potent agent for bleaching. Kerosene oil will erase fresh wagon grease, and machine oil yields to cold soapsuds.

ARNOTT DOUBLE DISC HARROW

A Plow—A Disc—A Pulverizer—A Smoothing Harrow all in one

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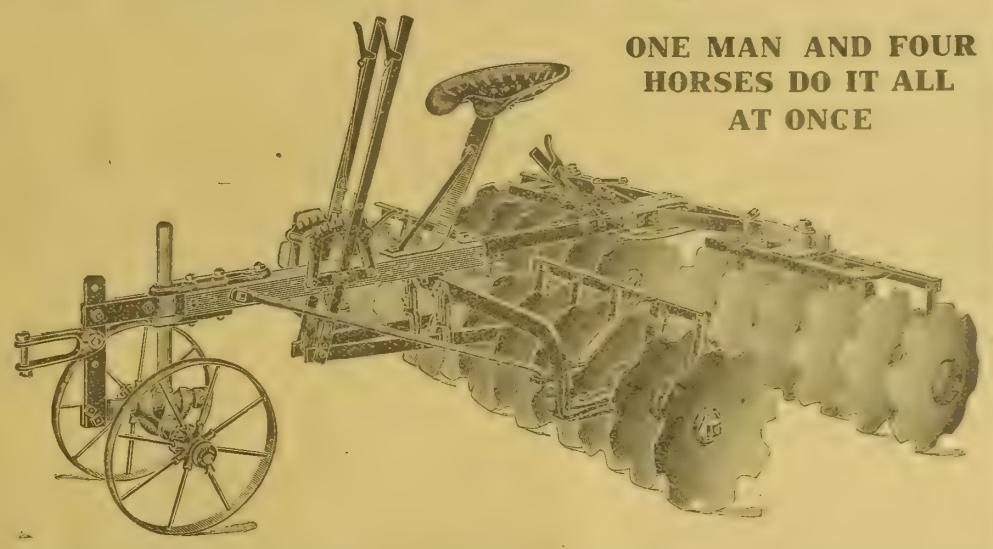
Compare it Point for Point With Any Disc Harrow Made

Double Gangs
Double Cut
Double Throw
Double Levers



ONE MAN AND FOUR HORSES DO IT ALL AT ONCE

The flexibility of the **Arnott "Double-Cut"** in contrast with the stiff action of other two-way harrows is what is making it so popular. This flexibility is possible because of our Universal Joint connecting the front and rear gangs. For lack of this feature other double harrows have a good deal of side draft and will not make a square turn without digging a great hole. This can't happen on the **Arnott.** Independent front and rear levers within easy reach of rider.

Complete description mailed upon application. Write for prices

ARNOTT & COMPANY, Inc., Southwestern Gen. Agts.

112-118 South Los Angeles Street, LOS ANGELES.

All sizes in stock for immediate shipment, 4 to 10 ft. cut inclusive.

SAVE YOUR TIME WATER and GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE

The **PIPE RECOMMENDED BY ALL USERS.** It is the **ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE** on the market. **THERE'S NO ROUND SEAMS TO LEAK,** retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a life-time. For irrigating alfalfa it is the only pipe to use. We make **RIVETED PIPE AND TANKS.** Write for Illustrated Catalogue, also **SPECIAL IRRIGATION FOLDER** which may mean much to you.

American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., **Los Angeles, Calif.**

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 1, 1911.

Butter.

Butter has declined 2½ cents, and a featureless market prevails.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	32½
Firsts	30
Cooking	20

Cheese.

Local	18
Northern, fresh	17½@18
Oregon Daisy	17½@18
Domestic Swiss	20

Eggs and Poultry.

Eggs took a tumble of a cent both Monday and Tuesday, with market not strong.

Paying price f. o. b. Los Angeles is:

Local ranch candled	32
Case count buying price	28
Northern	26@30
Eastern storage	23@24
Eastern case count	19

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	15@17
Roosters	9
Spring	17@21
Turkeys	21@22
Ducks	16@17
Geese	16@17
Squabs, per doz	1.75

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	2.15@2.35
Salinas	2.50
Watsonville	2.35
Nevadas	2.00@2.10
Oregon, Early Rose	2.00@2.25
Northern Early Rose	2.00
Lompoc	2.50
Idaho Rurals	2.00@2.10
White Rose, local	2.00@2.25
Sweets, yellow, cental	3.25@3.50

Onions.

Wholesale quotations:

Oregons	3.00
Australian browns	2.50
Nevadas	3.00
Utah	2.50
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Asparagus, lb	40
Beets, sack	90
Beans, Lima	18
Beans, green	18
Beans, wax	18
Brussels sprouts	10
Bell peppers, lb	15
Green chilis	11@12
Cucumbers, box	1.00@2.25
Cabbage, sack	75@90
Celery, crate	2.25@2.50
Cauliflower, crate	1.25@1.50
Carrots, sack	90
Egg plant, lb	12@15
Horseradish	12½
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@1.25
Oyster plant, doz	40
Peas, lb	10@12
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Pumpkins, lb	1@2
Radishes, doz. bunches	20@25
Rhubarb, No. Strawberry	1.75
Rhubarb, Crim. Winter, box	1.35@1.50
Spinach, doz	20@25
Hubbard squash, lb	1@1½
Tomatoes, crate	1.25@1.50
Tomatoes, Mexican	1.65@1.75
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.75@2.25
Grapefruit	2.25@2.50
Lemons	1.50@2.50
Tangerines	1.50@1.75
Limes, per 100	1.25@1.50

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	4.00@5.00
Apples, Bellflower	1.10@135
Spitzenbergs	1.75@2.50
Jonathans	2.25@2.35
Greenings	1.10@1.25
Pearmains	1.10@1.50
Newtown Pippins	1.20@1.35
Pineapples	6½@7½
Mangoes, doz	1.75
Persimmons, lb	7
Pomegranates, lug	1.00
Pears, lb	5@6
Bartletts, lb	8@10
Winter Nelis	2.50@2.75
Strawberries	8@15
Raspberries	12@15

Dried Fruits.

Wholesale prices are:

Apricots	12@13
Evap. Apples, fancy, lb	11½@12½
Figs, box	1.75
Peaches	7@8½
Nectarines	10
Pears	11@12½
Prunes	7@12
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	5.75@6.00
Black eyes	7.00
Pinks	6.25
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Lentils	7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb. new	14½
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10½
Extracted light amber	9
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	12.00@13.00
Wheat hay	13.00@14.00
Tame oat	14.00@16.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, ctl	1.80@1.85
Corn	1.60
Popcorn	3.75@4.00
Egyptian corn	1.75
White oats	1.80
Rye seed	2.00
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.15
Cracked corn	1.65
Cracked wheat	1.95
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed meal	1.70
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Jan. 31, 1911.

Butter.

Butter shows an advance for extras and a sharp decline on firsts and seconds. Market shows no particular strength.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	32½
California firsts	25
Seconds	24

Cheese.

California flats, new	13@16
Cal. Young America, fy, new	15½@17
Oregon fancy	14

Eggs and Poultry.

A strong advance was made on all grades of eggs, with a firm market at this writing.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	33½
Firsts	30
Seconds	26

Hens, doz	5.00@9.00
Fryers, doz	5.50@6.00
Ducks	6.00@10.00
Broilers	3.00@4.50
Roosters, doz	4.00@7.00
Turkeys	18@20
Geese	2.50@3.00
Pigeons	1.50@2.50
Squabs	3.50

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	4½@6¼
Hogs	5½@8⅜
Milk lambs, unshorn	6@6¼
Wethers, No. 1	4½@5
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.00@1.90
Salinas Burbanks, cwt	1.85@2.20
Oregon Burbanks, cwt	1.65@1.85
Lompocs	2.00@2.15
Sweets, ctl	3.00@3.25

Onions.

Onions, California, sack	1.65@2.00
Onions, Oregons	2.00@2.15

Vegetables.

Wholesale quotations:

Asparagus, forced	20@25
Asparagus, natural	40@50
Artichokes	10@75
Beans, string	10@20
Beans, Lima	10@15
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	90@1.25
Celery, crate	65@1.75
Bell peppers	8@11
Chili peppers, lb	5@7
Egg plant, lb	9@12½
Mushrooms	10@35
Okra, box	40@60
Peas, lb	3@10
Summer squash, box	1.50@2.00
Rhubarb, lb	5@6
Tomatoes, Los Angeles	85@1.00
Tomatoes, Mexican	1.50@1.65
Turnips	65
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.25
Grapefruit	1.25@2.75
Lemons	1.00@3.00
Limes, Mexican	4.00@5.00
Seedlings	1.50@2.00
Tangerines	1.00@1.50

Fresh Fruits.

Alligator Pears, doz	1.00@1.50
Mangoes	50
Apples, box	40@1.25
Apples, Belleflowers	1.15@1.25
Newtowns	1.00@1.50
Spitzenberg	1.75@2.50
Bananas, Hawaiian	1.00@2.00
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.00
Strawberries, Southern Cal, crt	2.00

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.: Apples, 9¾@11c; apricots, 10¾@13c; do, Moorparks, 14c; peaches, 6@7¼c; with a premium of ⅛@¼c on Muirs; prunes, bulk basis, Santa Claras, 6⅜@7c, with ¼c premium on 60s to 90s; outsides, 6@6¼c; figs, 6¼@7½c for white, and 5@5½c for black; pears, 9¾@13c.

RAISINS—1910 crop: London layers, in 20-lb. boxes—6-crown clusters, $2.50; do, 5-crown, $1.75@2; 4-crown, $1.30@1.40; 3-crown layers, $1@1.10; do, 2-crown, 95c@$1. Seeded, per pkg.—Fancy, No. 16, 5½@5¾c; choice No. 16, 5@5¼c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 4¾c; do, 3-crown, 4@4¼c; do, 2-crown, 3½@3¾c. Dried grapes, 3c. Seedless—Muscatels, 3¾c; Sultanas, 4¾c; Thompson's, 5@5¼c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½@14
Almonds, '10 Nonp	15
Almonds, '10 I X L	14@15
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	5.60@5.75
Pink	5.40@5.70
Black eyes	5.50@5.65
Small white	3.40@3.55
Large white	3.35@3.50
Kidneys	6.00@6.25
Garbanzos	3.00
Bayo	5.10@5.25
Horse beans	2.50@2.75
Red Mexicans	5.50@5.60
Cranberry	4.15@4.50

Hops.

Bid for 1911	15
Hops, coast, 1910	18@22
Hops, 1909	13@16
Hops, Oregon	13@16

Honey.

Water white comb, '10	11@13
Dark comb	10@12
Extracted white	8
Extracted dark	5@6
Beeswax, lb	24@30

Scott, Magner & Miller say:

Arrivals of hay for the week on our market have amounted to 2,650 tons, which is a slight increase over last week's arrivals.

The market has continued along during the week in a very dull and neglected condition. Neither the dealers nor the consumers are buying to any great extent, and with the continuation of the rains during the week it has been difficult to move the hay that has been arriving with any satisfaction.

An occasional car of fancy will sell up to our topmost quotations, but the majority that has been arriving has been of the medium grades, selling at from $9.00 to $11.50 here.

There has been a little movement of hay toward interior points where the hay is required for immediate consumption, and this demand, it is hoped, may use somewhat of our surplus stock, and thereby relieve this market to that extent.

The market on alfalfa hay has continued steady, for the reason that the demand has been fairly good, and stocks of alfalfa on hand are known not to be overlarge.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	11.50@12.00
No. 2 wheat or wh and oat	10.00@11.00
Choice tame oat	11.50@12.00
Other tame oat	9.00@10.50
Wild oat	8.00@10.00
Stock hay	6.00@7.00
Alfalfa, ton	9.00@12.00
Straw	40@50

Grain.

Wheat, No. 1	1.45@1.52½
Barley, fancy	1.12½@1.15
Barley, poor to fair	1.07½@1.12½
Oats, white	1.50@1.55
Rye, new crop	1.50@1.60
Alfalfa seed	16@18
Mustard, brown	4½

Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00@19.50
Bran, ton	29.00@30.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Ground barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	34.00@36.50
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	24.50@25.50
Mixed feed, ton	25.00@27.00
Shorts	29.00@31.00

Citrus Fruit Market

LOS ANGELES, Feb. 1, 1911.

The spotting or specking of fruit still continues, and unfortunately this does not show until the fruit is in the hands of the retailer. This has caused discontent and a hesitancy in buying which is affecting the market. In addition, general marketing conditions are not the best. The effect is a slight easing off in quotations in all markets. The quality of the fruit, however, excepting for its appearance on account of spots, is of the very best, and sizes are running exceptionally good. Shipments are held down to 75 to 150 cars daily. The 200 mark will probably not be reached until March.

The lemon market is exceptionally strong, and all offerings are accepted freely. Prevailing price is $3.75 to $4.00, Eastern points.

Shipments.

Shipments of oranges to date since November 1, 1910: 6,691 cars, lemons 1,059, total citrus fruits 7,750. To same date last season, oranges 3,816, lemons 991, total 4,807.

NEW YORK, Monday, Jan. 30.—Thirty-nine cars navels, one mixed car and two cars lemons sold. Market lower on navels, strong on lemons.

NAVELS—	Avge.
Half Moon, xf, Red G O A	2.00
Golden Flower, xf, Red G O A	1.85
Gold Buckle, R H, E Highland	2.65
Lochinvar, R H, E Highland	2.10
Pinnacle, O K Ex	2.20
Majesty, O K Ex	1.95
Alta Cresta, Imp, A H Ex	2.70
Robusta, Imp, A H Ex	2.25
Hobo, Imp, A H Ex	1.85
Robusta, A H Ex	2.20
Pine Cone, S B Ex	2.40
Arrowhead, S B Ex	2.15
Carrier, S B Ex	1.85
Victoria, Imp, A H Ex	2.80
Lincoln, Imp, A H Ex	2.25
Navajo, Imp, A H Ex	1.85
Pinnacle, O K Ex	2.15
Quail, O K Ex	2.00
Heart of Gold	2.25
Honor Bright	2.00
Yankee Doodle, A F, Highland	1.65
Glendora Heights, A C G Ex	2.10
Iris, D M Ex	2.10
Violet, D M Ex	1.80
Blue Globe, Riverside Ex	2.30
Red Globe, Riverside Ex	1.90
Iris, D M Ex	2.15
Violet, D M Ex	1.85
Royal Knight, R H Ex	2.10
Ben Hur, R H Ex	2.00
Newsboy, R H Ex	1.70
Volunteer, S A Ex	1.95
Sweet Pea, ch	1.90
Euclid, Growers F Co	2.65
Uplander, Growers F Co	2.15

Half boxes, budded—Lily, 80c. Tangerines, halves — Sweetheart, $1.20; Orchard, $1.10; Lily, 80c; Heart, 75c. Lemons—Pet, $3.75; Greyhound, $3.35; Valle Vista, $3.40; Highlander, $3.65.

CINCINNATI, Monday, Jan. 30.—Cold. Market declining on oranges, advancing on lemons. Four cars navels, two cars lemons and four cars Floridas sold.

NAVELS—	Avge.
Our Farm, S T, County F	2.05
Pointer, A C G, Charter Oak	1.60
Orchard, Run, S T, Glendale	1.80
Plain Ends, S T Co Farm	1.70
Hunter, A C H, Charter Oak	1.55
Standard, S T, Glendale	1.75
Floridas, Brights & Russet	1.45@2.00

LEMONS—Pet, S A Ex, $3.65; Arab, $2.40; Duck, $2.85; Upland Czar, $3.00; Pyramid, $2.30.

BOSTON, Monday, Jan. 30.—Nineteen cars sold. Cloudy, warm. Market doing better on oranges, continues strong on lemons.

NAVELS—	Avge.
Royal Knight, R H, Redlands	1.95
Lochinvar, R H, E Highland	2.10
Swan, R H, Redlands	2.30
Priscilla, S B, Highland	2.60
Pinnacle, O K Ex	2.20
Priscilla, S B, Highland	2.55
Jack Rabbit, S B, Highland	1.65
Princess, C C, Corona	2.20
Orchard, Or, National O Co	2.85
Golden Flower, f, Red G O A	1.90
State Seal, J D Carpenter	1.80
Santa Anita	1.60
Fiesta, Riverside Ex Pach	1.90
Pine Cone, S B, Highland	2.25
Newsboy, R H, Redlands	1.75
John Alden, S B, Highland	2.05
Majestic, O K Ex	2.05
John Alden, S B, Highland	2.15
Laurel, C C, Corona	2.60
Homer, C C, Corona	2.30
Standard, Sd, National O Co	2.35
Regina	2.00
Emblem	1.90
Highland	1.85
Cactus, xc, Highland F G A	1.75
Peacock, Or, W & Strong	1.35

LEMONS—Squirrel, A H Prenda, $4.20.

ST. LOUIS, Monday, Jan. 30.—Favorable. Market weak on navels on account of condition and quality. Firm on good lemons. Five cars navels and one car lemons sold.

NAVELS—	Avge.
George Washington, S S, Tustin	1.35
Planet, S S, Orange	1.85
Pointer, A C G, Charter Oak	1.85
Martha Washington, S S Ex	1.35
Martha Washington, S S, Tustin	1.75
Green Crown, A C G, Azusa	1.95
Possum, A C G, Charter Oak	1.90
LEMONS—	Avge.
Queen Bee, Q C, Corona	3.65
O I C, Q C, Corona	3.35
Camel, Q C, Corona	3.25
Green Crown, A C G, Azusa	3.35
Royal, Q C, Corona	3.25
Homer, Q C, Corona	3.20
Family, Q C, Corona	2.85

CLEVELAND, Monday, Jan. 30.—Six cars navels, one mixed car and one car of lemons sold. Market unchanged on navels, higher on lemons. Cold.

NAVELS—	Avge.
Royal Knight, R H, Redlands	2.20
Trail, A C G, Lamanda Park	2.05
El Dorado, Escondido F G A	2.10
Belt, R H, E Highland	2.05
Lochinvar, R H, E Highland	2.40
George Washington, S S, Tustin	1.70
Liberty, Escondido F G A	2.20
Lochinvar, R H, E Highland	2.40
Gold Buckle, R H, E Highland	2.60
Golden Wreath, xc, G N, O G A	1.65
LEMONS—	Avge.
Greenleaf, S T, Whittier	3.45
Lochinvar, R H, E Highland	3.60
Gold Buckle, R H, E Highland	3.70

PHILADELPHIA, Monday, Jan. 30.—Eleven cars navels and fifteen cars Floridas sold. Florida oranges, $1.15 @3.50, average $1.70. Grapefruit, $1.35 @3.30, average $2.65. Tangerines, $1.10@1.75, average $1.30. The market is improving on good stock.

NAVELS—	Avge.
Cougar, Covina Ex	1.75
Pointer, A C G, Glendora	2.10
Searchlight, S S, Orange	1.60
Stag, A C G, Glendora	2.45
Half Moon, xf, Red G O A	2.30
Robin, fy, Spence F Co	1.90
Topaz	1.25
Eagle, A F, Highland	1.95
Red Shield, A C G, Azusa	1.95
Pointer, A C G, Glendora	2.20
Pointer, A C G, Glendora	2.25
Monrovia Heights	2.05
Sky Blue	1.65

PITTSBURG, Monday, Jan. 30.—Eleven cars sold. Easier on navels, very steady on lemons. Cold.

NAVELS—	Avge.
Bipiane	2.40
Golden Gate, xc, Red G O A	2.10
Teal, Covina Ex	2.00
Pointer, A C G, Charter Oak	2.00
Yacht, S B, Rialto	1.50

CHICAGO, Monday, Jan. 30.—LEMONS—Firm. Supply light, and they are in moderate request. Boxes, California fancy, 300s, $3.75 asked; 260s, $3.50 asked; off sizes, $3.00 asked; extra fancy, $3.75@4.00; extra choice and choice, 25c per box discount.

ORANGES—California navels are selling well. They were steady. Supply and receipts were both good. Boxes navels, California fancy, 96s, $2.25@2.50; 126s, $2.50 asked; smaller sizes, outside in rather a small way, $2.00@2.50; choice and extra choice, 25c per box less. California navels selling well, steady; supply and receipts both good.

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If preferred, trip can be reversed, leaving San Francisco at 8:15 A. M. via the coast to Monte Rio and returning along the river and through the valleys, arriving at San Francisco 6:35 P. M. daily except Sunday and 7:35 P. M. Sunday the same evening.

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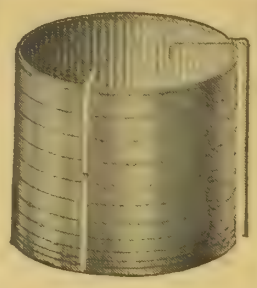

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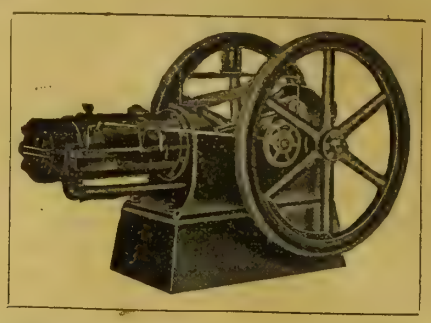

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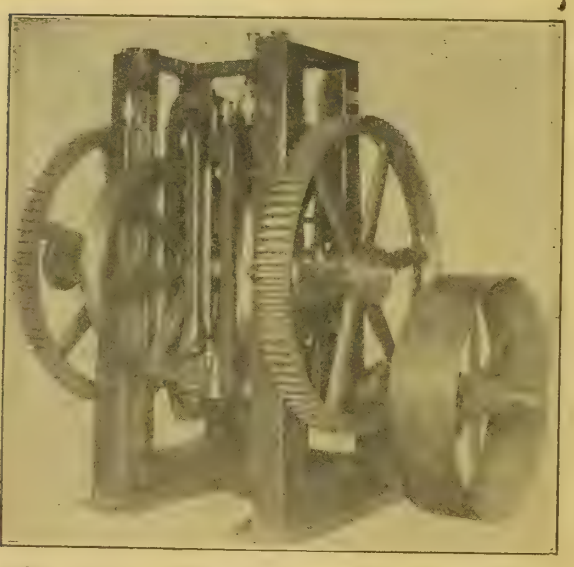

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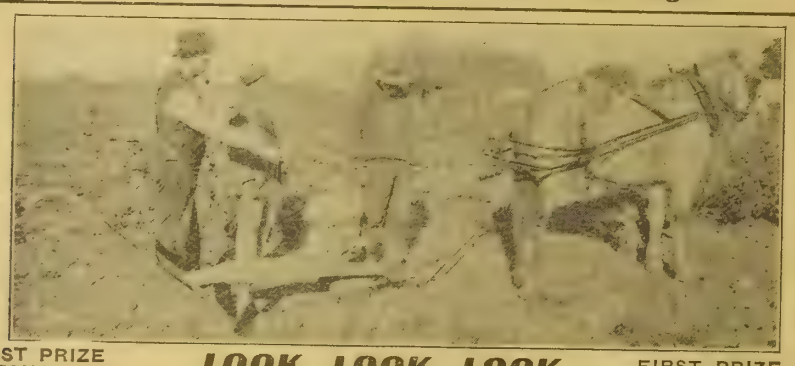

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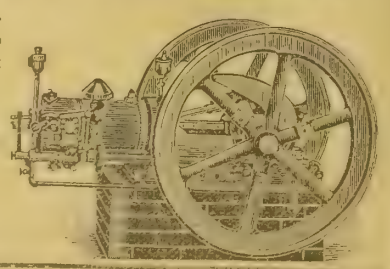

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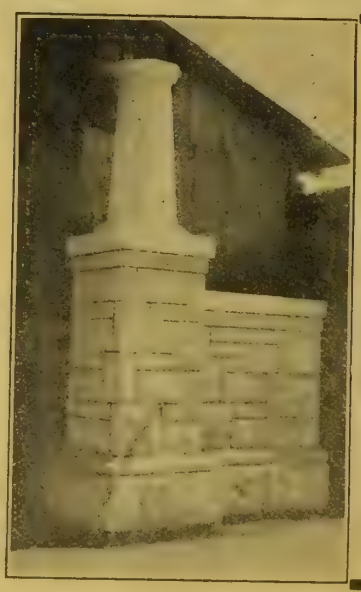

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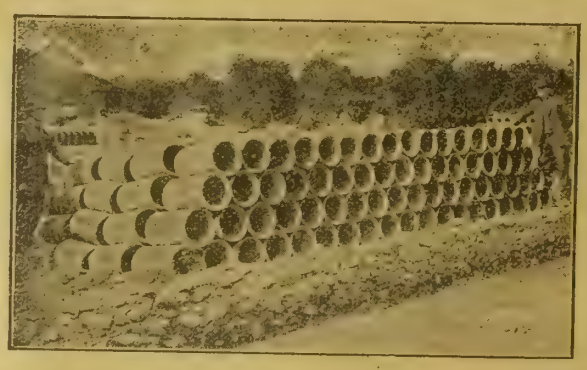

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LOS ANGELES FEBRUARY 9, 1911 SAN FRANCISCO

EUCALYPTUS GLOBULUS—THE BLUE GUM AS A TIMBER TREE IN CALIFORNIA.

The Popular Blue Gum—Eucalyptus globulus.

Of all the trees which have changed the landscape in California, none have the marked effect of the blue gum. The ranges of many hills are topped with this magnificent tree silhouetted against the sky line. The natural growth of this species is erect, though many individual trees are branched with open crowns. Those planted in the open field are more likely to branch and show larger tops than in compact plantings. When planted close together the best timber is secured, especially where designed for poles. The bark of the old trees is persistent, though all the younger trees exhibit the characteristic flaking off, showing bright clean trunk. We are glad to show herewith a typical California blue gum-plantation.

It is said by Baron Von Mueller that "Of the more than one thousand different species of trees indigenous to Australia, Eucalyptus globulus takes the first position in importance; also among its own kind it is the prince of eucalypts. It is the third tallest tree of the species of eucalyptus, its height in Australia ranging from 200 to 300 feet." In this state trees of the age of 30 years have attained a height of 150 feet, and a diameter sometimes as great as six feet. In the city of Pasadena is one tree 25 years old over five feet in diameter. It has been known to attain a height of 75 feet in ten years. McClatchie in his "Eucalyptus Cultivated in the United States" says: "It is without doubt the fastest growing tree in the world: It is friendly to new conditions, and taking all its characteristics into consideration it is the best all around eucalyptus. It has been more extensively planted throughout the world than any other eucalyptus, probably more extensively than all others combined."

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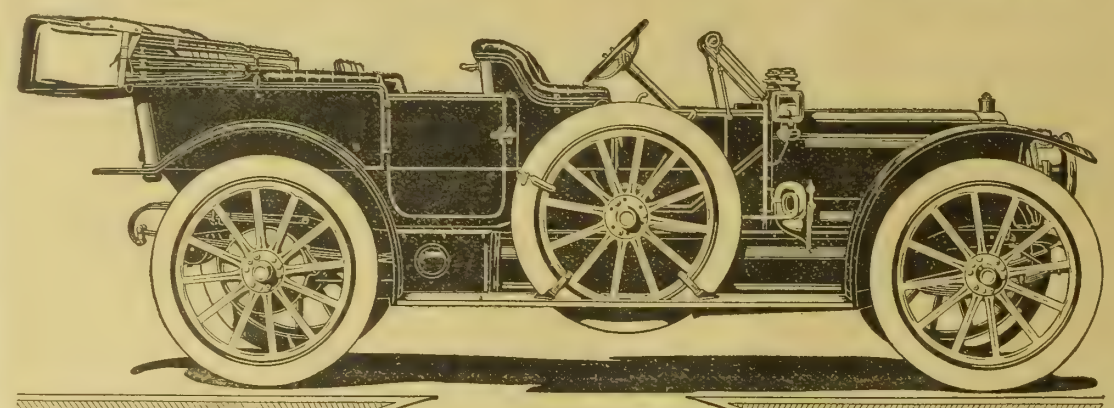

Rambler Sixty-five Forty-inch Wheels

RAMBLER big wheels and tires are a great advantage in city as well as in country driving. They not only afford added comfort, but tests have shown that tires even an inch larger in diameter and half an inch greater in width will last twice as long. Small wheels drop into the holes in the roadway, adding greatly to the discomfort and wear on tires. Big wheels and tires glide lightly over depressions, providing wide cushioning surface for comfort and tire economy. This advantage is only one of many enjoyed by Rambler owners—features of quality, comfort, safety and convenience. The Offset Crank Shaft makes possible slow driving in crowded traffic, and climbing hills easy. The Straight Line Drive saves power, the Spare Wheel saves tire worry, Rambler brakes provide complete safety, and Rambler service assures satisfaction.

The Thomas B. Jeffery Company
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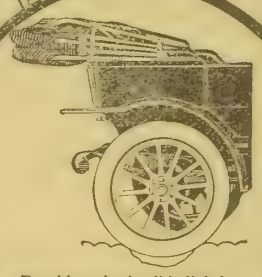
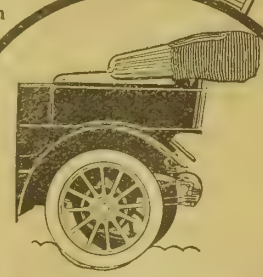
A telephone message to the nearest Rambler representative will bring this car to your door for inspection. The new catalogue is ready. Send for it.



Rambler wheels glide lightly over the rough places



Small wheels drop into depressions in the roads

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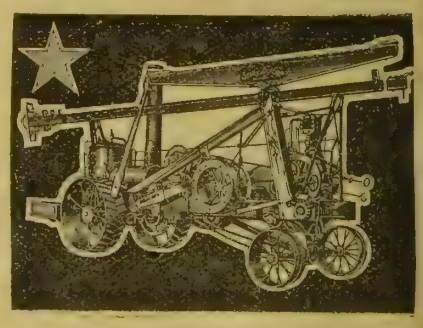

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25,000 feet	½-inch Standard, at	2c per foot
20,000 feet	¾-inch Standard, at	3c per foot
36,000 feet	1-inch Standard, at	4c per foot
20,000 feet	1¼-inch Standard, at	5c per foot
30,000 feet	1½-inch Standard, at	6c per foot
50,000 feet	2-inch Standard, at	8½c per foot
10,000 feet	2½-inch Standard, at	15c per foot
15,600 feet	3-inch Standard, at	17c per foot
15,000 feet	3½-inch Standard, at	19c per foot
20,000 feet	4-inch Standard, at	25c per foot
30,000 feet	5-inch Standard, at	35c per foot
20,000 feet	6-inch Standard, at	45c per foot

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1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00 per foot
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20,000 feet	5⅝-inch Casing, at	32c per foot
30,000 feet	4-inch Casing, at	19c per foot
20,000 feet	3½-inch Casing, at	16c per foot
20,000 feet	3¼-inch Casing, at	15c per foot
25,000 feet	3-inch Casing, at	14c per foot
50,000 feet	2-inch Casing, at	6½c per foot

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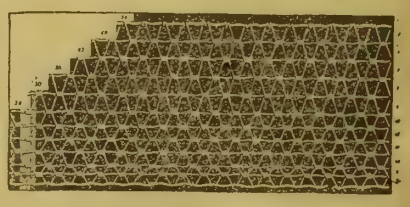

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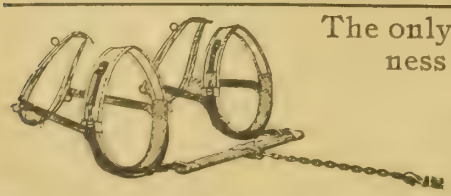

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California Cultivator

Vol. XXXVI. No. 6. LOS ANGELES: THURSDAY, FEBRUARY 9, 1911 One Dollar the Year

A Pest of Deciduous Trees

Discovery by E. O. Essig, Horticultural Commissioner of Ventura County, of a New Mealy Bug Infesting Walnuts, Pears and Apples.—May Prove Serious Menace

By Courtesy of Pomona Journal of Entomology.

Among other things that a systematic tree-to-tree inspection has revealed in Ventura county, is a mealy bug infesting walnut, apple and pear trees. At first this insect was thought to be the long-tailed variety, Pseudococcus longispinus (Targ.) because of its anal appendages, which are often nearly as long as the body. A great deal of excitement was caused among the walnut and citrus growers at this discovery, for it was feared that the citrus pest had now become spread over the entire orchard district of the county. A hasty inspection of all walnut and adjoining citrus orchards followed with marked results. The inspection showed that practically every walnut orchard in the county was infested with this mealy bug, but never in great or damaging numbers; and in only one case was a mealy bug found on a citrus tree in an adjoining orchard and this was evidently not the species now being described. The following field observations proved conclusively that the new mealy bug was not P. Longispinus.

1. Its anal appendages seldom exceed two-thirds the length of the insect body, and are never longer than the body, while in the long-tailed variety the anal appendages are much longer than the body.

2. The young are hatched from loose-egg masses much like those of P. citri, while the young of P. longispinus are born alive.

3. In no case did we find this species on citrus trees, though it occurred in many orchards adjoining citrus groves. In the laboratory the live individuals, as well as the eggs, were placed upon growing citrus trees. In some cases the adults deposited their eggs before they died, while others deserted the trees. The young, as rapidly as they hatched from the eggs, crawled over the trees and the barrel, in which the tree grew, and soon died. No individual was observed to attack the foliage or branches at any time. On a walnut tree, in the same room, other individuals multiplied readily, showing that conditions were not abnormal where the experiment was being conducted.

Microscopical study revealed many other differences which are given in the description of the species further on.

The fact that it had such long anal appendages led to the decision that it was not P. citri Risso, but was somewhat of an intermediate form between Pseudococcus citri and P. longispinus. Its feeding habits (it was usually found feeding only upon the new bark formed around cracks or wounds on the tree trunks) led to the belief that it was the elder form of P. obscurus. Microscopical comparisons prove them to be identical, but distinct from Pseudococcus obscurus Essig, which was described from Opuntia. At the time of the original description, the limited supply of both forms made it impossible to separate them as I have now done. At that time, however, it did seem very improbable that the same species found on the roots of Opuntia, at Los Angeles, could be synonymous with a species found working on the new bark of Sambucus glauca (Elder) at Santa Paula, 60 miles away. Even yet the supply of Opuntia form is so limited as to make good comparisons impossible, but the accompanying drawings of the legs and antennae bring out the main characteristics of the two forms.

At the same time that this insect was found were found many individuals working similarly upon the oak trees. This mealy bug was described as Pseudococcus agrifoliae Essig and is evidently distinct from Pseudococcus quercus Ehr. Thinking that perhaps the new mealy bug found upon

Continued on Page 167.

FIGURE 2. PSEUDOCOCCUS BAKERI ON BARK OF WALNUT.

Facts Regarding the Lemon

A Letter Written by G. Harold Powell to Senator Flint and by Him Used as a part of his Speech in the U. S. Senate and Now Part of the Congressional Records.

Referring to our conversation in Washington in December in regard to the recent progress that has been made in the lemon industry in California, I have met a large number of growers and have seen many of the lemon-growing regions since reaching the state. It has been two years since I have given much attention to the industry. The lemon business appears to have taken on new life and the acreage is increasing at the present time. It is estimated that 3380 acres have been planted in the last two years, and at least 5000 acres will be planted this spring. A detailed survey of the lemon-growing counties has recently been made to determine the amount of available land adapted to lemon growing on which water is already developed or on which it can be developed. You will probably be surprised, as I have been, to learn that there are at least 56,000 acres in the counties south of the Tehachapi and exclusive of the Imperial Valley that are not now planted with fruit of any kind and which are adapted to lemon culture. There are at least 800 acres in San Diego, and several thousand may be developed in that county in the next few years; 1000 in Santa Barbara; 500 in Riverside; 2000 in San Bernardino; 10,000 in Orange; 10,000 in Los Angeles, and 20,000 in Ventura counties. There are now 18,000 acres of bearing lemons in the state. The present acreage, together with the trees to be planted this spring and the available acreage that will soon be planted if the conditions surrounding the industry remain settled and stable, will supply the entire American demand and leave a surplus of lemons for export. There is a big contrast between the feeling of the growers, as I find it now, and the feeling that existed in 1904 to 1906, when half a million bearing trees were either dug up or were budded over to oranges on account of the depressed condition of the industry. The California grower has set out to furnish the entire American supply of lemons.

There is practically an unlimited acreage that could be planted to lemons in Tulare county, but the crop in that part of the state matures largely in the fall. Under these conditions an extensive planting is not likely to follow. Two hundred acres have been planted in Tulare county in the last two years and seven hundred acres will be planted this spring. There are not less than five hundred bearing acres in the county at the present time. I am mentioning the Tulare county plantings especially, as they will have an important influence on the future fall prices of lemons. There is a natural shortage in the lemon supply for a short time in the fall. The California crop is light at that period. The Sicilian crop has not begun to move freely and the importation of the foreign fruit is sometimes regulated to create an unusually high price for a few shipments. Such a condition apparently occurred in October in 1910, when the New York market was kept comparatively bare of foreign fruit for two weeks in order to create an abnormal price. According to the records of the New York Fruit Exchange there were approximately 50,000 boxes of foreign lemons afloat or in the port of New York unsold September 23d; 33,700 September 30th; 23,000 October 7th. The exports from Italy, or the number reported due in New York, were then held back for two weeks. On October 14th there were only 6875 boxes and 5650 on October 21st reported by the importers either afloat or unsold in New York. One week later, October 28th, 50,800 boxes had been liberated from Italy or were in New York for sale, and on November 18th, 81,650 boxes were afloat or for sale in port. The following statement shows the approximate number of boxes of lemons afloat or in the port of New York from September 23d to November 18th for the years 1906 to 1910 inclusive.

Foreign Lemons Reported Afloat and in the Port of New York Unsold.

	1910	1909	1908	1907	1906
September 23d	49,900	38,800	22,700	51,600	32,700
September 30th	33,725	29,950	26,000	48,300	42,750
October 7th	22,950	29,275	17,650	37,600	43,650
October 14th	6,875	25,625	12,400	26,300	53,000
October 21st	5,650	28,000	10,850	27,000	47,000
October 28th	50,800	15,925	18,500	30,300	59,300
November 4th	67,500	15,475	40,950	37,500	69,000
November 11th	76,650	23825	47,600	40,750	70,950
November 18th	81,650	26,450	45,900	44,800	56,000

During the artificial shortage created in October 1910 by the manipulation of imports one carload of California lemons sold for $6 to $12 a box in New York. As soon as this sale was accomplished a large foreign supply was liberated, the price fell within a few days to the usual figure for that time of the year and this carload and the small receipts were used to show that the duty on lemons restricts importations and forces the consumer to pay an abnormal price for the fruit.

As a good deal has been said about this carload I think you might be interested to know that similar high prices have been obtained on foreign fruit at some period in nearly every year at least since 1885. According to the New York Journal of Commerce foreign lemons sold in New York for

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Parties contemplating the planting of citrus groves this coming spring will do well to send for our prices soon, as there will evidently be a shortage of strictly first class stock. Write today for particulars, or, better still, pay us a visit so that we may be able to show you just what we have.

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$10.62 per box in July in 1885; $9.50 in October, 1886; $7.50 in June, October and November, 1888; $8.75 in October, 1889; $10.37 in July, 1890, and several times above $9.00 in the same month, and $8.87 in October; $9.50 in August, 1892; $12.50, $11.75 and many times above $9.00 in September and October, 1895; $10.50 and several times above $9.00 in October, 1898. I could cite many similar high prices during the following years. Now when the Tulare county fruit comes into bearing in a few years the American public will be able to depend on a uniform domestic supply in the fall, and the abnormally high prices that have been created artificially for speculation and spectacular purposes will be a thing of the past.

There is promise of the largest lemon crop on record in California this year. It is estimated that the yield will reach seven thousand carloads or over. There is a great deal of attention being given to improving the methods of handling the lemon in the fields and packing houses. It is the most difficult fruit in California to produce and market. The United States Department of Agriculture and the University of California have co-operated with the industry for several years and are helping to solve some of the difficulties that the growers and shippers had not been able to meet alone. There are many problems still to be worked out, soil difficulties to be investigated and insect and fungous pests to conquer. The largest average yield attained in the state as a whole hardly exceeds one-third of a carload, or less than 9000 pounds, of fruit per acre for the 18,000 acres of bearing groves. There are some groves that produce a carload or more per acre, just as there unusual surgeons, lawyers and business men who stand head and shoulders above the average man in the same profession. The increase in the difficulties of production and the decrease in productiveness of many of the bearing groves have caused some apprehension as to the future of the industry. The State University recently brought two of the most distinguished soil experts in America to California to help the growers solve their difficulties, and two large conventions of fruit growers have recently appealed to the federal and to the state governments to furnish investigators and funds to co-operate with the industry in working out these troubles.

The industry is awaiting with great interest the outcome of the investigations that have been made by the Honorable Secretary of the Treasury of the effect of the present regulations in determining the decay in imports of lemons. The industry here feels that it may have been subjected to unfair competition under the present regulations and that the importer has had an undue advantage for years past by securing an excessive allowance for decay. This is a vital matter to the California lemon grower. The imports of lemons into New York have not decreased recently as the importers claimed they would when the tariff bill was under discussion. According to the records of the New York Fruit Exchange there was a difference of less than 1000 boxes of lemons in the total receipts in New York in the two years ending November 1st, 1909 and 1910. The tariff act became effective August 5th, 1909. The receipts of forein lemons into New York from November 1st, 1908 to August 1st, 1909, amounted to 1,335,275 boxes. The imports from November 1st, 1909, to August 1st, 1910, including nine months after the tariff became effective, amounted to 1,439,850 boxes, or 104,575 boxes more than during the corresponding nine months in the year preceding the time when the act became effective. The total imports of lemons into the United States for the year beginning July 1st, 1908, and ending June 30th, 1909, were approximately 135,000,000 pounds. The imports for the year beginning July 1st, 1909, and ending June 30th, 1910, were approximately 160,000,000 pounds, or 25,000,000 pounds more during the year after the tariff became effective. As long as these heavy importations continue the domestic producer feels that no governmental regulation should be allowed to stand when it is found that through its enforcement it works to the disadvantage of the domestic producer.

CITRUS FAIR PREMIUMS.

The rules governing the entrance of exhibits and premium list have been announced by the directors of the Cloverdale Fair Association, for the Citrus Fair to be held February 21 to 25, inclusive, at the association's fine building, erected just before the fair last year. The list follows:

Class A—Most elaborate display of citrus products. First $75, second $50, third $40, fourth $35, fifth $30, sixth $25, seventh $20, eighth $15, ninth $10, tenth $10, eleventh $10, twelfth $10, thirteenth $10, fourteenth $10, fifteenth $10.

Class B—Most elaborate display of citrus products, juvenile: First $10, second $5, third $2.50, fourth $1.50, fifth $1.

Class C—Best fruit in quantities, one box or more: Best Washington Navels $2.50, second $1.50; best Japanese $2, second $1, best lemons $2.50, seconds $1.50.

Class D—Best fruit in small quantities: Best Washington Navels, ten boxes or more, $10, second $5; best 24 Japanese $1.50, second $1; best Villa Franca lemons $1.50, second $1, best 24 Sicily lemons $1.50, second $1; best 24 Lisbon lemons $1.50,. second $1; best 24 pomelos $1.50, second $1; best 24 citrons $1.50, second $1; best 24 Ponderosa lemons $1.50, second $1.

Class E—Best display of greatest variety of citrus fruit grown by exhibitor: First $4, second $2.

Class F—Best exhibit of canned fruit, put up in glass, by exhibitor: First $5, second $2.50.

Class G—Dried fruits and nuts: Best general display dried fruits $2.50, second $1; best display of dried prunes $2, second $1; best display softshell walnuts $1; best display of softshell almonds $1.

Class H—Olives and olive oil: Best pickled olives $2.50, second $1; best olive oil $2.50, second $1.

Class I—Jellies and marmalades in glass, put up by exhibitor: Best jellies $5, second $2.50; best marmalade $5, second $2.50.

Class J—Best exhibit of wine, consisting of not less than 150 bottles, artistically arranged: First $20, second $10.

Class K—Best exhibit of apples, not less than ten boxes: First $10, second $5.

Class L—Best exhibit of apples in lots of 24: First $2.50; second $1.50.

Class M—Art exhibit under direction of committee.

Class N (Special)—Cut flowers and plants in pots.

Rule 1—All exhibits must be in place by 12 m. on first day of fair.

Rule 2—Exhibits must be numbered

and entered for competition under particular classes to which they belong.

Rule 3—No exhibit can enter more than one class, nor compete for more than one prize.

Rule 4—Space for exhibits under direction of the director general. However, all large and effective designs are not permissible of entrance to pavilion.

Rule 6—All the north of bay counties, Napa, Marin, Sonoma, Mendocino, Lake and Humboldt, are entitled to enter for premiums.—Santa Rosa Republican.

NITRATE OF SODA AGAIN.

By R. R. Snowden.

In view of the discussion of the effects of nitrate of soda on the soil in a recent issue, the following might interest your readers:

The consumption of nitrate of soda in the world increased more than 85 per cent for the year ending June 30, 1910, over the preceding twelve months. Increase during the same period was observed in nearly every country, including Great Britain, Germany, Belgium, Holland, Italy, India, Australia, China, Japan, Sandwich Islands, Egypt, Brazil, Mexico and others, that in the United States being 58 per cent. On the Pacific Coast and in the Hawaiian Islands the increased use for agricultural purposes for 1910 over 1909 was 12.8 per cent.

There is no question but that the facts demonstrated in Southern California should outweigh with the growers here the experience in one isolated spot across the Atlantic, or the theoretical deductions of one not familiar with conditions here. Notwithstanding the thousands of tons of nitrate of soda used in the orchards and farms of California, not one instance can be shown where it has produced black alkali in the soil where used in conjunction with superphosphate.

A prominent grower, who had no intention whatever of boosting nitrate, said in a letter to the writer that after thirty-five years of cultivaion "The grove and trees are in good condition and production"; also "This grove has had large applications of nitrate of soda, probably a total of 5,000 pounds or more per acre, in the last fifteen years." Analysis of the upper soil shows not a trace of black alkali, where it would be found if there at all.

In view of the enormous profits derived from the use of nitrate of soda each year in the vegetable and fruit industries, and the universal freedom from injurious effects noted, it would be simple folly to curtail its use until some real reason for doing so is presented.

A WORLD-WIDE TOURIST.

"The California prune is the greatest tourist in the world," remarked Brown, sitting at the family breakfast table and glancing enviously at his valise, all covered with pasters of European hotels and steamship lines.

"California prunes were on the menu cards of the dining cars from Oakland Pier to New York, and on the cards of all the leading hotels of Chicago, Washington and New York. I had them every morning for breakfast on the big ocean liner all the way across the Atlantic, and when I breakfasted at the Cecil, in London, the first and most conspicuous thing on the bill of fare was 'California Prunes.'"

"California prunes in London!" ejaculated Mrs. Brown, with surprise. "How on earth do you suppose they got there? Why, that is almost one-third of the distance around the world."

"Yes, it's a long distance from here, and, moreover, you may get a dish of them in London as cheaply as in San Francisco."

"But, my dear, I have heard you say the railroads charged such high rates that the producers couldn't afford to ship their stuff farther than a woman with a hobble skirt could make in three jumps."

"Yes, from a mouse."

"You didn't say anything about a mouse."

"Well, I meant to. It makes some difference what a woman is jumping from, at, or about. Bill Jones' wife jumped from a mouse the other day, and Bill says she circled the room three times every time she jumped."

"But there is a 7,000-mile gap between London and San Francisco."

Perhaps my comparison was rather ridiculous. When I was a boy, and anything went wrong, I whipped my dog. Men are only boys grown tall, and when we grow up, instead of whipping the dog, we whip the railroads. But I will admit that when I can go 7,000 miles away, across the Atlantic, and buy a dish of California prunes for breakfast, in London, Berlin and Paris, as cheaply as in San Francisco or Los Angeles, freight rates haven't much to do with the price or cost of an article. I think, perhaps, if the curtain was pulled aside on the fellows who are howling about freight rates, it would be found that they are doing it to cover up something else."

"But you howled as much as anybody."

"If I didn't, the fellow who paid me a profit of $7 on a suit of clothes would butt in and howl, too, but against me. I beat him to it, and he is satisfied to hear me cuss the railroads. It's an easy and quick way out of it, you know, and it's a scheme that works fine."

"But is it honest?"

"Please do not discuss a dealer's profits and moral ethics at the same time. They don't blend well."

"But honesty is the best policy."

'See here, give me something from Bacon, or Shakespeare, or Bill Nye, but don't spring something that somebody said or concluded after he got caught. Besides, you are leading me away from the original subject. I was talking about California prunes, and what I wanted to remark was that as world-wide tourists and globe-trotters they take the blue ribbon."

WHITE FLY FUNGUS FROM INDIA.

By H. S. Fawcett, of the Florida Experiment Station.

A few days ago specimens of a fungus attacking whitefly were received from Mr. R. S. Woglum, from Saharanpur, India. A microscopical examination showed that these specimens belong to the same species as the Brown fungus, Aegerita webberii, now common in many sections of Florida on whitefly. In regard to this fungus Mr. Woglum writes from Saharanpur, India, under date of Nov. 4, 1910, "The fungus is doing splendid work here in many citrus trees, its efficiency being most apparent on trees in protected situations where an atmosphere of dampness is longest retained."

The finding of the Brown fungus in India is of much interest since it indicates that this fungus probably came to this country with the white-

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This one-piece dress is made of Checked Percale, and, first of all, it is made of excellent quality material that will launder well and wear splendidly. The front of the waist, where the closing is effected, has plaits at each shoulder stitched to yoke depth, which gives the necessary fullness to the model. The jaunty turned-down collar, the breast pocket and the buttoned cuffs that fasten the full-length sleeves are made of plain color material. A belt of the material joins the waist to the skirt, which closes at the left side front with pearl buttons. Skirt length about 40 inches. **Colors:** Blue and White check; or Black and White check.

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fly on importations of citrus from the East.

The Brown fungus was first discovered in Florida in 1896 in the Viser grove, Manatee, by H. J. Webber, who was at that time making some investigations of the whitefly. It is interesting to note what Webber says in regard to the first discovery and spread of this fungus.

"In March, 1896, it was found to be abundant over a large portion of the Viser grove of 5 acres. Many trees, however, did not contain a trace of it. A very careful search was made at this time in adjoining groves and other groves in this vicinity, but no trace of the fungus could be found. At this time the grove was in very bad condition; scores of living larvae of the whitefly could be found on almost every leaf in it and the sooty mold was very abundant. In December, 1896, the grove was again carefully examined, and the fungus found to have spread with surprising rapidity. An examination developed no living specimens of the whitefly anywhere in the grove. The fruit, which for several years previous had been very black with the sooty mold, was examined after it was picked and was found to be bright and therefore requiring no washing. The new growth, which had formed during the latter part of the summer, remained bright and almost entirely uninfected with the whitefly. The same growth in other groves in the vicinity infected with the whitefly was found to be abundantly infested with the larvae and covered with sooty mold."

Although a careful search was made by Dr. Webber for the spores of this fungus at different seasons of the year during 1896 and 1897 no spores were found, and therefore the relationship of the fungus remains unknown. It was not until 1909 that the fungus was classified and received its specific name.

About four years ago the writer noticed that on the upper side of the leaves which contained Brown fungus on the lower side, there was something that looked to the unaided eye like reddish-brown dust. On examination with the lens this proved to be a little cluster of spores. Since they were on the upper surface and the Brown fungus pustules were on the lower surface, it was only after considerable study and experimenting that it could be proved beyond doubt they were the real spores of the Brown fungus and not spores of some other fungus. The identity of the spores was finally proved by picking a lot of the clusters off one by one under the microscope, and then placing them near healthy larvae of whitefly. It was found that in 16 days pustules of Brown fungus developed upon these larvae so treated while none could be found within a distance of 1½ miles from those inoculated. The way in which this fungus develops is curious and interesting. The spore germinates and sends out a jelly-filled tube comparable in form to a rubber hose, but so small that 44000 of them could lie side by side in the distance of one inch. This tube pierces the whitefly larvae, lengthens and branches many times as it grows into the vitals of the insect. Having killed the insect, it feeds upon the dead body and increases in size till the brown pustule is formed. At this stage there are still no spores. From the pustule thus formed there grow out long colorless fungal tubes that extend over the surface of the leaf attacking every larva in their path. These finally grow around the dge of the leaf and pass to the upper surface. It is on the upper surface of the leaves that the spore-clusters are usually born. When in large quantities they give the appearance of reddish dust and may be seen at some distance. Under the microscope these spore-clusters are seen to have appendages or arms, that presumably help them to cling to objects. The cells of the clusters are inflated. When once detached the clusters blow about on smooth suffaces, with the least motion of the air, but on alighting on another leaf or slightly rough surface they tend to hold fast to it. Their lightness probably enabled them to be carried by the wind and the appendages enable them to remain attached when striking another surface such as a leaf or branch. It is not necessary to speak of the economic importance of this fungus and the methods now being used by growers to introduce it into groves where conditions are favorable for its spread.—Florida Fruit and Produce News.

LIME IN ORANGE ORCHARDS.

Will lime be good to use in an orange orchard with commercial fertilizer and stable manure? Trees are beginning to show mottle leaf and the soil is heavy adobe in nature. If lime is beneficial, what form is best, and when should it be used? How much per acre? Will gypsum answer the same purpose as lime? Am now applying ten cubic feet of stable manure and ten pounds of commercial fertilizer to the tree.—R. C. H., Riverside.

The lime should not be applied until the fertilizer is worked into the soil. It may be applied at the rate of 500 pounds or even as much as a ton to the acre. Air slaked lime is preferred. Freshly burnt lime should not be used because it is too caustic. It is possible the application of lime will aid in reducing the mottle leaf. Surely on a heavy soil it will benefit the mechanical condition. Gypsum would not answer the same purpose as lime.

FERTILIZER FOR WALNUTS.

What is the best commercial fertilizer for walnut orchard? I want something which will act more quickly than barnyard manure. Would there be any advantage in drilling in wheat and barley at this time and plowing under in April, or is there a better cover crop which could be planted now? Soil is a heavy loam.—S. G. W., Pomona.

A fertilizer rich in phosphoric acid should be applied to the walnut grove. Rock phosphate is perhaps more largely used than any other one fertilizer, but of course that would not be complete. Perhaps until you understand the needs of your soil the complete commercial fertilizer would be best. If you wish to investigate as to best results secured with greatest economy, you could fertilize different patches and watch results. The quickest acting fertilizer is, of course, nitrate of soda. That with your superphosphate would perhaps answer for the first year's application.

The benefits derived from drilling in any cover crop now would not pay for the investment. Planting of seed for cover crops should be as early as possible after the nuts are off. To add humus to the soil now the only satisfactory way would be by the application of barnyard manure. The fertilizer could be applied at once unless it be the nitrate of soda, which should be applied later when the trees are beginning to grow.

A PEST OF DECIDUOUS TREES.

Continued from Page 163.

the elder might be synonymous with the species described by Mr. Ehrhorn, and not having a mounted specimen of P. quercus, I sent several slides to Mr. Ehrhorn asking him if it was the one which he described from the oak. This is a copy of his letter: I have examined your specimens with the type of P. quercus and I find that the antennae are quite different, the joints being of a different shape. The derm around the anal ring contains many more glands in quercus and the marginal spines are stouter. In your species the antennae are more hairy, so are the legs and the trochanter has a much stouter bristle. Your species is surely not P. quercus. I have no idea what it is and am sorry that I cannot help you in the matter. It will probably prove a new species.—Edw M. Ehrhorn, Superintendent of Entomology, Honolulu.

The species is, therefore, named bakeri in honor of Prof. C. F. Baker, of Pomona College, who has aided me more in my entomological work than has any one else.

moved around these cracks and wounds, the mealy bugs were exposed in rather limited numbers, but scattered over quite a large area of the tree. In all cases they appeared to be feeding only upon the new formed

Figure 2. Pseudococcus bakeri on bark of walnut.

bark, or cambium layer, around the cracks and wounds, and were more or less concealed from view by the rough outer bark. A few were observed crawling on the outer bark, as if in search of a suitable resting place, but none were found upon the foliage of the elder trees. It is very probable that this is the native host plant, and it migrated from this to the deciduous fruit and walnut trees in the surrounding neighborhood.

Walnut (Juglans regia). This pest (if it may be called a pest) has been found more extensively distributed upon the walnut trees than upon any other host plant. Its work is the same upon the walnut as on the elder, but during the months of August and September, it was also found feeding upon the stems of growing nuts, but never in any alarming numbers. It is more

FIGURE 1. PSEUDOCOCCUS BAKERI AND OBSCURUS. A, B, C, E. bakeri; D, obscurus.

Description of Pseudococcus bakeri, n. sp.

Adult Female. (Fig. 1) The general shape of the adult female is rounded oval. Length of body 4 to 6 mm., width 2 to 3 mm. The covering consists of a rather thick white, powdery way which hides the dark body, but which is not thick enough to conceal the distinct body segmentation.

Figure 1. Pseudococcus bakeri and obscurus. A, B, C, E, bakeri; D, obscurus.

* * * *

(The technical description parts made by Mr. Essig are omitted and may be seen in the Pomona Journal of Entomology.)

* * * *

The eggs are oval in shape, smooth, lemon yellow to amber in color. Length 5 mm., diameter about one-half the length.

They are deposited in masses similar to those of the citrus mealy bug, and are located in cracks, and wounds of the tree where they may be hidden under the rough outer bark. (Fig. 2.)

Host Plants.

Elder (Sambucus glauca Nutt). This mealy bug was first observed upon the elder trees growing in the "washes" near Santa Paula, Cal. Its presence was first discovered by the aid of ants, which appeared in large numbers in the cracks and wounds of the trees. When the rough exterior bark was removed around these cracks and wounds, the mealy bugs were exposed in rather limited numbers, but scattered over quite a large area of the tree. In all cases they appeared to be feeding only upon the new formed bark, or cambium layer, around the cracks and wounds, and were more or less concealed from view by the rough outer bark. A few were observed crawling on the outer bark, as if in search of a suitable resting place, but none were found upon the foliage of the elder trees. It is very probable that this is the native host plant, and it migrated from this to the deciduous fruit and walnut trees in the surrounding neighborhood.

readily found by watching the ants than by any damage which it does to the tree, or by its numbers as is the case with most of the mealy bugs.

The inspection which was made generally over the County of Ventura, showed this mealy bug on the walnut trees at Ventura, Saticoy and the entire district around Santa Paula on both sides of the Santa Clara river. It appeared in the greatest numbers in a small orchard near Santa Paula, but here it existed in very limited numbers. Apparently it exists only upon old trees in the older orchards, which might have been set out when much of the surrounding territory was still growing elder trees and the orchards became infested years ago. This would seem to indicate that the insect is slow to breed and not very destructive, or that it is held down by native insects.

Apple (Pyrus malus). On apple trees badly infested with Woolly Aphis (Schizoneura lanigera) were found mealy bugs in considerable numbers associated with this plant louse. The Woolly Aphis had caused many of the burls or knots on the limbs and suckers, as well as the crown roots of the tree. The new bark which endeavored to heal over these wounds afforded the desirable conditions for this mealy bug and in every case it was found feeding upon the new bark so exposed. It was especially abundant upon the

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Wonderful new peach, "Shamrock," that comes in just after Salway, which keeps until February. It is a large yellow peach, highly colored, like Orange Kling, has a rich flavor, bears very heavily on all parts of the tree, and sells during winter at 10c and 15c a pound. Three growers near Los Angeles have had control of this peach the past four years and would not sell any trees, but they have netted $400 to $500 an acre each year. My trees are the first ever offered for sale. Price $25.00 a hundred, or 50c each. Also have Foster, Crawford, Susquehanna and Salway at $10 a hundred. All trees two years old.

O. C. LANE, R. F. D. Box 70, Burbank, California.

suckers which were allowed to grow undisturbed at the base of the tree trunk and was found also upon the crown roots of the tree. The apple trees which were worst infested grew in a citrus orchard near the house. An orange tree and several lemon trees were less than 20 feet from the three infected apple trees, and not a single mealy bug could be found on any of the citrus trees. Fearing that they might take to the citrus trees, the owner of the property promptly grubbed up the apple trees and burned them, thereby eliminating any possible chances of infection. In a number of yards other apple trees were found likewise infested with this insect.

Pear (Pyrus communis). Were as generally infested as were the apple trees in the same manner.

Remedies.

This mealy bug has not been a pest yet in any locality. In case they infested the walnut trees as badly as the citrus mealy bugs infests the citrus trees, it would be almost hopeless to combat it with anything but parasites.

That it has never become a pest during past years is no positive proof that it will not become so in the future, so it is with care that we are keeping watch of this insect.

On deciduous fruit trees some active steps have been taken to destroy all infestations, so I may include in this article the most practical means of extermination or eradication of this pest on such trees. It is a fact that such deciduous, or other fruit trees, as are allowed to grow in the yards, around the houses or barns, and in pastures, are more liable to be infested with injurious insects than trees in a well cared for orchard. If you have such trees it is necessary to either take care of them or to cut them out for your own safety, if you are an orchardist, even though you have a few deciduous trees in a citrus region. If your trees are infested with this mealy bug it may be well to heed these suggestions:

1. Cut down the trees, grub out the roots, and burn all over the hole, if your fruit trees are of secondary value to citrus growing.

2. If trees are valuable keep down all suckers and destroy the Woolly Aphis by spraying with the Carbolic Acid Emulsion. It will also kill the mealy bugs. Pour a weak solution of this emulsion around the crown of the tree at repeated intervals of two weeks.

3. Spray when the tree is dormant, using ten gallons of the emulsion per tree.

4. Be sure that the spray is applied to every crack and crevice at not less than 180 pounds of pressure. Repeat the application three times at intervals of one month.

CALIFORNIA SOIL SURVEY.

During the last fiscal year the Bureau of Soils, United States Department of Agriculture, made soil investigations of about 1,000 square miles in California, bringing the total of the soil survey work in that state to 11,256 square miles, or 7,203,804 acres.

During the winter of 1910-11 a survey will be made of Fresno county, covering an area of 1,000 square miles.

Since the Department of Agriculture began soil investigations in California, in 1901, the following areas have been surveyed: Bakersfield, Colusa, Fresno, Hanford, Imperial, Indio, Los Angeles, Lower Salinas Valley, Modesto-Turlock, Portersville, Redding, Sacramento, San Bernardino, San Gabriel, San Jose, Santa Ana, Stockton, Ventura and Yuma, and the counties of Yolo and Yuba.

PRUNING APPLE TREES.

By J. W. Mills.

After the young apple trees are planted they should be cut to a uniform height of about eighteen inches. Should there already be branches at about that height and the branches are evenly and widely distributed, there is no reason why the proper ones should not be selected and left to form the head of the tree. In selecting these branches, imagine as nearly as possible what their position and appearance will be when the tree is five or ten years old. Never allow branches to develop opposite each other on the main stem. This makes two knots at one point which weakens a tree. If one branch happens to split off, the opposite one is sure to go as soon as a heavy load comes on it.

If the apple tree is only a straight whip when it comes from the nursery, cut it off about eighteen inches high and select three or four (no more) branches located as described above, and rub off all the others which start so as to throw all the growth into the permanent branches. These should never be pinched back in order to make them branch the first year. All young trees should be allowed to make as much growth as possible, and if the branches are nipped, the growth is checked just when it should be most active. Experiment with apricot trees showed that summer pruning retarded the growth more than one-half.

At the time of pruning after the first summer's growth the permanent branches should be cut back to eight or ten inches and all others removed entirely. Trees of a spreading habit usually require pruning to inside buds in order to keep them from spreading too much. The idea is to secure the proper spread and carriage of the head, and pruning to inside buds at one time and outside buds at another, may be necessary. Sometimes an open space in a tree requires pruning to a bud pointing in that direction. Trees of the Northern Spy type usually require continual pruning to outside buds.

At the third and fourth pruning, the branches should be left a couple of feet long, as it is on these that fruit spurs will develop later, and the tree will be old and strong enough to bear. At all of these prunings no more than two branches should be left to each branch of the previous year's growth. Subsequent prunings should be confined to keep the head of the tree properly thinned and stocky. If the tree is properly pruned till it is four years old there will never be any need of taking out large branches, at least not until the tree is so old that it requires severe cutting back in order to rejuvenate it.

The small short branches or twigs that grow on the older wood should never be trimmed or broken off, for they are the fruit spurs.

Pear trees should be pruned in the same way, the idea being to secure a stout well-balanced head that will admit sunlight to properly ripen and color the fruit and at the same time hold up a heavy load.

The chief difference between pruning the apple and pear is that the latter requires to be pruned to spread the top in most cases while most apple trees are of a spreading nature.

There are a few exceptions in certain varieties. Winter Nelis, for instance, should be allowed to have about its own way till it gets over its rampart growth.

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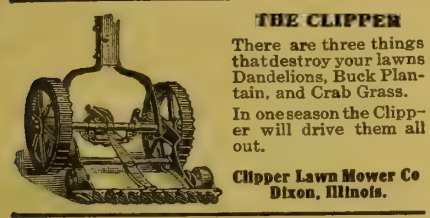

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Home Grounds Beautiful

THIS MONTH.

This is no exception to every other month in the year in that it is a good time for fertilizing the lawn. If stable manure is used, see that it is thoroughly rotted. Scatter over the surface and wash into the soil with water under force from the hose. After permitting this to cover the entire lawn for a week and watering occasionally, the surface should be raked off. If the manure is well rotted no weed seeds will be carried into the lawn. Fine bone meal is excellent for applying to the lawn, and if stable manure is not available, or if preferred, complete commercial fertilizer may be used. True up the edges, and if there are bare spots or spots foul with weeds, deep raking and reseeding will help. Old lawns, especially where Bermuda is getting a start, are often helped materially by using liberally of sweet clover seed.

Such bulbs as amaryllis vittata, agapanthus, cannas, dahlias, iris, tuberoses, and especially early gladiolus, should be put in the ground. The plantings of gladiolus should be continued practically for months. This beautiful flower is so prolific and so easy of culture, requiring no more care than potatoes, that it is strange it receives no more general planting.

In annuals, pansies, stocks, verbenas and salvia may be lifted from seed beds and put into the open ground. Sweet peas may yet be planted, although they will require more care than those planted earlier. Sow seed of asters, coreopsis, alyssum, poppies, pinks and other hardy annuals. All deciduous ornamentals should be planted at once.

SEQUOIA.

We are constantly seeking the exotic or the artistic from foreign lands. "Imported" gives added value in many minds. The more striking or more valuable plant growing at our own door is ignored, and foreign seed introduced and coddled. The German appreciates the beauty of our wonderful poppy, and hundreds of pounds of seed are sent to that country every year. Few Californians appreciate it sufficiently to aid nature in its production. It's our state flower. Let us make more of it.

Along another line, we note in The Practical Farmer, Joseph Meehan speaks of our Sequoia as the California Big Tree, and recommends its planting in the East. Yet how many California home owners honor their own state—or themselves, rather—by planting this noble tree. The writer has one in his yard, and derives from it much pleasure because of its beauty, more because it's a "California Big Tree."

The Eastern writer says: "Almost everyone has heard of the giant trees of California, the 'big trees,' as they are called, and it has been the privilege of some to have seen them in their wild state. In cultivation there are very few of them to be seen, for the reason that there is a fungus that attacks the foliage, so weakening the trees that they dwindle away and eventually die. Those who do not know that a fungus is working the injury suppose that the tree is too tender for growth among us, but this is far from the truth; the tree is perfectly hardy, at least it is in Eastern Pennsylvania, never having been hurt in even the severest winters. There are very few of them in collections in the East, but it is solely because persons know no better than to believe that it is not a hardy tree. All that is required is to spray the tree with Bordeaux mixture twice a year, spring and autumn, and this would not be a hard matter, now that all good fruit growers do it to their fruit trees at least once a year. This 'big tree' is looked on as one of the wonders of the world, an additional reason for having a growing tree on one's grounds. Experience with the few trees planted about Philadelphia shows that the tree prefers a situation where the ground is rather moist than dry; in fact, one flourishing tree of it here is growing near a running stream from a spring of water."

THE ARCHITECTURE OF FARM HOUSES.

One of the next steps in agriculture should be a revision of farm architecture. Only a small percentage of country residences please a cultured eye or afford sanitary comfort to their occupants. Most of them are devoid of any semblance of art. Outwardly plain and severe, they are inconvenient, insanitary and unattractive within. If farm people spent half as much time in their homes as city folk spend in theirs, rural mortality would be appalling. But farm families as a rule are blessed with vigorous health in spite of poorly ventilated houses. Outdoor activities offset in large measure the effects of unhealthful conditions indoors. A much higher degree of health, however, should obtain in the open country.

Many a farmer buys additional land who could better invest his surplus in a new or remodeled home. Usually where men are unsentimental, autocratic heads of houses there is little of beauty or comfort in their homes. Our best farm dwellings have been built at the instigation of women. Since women spend most of their time in houses they have a right to dictate plans and demand their execution. Farmers' wives are entitled to better homes than the majority of them live in, and their husbands in thousands of cases could well afford to provide them. We would not engender domestic dissention, but we urge farm women to campaign for more attractive, healthful and convenient houses.

New types of farm houses equipped with modern heating and water systems, and expressive of simple architectural beauty, can be constructed at an average expense not in excess of what the bulk of ordinary modern farm houses cost. There is excuse and opportunity for a deal of thinking, studying and planning by those who would build a farm house with a quiet, simple individuality and a maximum of practical conveniences that conduce to mental and physical comfort. It is time that our agricultural colleges considered this problem of farm architecture.—Breeders' Gazette.

Unfruitful orchards, as a rule, are so because the soil is deficient in plant food.

Saucer peach trees of Orange county are in full bloom.

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Garden and Field Crops

THIS MONTH.

With the high price of potatoes, doubtless extensive plantings will be made this season, and in the more favored sections the present month is a good time. The heavy rains have fitted the ground, and potatoes planted now will probably have rainfall enough to carry them to maturity without irrigation. For present planting Early Ohios or Early Rose are perhaps the best.

Rhubarb roots may be reset now, as may horseradish, asparagus and onion sets. Sow peas, beets, carrots, cabbage, lettuce, parsnips and radish. Plant onion sets, rhubarb roots, cabbage and cauliflower plants, shives, horseradish, tarragon and asparagus roots. On the hot beds, sow egg plant, tomato and pepper seeds.

Resetting of raspberries, strawberries and all small fruits should be made at once. They are now forming roots for the new season's growth, and the sooner in permanent place the better. Of course, grapes and all deciduous fruit should be planted at once.

Plants susceptible to frost should be prepared for, though they may not be put into the ground until the next month, but spade in thoroughly rotted stable manure.

FARMERS ATTEND AUTOMOBILE SHOW.

Thousands of well-to-do farmers, accompanied by their wives, their sons and daughters, assisted greatly in making the Chicago Automobile Show a big success. They outnumbered the city men almost two to one in their purchases, and practically forced those makers who have appealed to the fads of the city alone to change their policies and begin to think of taking care of the farm owner first.

It was exceedingly noticeable this year that the women were more of a deciding factor in many of the sales than ever before in the history of the motor car. Among the many demands of the farmer and his family, comfort seems to be the most important. Of course, they want a car that is of large enough carrying capacity so that the family uses will add to its service value, and a car that is good to look at, yet the farmer does not at any time lose sight of what he considers to be one of the most important factors—comfort.

Considering the matter from the purchaser's standpoint, appearance attracts his attention first, but when it comes to a demonstration of actual use, comfort is always demanded by the experienced buyer. The question of comfort has many sides, and every point which affects it must be considered. It was once thought that if the springs were properly flexible, comfort would necessarily follow, but it is now just as important that the seats be of proper height and depth, and that there be sufficient room in front between the seats and pedals to avoid a cramped position.

The wheel base should be long, to neutralize the inequalities of the road, and the larger the diameter of the wheels, the less shocks of any kind will be transmitted to the passengers. The position of the steering wheel in relation to the seat is important to the driver, as a cramped position tires.

Another very important thing which is receiving more consideration than ever before is the reliability of the maker. Farmers are now buying motor cars in very much the same way they have for years purchased their live stock. That is, they are exceedingly careful to look into the pedigree, as it were—they know that quality is never cheap, and the motor car with a pedigree and a reliable guarantee from a well-established and reliable maker cannot be produced in a minute, nor sold any cheaper than it cost to produce.

The man from the farm who is buying a car is unconsciously lending his aid and assistance in forcing those who manufacture to give full value, and, as everybody knows, this tends to crowd out of the large industry fictitious values placed on low quality cars, or the so-called wildcat features of the automobile business.

A careful investigation among the various salesmen of the many cars represented at the show indicates the average price paid for all cars to be somewhere around two thousand dollars, which proves that more of the better quality and better than average priced cars are being sold.

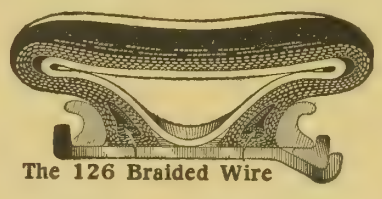
No Rim-Cutting
No Overloaded Tires

In motor cars, one-fourth the tire cost is due to rim-cutting—one-fourth to overloading.

We have perfected a tire which can't be rim-cut—called Goodyear No-Rim-Cut tire. And, to prevent overloading, we are making that tire 10 per cent over the rated size. The use of this tire, with the average car, means to cut tire bills in two.

These patented tires, until lately, cost one-fifth more than other standard tires. Yet last year our tire sales trebled—jumbed to $8,500,000—because these tires save money.

Now they cost the same as standard clincher tires. And 64 leading motor car makers have contracted for Goodyear No-Rim-Cut tires for their 1911 models.


The 126 Braided Wire

The No-Rim Cut Tire

This picture shows a Goodyear No-Rim-Cut tire as it fits any standard rim made for quick-detachable tires.

When you use this tire the removable rim flanges are set to curve outward—as shown in the picture.

The tire comes against the rounded edge, and rim-cutting is made impossible.

We have already sold half a million Goodyear No-Rim Cut tires. We have run them deflated in a hundred tests—as far as 20 miles. In all this experience there has never been a single instance of rim-cutting.

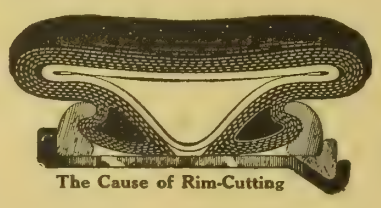
All the worry of rim-cutting—all this ruin of tires—is avoided forever with No-Rim-Cut tires.

Ordinary Clincher Tire

Before the invention of No-Rim-Cut tires the clincher tire was almost universal.

With clincher tires, the removable rim flanges must be set to curve inward—as shown in the picture—to grasp hold of the hook in the tire. That is how the tire is held on.

Note how those thin flanges dig into the tire. That is what causes rim-cutting.


The Cause of Rim-Cutting

In event of a puncture the tire may be ruined beyond repair in a moment. Fully 25 per cent of all tire cost has been due to the ruin of rim-cutting.

We have invented a tire with an unstretchable base. We vulcanize into the base 126 braided piano wires. Nothing can possibly force this tire over the rim flange. But, when you unlock and remove the rim flange, the tire slips off in an instant.

When the tire is inflated the braided wires contract. The tire is then held to the rim by a pressure of 134 pounds to the inch.

That is why the hooks are not needed. Not even tire bolts are needed. The tire base is unstretchable—it can't come off.

This feature we control by patent. It is the only way known to make a practical tire with an unstretchable base. It gives us the only safe hookless tire—the tire that can't be rim-cut.

Tires 10% Oversize

Look again at the pictures. Note how the No-Rim-Cut tire begins to flare right from the base of the rim. It isn't contracted farther up as is the clincher tire.

That fact enables us to make No-Rim-Cut tires 10 per cent wider than rated size and still have them fit the rim. And we do that. We give you this 10 per cent extra tire without any extra cost. That gives you 10 per cent more carrying capacity. It adds 25 per cent to the tire mileage.

That extra size takes care of the extra weight—the top, glass front, gas tank, extra tire, etc.—which most owners add to their cars. It is this overloading which causes blow-outs, and this extra size avoids them.

When you get a Goodyear No-Rim-Cut tire you get rid of rim-cutting entirely. You get a tire 10 per cent oversize. And all without extra cost. These two features together, with the average car, save half on one's tire bills. This is the reason why the tire demand is turning so strongly to Goodyear No-Rim-Cut tires.

Our new Tire Book tells a hundred things you will be glad to know. Ask us to send it to you.

GOODYEAR
No-Rim-Cut Tires

THE GOODYEAR TIRE & RUBBER COMPANY, Ninetieth Street, AKRON, OHIO
Branches and Agencies in All the Principal Cities. We M ke All Kinds of Rubber Tires

A new development company called the United States Farm Lands Company, claiming a capitalization of thirty million dollars, proposes to be a factor in the development of the Sacramento valley.

County Horticultural Commissioner Hecke, of Yolo county, reports that last season the red spider was especially active in almond and prune orchards and recommends thorough application of sulphur this season.

A bill has been introduced which provides for the formation of "mosquito districts" to be under the control of boards of supervisors of counties which take up the work of prevention of fever and malarial conditions.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

THE COW-TESTING ASSOCIATION.

A New York State Fair Prize Esasy.

The value to a farmer of testing his herd is so great that it seems hardly possible it can be necessary to stir any farming community to a realization of the fact. How can a man determine whether his cows are worth their keep unless he tests? He may know at the end of the year whether he has made or lost money on his herd, but that knowledge is of very little value, for he has no idea which cows helped him make a profit or which occasioned him a loss. The only possible way to know just what each cow is doing in return for the money invested in her and spent on her, is to keep an accurate account of the quantity of milk she gives during the year and of what quality it is, and so learn positively whether she is a source of profit or loss.

To operate a testing machine is very simple, and any careful man can do his own testing; but it certainly is an advantage to have it done through an association of friends and neighbors, for the initial expense of a machine can be divided among several, and a larger machine can be bought; also a certain friendly rivalry will be engendered which acts as a stimulus for every member of the association to do his best, in the desire to beat the others, while seekidg to improve his own herd.

Profitable herds do not "come," they are made, and made only by the most careful attention to details, of which testing is probably the most important. Cows are very deceiving machines. Some will produce a large quantity of milk for a short time, others only a fair quantity for a very considerable period; the milk of some individuals is very rich in butterfat, of others it is very low. Outward appearances are oftentimes misleading and are never to be wholly relied on, and the man who depends on "guessing" as to the comparative production of his cows will usually find, on testing, that his ideas are far from the truth. And yet positive knowledge can be gained by an outlay of very little time or money, and the results are sure to be astonishing in many ways.

It often happens that a farmer feels obliged to reduce his stock for one of various reasons, and unless he has tested and knows, he is quite apt to dispose of better animals than he retains, being totally ignorant of their true capabilities; whereas he might quite easily be perfectly sure he was selling his inferior animals.

It is a great satisfaction and very valuable knowledge to be able to say at the end of the year just what each and every cow has done for her owner. It costs no more to house, milk and care for a good cow than for a poor one, and very little more to feed her; so it is obviously common business sense for a man to seek to know that each cow he houses is a good one and is not robbing him of the time, labor and money spent on her.

What would be thought of a printer who ran ten presses to do only the same amount of work his neighbor was accomplishing with five? How would the profits of the two men compare? Yet farmers are doing this all over the country—that is, keeping ten machines to do the work five ought just as easily to do, if the man behind them were dilligent in testing and did not hesitate to weed out the "drones." It is small wonder that we so frequently hear the remark that "dairying doesn't pay;" but by persistently and carefully testing the herd, dairying can, in a very few years, be made to become a profitable branch of the farming operations.

During the past few years we have seen a wonderful rise in the prices paid for dairy cattle, young and old. The only thing that has made this possible is the fact that authentic records are kept of the performances of either the animal itself or its parents. At a recent cattle sale, 200 animals brought an average price of about $330 each, because authentic records of either pedigree or performance, or both, had been gathered and advertised. Had these 200 animals been without records of any kind, the probability is that the price would have been nearer $30.

What makes it possible for one man to sell a cow for eight thousand dollars and another to be unable to get even eighty dollars for his? Simply the fact that the higher-priced animal, in addition to being well bred, had been tested and was known to have made a tremendous quantity of butterfat, whereas the cheaper animal was an unknown quantity, and whoever bought her had to take chances on feeding and caring for an unprofitable "machine."

In addition to being invaluable as an aid to the building up of a profitable herd of dairy cattle, testing enables a farmer to prevent a dishonest creamery man from cheating him, for he can readily see whether he is being treated fairly or otherwise by comparing the test received from the creamery with his own average test of his herd. It also materially assists him to determine the relative value for milk production, of the various rough fodders, grains, mill by-products, etc., and an intelligent investigator along these lines will be able to produce milk at the lowest possible cost, and consequently make the greatest margin of profit. In fact, it is hardly possible for dairying to be profitably conducted unless the scales and Babcock test are diligently and persistently used. Every argument is in favor of testing, and it follows, as the night the day, that if it is carefully practiced and the results acted upon, a few years will show an increase in milk yields of several thousand pounds per cow, and the dairyman can rest assured that every animal on which he spends his time and money is paying him a fair return.

Whether the testing is done individually or through an association is immateral, so long as it is done; the advantages are incalculable, and every farmer keeping even only a few cows should decide to commence the practice at once, for success cannot come without it.—Frank W. Weedon.

San Diego is holding a Land, Electrical and Industrial Show this week.

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

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$125.00 per acre is the price—The terms the best—$15.00 per acre cash, the balance in ten annual installments.
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DO HIGH RECORDS TEND TO PRODUCE NON-BREEDERS?

A careful study of the advanced register of Guernsey cattle shows the following facts: There are 1112 advanced registry records reported in the latest volume, and of this number of cows only 55 were reported not in calf at the close of their year's test, or a total of 4.9 per cent. There were 23 cows of all ages that had produced 400 pounds of butter-fat and were not in calf during their test, or a total of 2.06 per cent.

The percentage of cows, of different ages, which were in calf during the test, was as follows:

In the 5-year or above class, 93.3 per cent.

In the 4½ to 5-year class, 95.5 per cent.

In the 4 to 4½-year class, 97.7 per cent.

In the 3½ to 4-year class, 95.6 per cent.

In the 3 to 3½-year class, 94.9 per cent.

In the 2½ to 3-year class, 96.5 per cent.

In the 2 to 2½-year class, 95.4 per cent.

Putting this test on a little more scientific basis, and requiring all cows, reported as being in calf, to be two months in calf during the test, we have a slightly different result; not as large a per cent being two months or over in calf. Many cows with big records have not been bred until the close of their year's work, but it seems reasonable to expect a cow to be at least two months in calf, and it is an uncertain matter to report them safely in calf in less time. I have therefore selected this period on which to base my figures for this article.

The cows of all ages which were two months in calf during the test, produced butter-fat in the following amounts per year:

90.5 per cent produced 400 to 450 lbs.
92.2 per cent produced 450 to 500 lbs.
90.8 per cent produced 500 to 550 lbs.
85.4 per cent produced 550 to 600 lbs.
79 per cent produced 650 lbs. and up.

Taking the above report to be correct, we have the following results: The association reports over 95 per cent of the record cows in calf before the close of the test. Barring out those cows reported in calf, but not found to have been two months in calf, the records show that 90 per cent is a good average. It would seem, then, that records of 400 and 500 pounds of butter-fat can be made, without impairing the cow's capacity as a breeder, with careful feeding and management; but when a cow is forced to 550 and 600 pounds of fat per year, there is great danger of making her a non-breeder. These figures have been worked out with Guernsey cattle; as the Guernsey association is the only one giving the data required for the above information.—Geo. P. Grout, Dairy Division, Minnesota University Farm.

GOOD STOCK.

Ex-Mayor Chas. N. Taylor of Pasadena was a guest at the Geo. A. Smith Fine Stock Farm at Corcoran, Cal., for three days recently inspecting the pure bred registered stock kept on this farm. Mr. Taylor is a Jersey enthusiast and is thoroughly familiar with the Jersey cow and with her work. He selected three extra fine registered Jersey cows for his ranch at Artesia, where he has already established a herd of pure bred registered Jerseys headed by the great bull, St. Lambert of Ramona No. 62633, which is one of the best bulls on the Pacific Coast. The cows selected by Mr. Taylor are now on a year's official authenticated test which is conducted by the University of California, and it is predicted will make over 400 pounds of butter-fat each with the first calf, and at maturity will make cows that will produce between 500 and 600 pounds of butter each per annum. They are descendants of the greatest American and Island strains and are bred especially for great butter production and promise records that will be a credit to his already good herd. Mr. Taylor is making arrangements to place all of his cows on a year's official test, as he realizes that a year's test is the only measure of a cow's real value as a butter producer.

AYRSHIRE BREEDERS ASSOCIATION.

The 36th annual meeting of the Ayrshire Breeders Association was held at Hotel Manhattan, New York, with about seventy-five members and invited guests present.

The election of officers resulted in the choice of Mr. John R. Valentine, Bryn Mawr, Pa., president; Dr. J. A. Ness, Auburn, Maine; George E. Pike, Gouverneur, N. Y.; J. W. Clise, Seattle, Washington; J. W. Ogden, Morristown, N. J., vice presidents; C. M. Winslow, Brandon, Vt., secretary and treasurer; George H. Yeaton, Dover, N. H., auditor; Charles H. Hayes, Portsmouth, N. H., and John W. Oakey, Bryn Mawr, Pa., executive committee for three years.

A banquet was served, after which President Valentine gave a very interesting and instructive talk on Scotland and the Ayrshire cow, illustrated by stereopticon views of the two types of cows found in Scotland, the dairy type with a marked dairy conformation of large udder and long teats, and the vessel type so-called, being the show ring Ayrshires of Scotland, which are kept simply for showing in the ring.

The concensus of opinion at the meeting was that we had the largest and most enthusiastic meeting we had ever had, and that the outlook for the perfect cow was never so hopeful.—C. M. Winslow, Secy.

PURE BRED LIVE STOCK RECORD ASSOCIATION.

One of the most important and far-reaching movements affecting the interests of breeders of pure bred live stock that has been undertaken in many years was inaugurated at Chicago on Jan. 3, 1911, by the organization of a National Association of Record Societies.

The preliminary steps leading to such an organization were taken by the five record organizations located at the Union Stock Yards some time ago. From the call for the meeting of this organization we quote:

"State and federal laws, state fair and other live stock shows, railroad stock, and other similar matters, affect in more or less degree all breeders of pure bred live stock.

"The pure bred live stock record associations, who represent more accurately than any other organizations the sentiment of the breeders of pure bred live stock, should give these matters attention.

"It is needless to add that existing laws, regulations, classifications and rates may be modified and that pro-

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Work will be done in the order of receiving the samples.

When called to make field examinations charges will be $5.00 per day from the time of leaving Los Angeles to time of arrival here in returning, and expenses.

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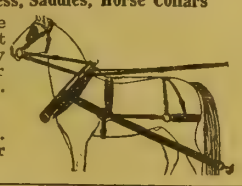

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posed laws, regulations, classifications and rates may be favorably influenced by united action on the part of the record associations, representing the breeders of pure bred live stock.

"The question of organizing a national association whose membership shall be limited to the record associations recording pure bred live stock has been quite fully canvassed during the past season. Sentiment seems to be quite uniformly favorable. The general idea appears to be that such a national organization should include all of the recognized associations that are recording pure bred live stock, that each association should be represented in the membership by the president and secretary of such association; that the directorate of such national organization should consist of one representative from each association; that such directorate should select an executive committee of six, selecting one representative for each of the following live stock interests: Beef cattle, dairy cattle, draft horses, light horses, sheep and swine; that such executive committee should have charge of the work of the national organization and should direct such publicity and other work as in their judgment will be beneficial to the interests concerned."

The associations forming the membership of this national organization represent more than 100,000 active breeders of pure bred live stock scattered in every state in the Union. It is probable that no one industry in the United States has within its active membership a larger number of men of acknowledged influence, integrity and standing than the live stock interests represented in this new national association. They are the breeders, the constructive workers who have built up breeds that are admittedly the equal and in many cases the superior of any breeds in the world, and their views and ideas on matters pertaining to live stock matters must inevitably receive attention and careful consideration.

BLOAT.

A correspondent in Wallace's Farmer gives of his experience in handling bloat from which he never lost an animal. His method is as follows:

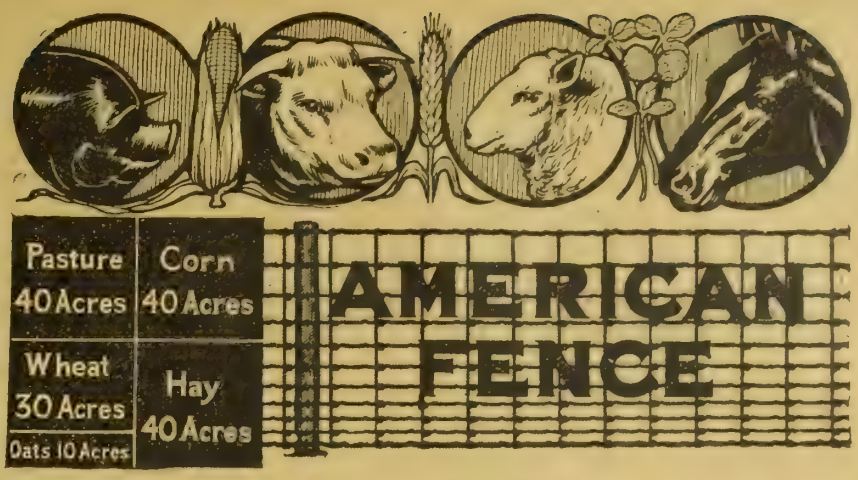
Get a piece of three-ply, three-fourths inch hose, six feet long. If an animal shows signs of bloat, take a common halter and put on the animal, and place a stick about two inches in diameter in the mouth. Then run the hose over the stick and down into the throat until it strikes the gas, which will be carried out by the tube. The trouble will be relieved immediately. The hose provides an outlet for the gas that causes the bloat, and I like this method better than to use the trocar or knife to cut through to the stomach.

SEVEN-DAY BUTTER RECORD.

Pontiac Clothilde de Kelii, a Holstein-Friesian cow, owned by Stevens Brothers, of New York, has broken the world's seven-day butter record, producing 37.28 pounds. Since 1908 the record has been 35.55 pounds, held by Grace Fayne II, Homestead.

If the beginner will start with not more than two or three sows, in pig when purchased, he can acquire much valuable experience with even so small a number, while his risks will not be great. The next year he may add to the number of sows, secure a suitable boar, and by slow but careful increase in the number of sows bred each year, if good management and freedom from disease prevail, should soon find himself with a profitable herd.—Coburn's "Swine in America."

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.



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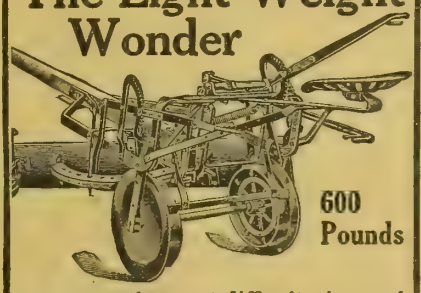

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The California Cultivator

A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,730 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, February 9, 1911

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USE MORE CARE.

Mr. Powell's connection with the Citrus Protective League is beginning to make itself felt, and in his characteristic way the new manager is taking the public into his confidence and asking for co-operation. This is the plan which succeeded so magnificently in the orange and lemon decay investigations, and we believe it will also with the larger questions with which Mr. Powell will have to do in his new position. The article in last week's Cultivator containing a statement of the accomplishment and hopes of the league gives an outline of some of Mr. Powell's work. This week the statement given by him to Senator Flint is given place on the first page because of the vast fund of information of value to citrus people.

A circular has been issued calling attention to the decay of citrus fruits in transit. This is along the line of Mr. Powell's efforts while in the Bureau of Plant Industry, and is merely a reminder of facts which every fruit packer and picker knows, but this reminder should prove of especial value at this time, because, as stated in the circular, after the first of February decay of citrus fruit while in transit is likely to increase. Everyone working in the orchards, and especially pickers, should observe the greatest possible care. A sound orange with uninjured skin does not decay. If the fruit handlers will keep this fact before them constantly, sound oranges will be delivered to the packing houses, and the methods employed there should send the fruit sound into the Eastern markets.

NOTIFY YOUR FRIENDS.

Mr. T. A. Graham, assistant general passenger agent of the Southern Pacific, informs us that the colonist rate will be effective March 10 and continue until April 10. The rate will be $25 from the Missouri river, $32 from St. Louis, $33 from Chicago, and proportionately low from other points. Mr. Graham says that indications point to much travel to California during this short period. The need for more labor in California orchards and vineyards should inspire many people to write to their friends in the East regarding these advantageous rates.

The Cultivator's ability to help its friends has been tested almost to the limit lately in the great number of letters which have come requesting personal mail answer. So far we have tried to comply, but we remind our readers that it makes a very heavy burden on the editorial force. We would urge subscribers to use the query columns as much as possible, for in supplying information through them we not only benefit the inquirer but many others who have similar questions in mind. Of course, in emergencies where stamp is enclosed we will answer if possible, but we must renew our suggestion made many times, that to give intelligent answer we must have more information than comes with some letters. Especially is this the case with veterinary queries. Mail answers from attorney or veterinarian can only be given when fee accompanies letter. One subscriber asks what makes his horse lame. There are a thousand complications which may enter into a horse's lameness and only personal examination can develop the cause, so that such a question affords no opportunity for an intelligible answer. Many other queries are so stated as to draw out a fund of very valuable information.

NOT SO SLOW A CROP.

Many of our Californians who were born in the Eastern states cannot overcome the idea that forest tree planting is only to be undertaken by the young, or, when planted by the older ones, will benefit only succeeding generations. Even where we have watched the rapid development of the "miracle tree," as the eucalyptus is sometimes called, it still seems that the planting of a eucalyptus seed means years of waiting. While this is true in a sense, yet the benefits to the community in general are such that tree planting should be encouraged where conditions are right. Probably three-fourths of the trees now of any size in this state were planted more as windbreaks, as ornamentals, or for shade, than for timber purposes. Many plantings have been made for fuel, but the worth of eucalyptus as a valuable hardwood has been proven, and we believe wider planting will obtain from this time on. This is not meant for an encouragement of the wild promotion schemes which have held out inducements of fabulous profits. Fortunately, these concerns are not finding the green pastures which they did two years ago.

Specializing and standardizing seem to have won the day and nearly every paper circulating in fruit-growing sections is urging more particular attention to special crops and to growing and offering only the very best. This has long been the California way, but it is worthy of more intense application. The 3000 mile trip to market should be encouraged by offering such fruit to Eastern buyers as they can never produce in their climate. Let us make the most of our climatic and soil conditions. The best fruit is none too good.

California beekeepers are elated over recent rains. The feeling was expressed prior to the rain that the long drouth might have affected the growth of the native honey plants to such an extent that even abundance of later rains would not bring out the best of bloom, but this rain has been so copious and the sage and other honey plants seem to be responding so quickly that the prediction is now freely made that with fair conditions continuing to the end of the season a big flow will result.

The Cultivator has received many valuable suggestions from subscribers writing of their experience, and again by sending in clippings from some paper which has proven of help to them. This spirit has increased and recently the number of such suggestions has also increased. We mention this in the hope that others may wish to pass along the good things which have been helpful to them in their ranch work. The Cultivator affords a good medium for the exchange of ideas and is more than willing to be helpful.

San Diego is busy sawing wood in its exposition work. The proposition is to make the entire architectural plan the creation of a "mission city." Frank P. Allen, architect of the Alaska-Yukon Exposition, and Bertram G. Goodhue, noted New York architects, have been put in charge, and John C. Olmstead, landscape architect, has in hand the landscape work.

The first butter scoring contest of the season at the University Farm closed on entries last Monday.

TWENTY-FIRST ANNUAL CONVENTION CALIFORNIA STATE BEE-KEEPERS ASSOCIATION.

The twenty-first annual convention of the California State Beekeepers Association will be held in the Chamber of Commerce assembly rooms in Los Angeles, February 27th to March 1st. The first session is on Monday evening, the 27th, which will be called to order by President B. J. Burdick of Redlands. An address of welcome will be made and responded to by Mr. Mendleson of Ventura county. Mr. E. B. Shaffner of Los Angeles will sing. A reception and social time will then occupy the remainder of the evening. The next morning, February 28th, the convention will get down to work with reading of minutes of last meeting by Secretary A. B. Shaffner, reports of committees and other business. At ten o'clock the program proper will begin.

Tuesday Morning.

Establishing an apiary where there are no conveniences, L. L. Andrews, Corona; Keeping Bees in Pioneer Days, Delos Wood, Santa Barbara; Requeening an Apiary, Albert Dodge, Pasadena; Shade in Apiary, John G. Carey, Santa Paula; Queens, C. A. Worth, Washington; Building up Bees for Honey Flow, J. W. Kalfus, San Jose.

Tuesday Afternoon.

Non-swarming, S. L. Griggsby; Black Brood, Louis Sinn, Reedley; Deputy Inspectors, Chas. C. Schubert, Santa Monica; The Way I Find Things in San Diego County, Z. Quinsey, Ramona; Apiculture in Santa Barbara County, Fred A. Parker, Lompoc; Report of Committees and Question Box.

Tuesday Evening.

How I Make a Crop of Extracted Honey, J. W. George, Imperial; Comb Honey, H. F. Mellen, Acton; Black Brood, Foul Brood, Laboratory Experiments, Prof. Ralph Benton, Los Angeles State Normal School; Report of Committees on Better Organization.

Wednesday Morning.

Fluctuations of Market, W. R. Wiggins, Los Angeles; Unripe Honey on the Market, G. J. Lynn, Los Angeles; A Retail Honey Trade, A. Seligman, Los Angeles; Co-operative Marketing, J. B. Neff, Conductor of Farmers Institutes for Southern California; Report of By-Laws Committee.

Wednesday Afternoon.

Election of Officers; How a Man with Small Means May Go Into the Bee Business, W. H. Allen, Santa Paula.

A. Ramble, T. O. Andrews, Corona; "Looking at You," C. B. Messenger of the California Cultivator; Selected, M. H. Mendleson, Ventura; My Experience, C. R. Chadwick; Flora of California, E. D. Bullock; Honey as Bank Security, First National Bank of Los Angeles; Importance of a Home Paper, J. W. Ferree, Newhall.

AID TO AGRICULTURE.

Some classes have complained because of the great appropriations made in aid of agriculture by nation and state. Of course, there is no other industry which calls for such liberal appropriations. This is not because of charitable consideration of the farmer; in fact, the individual is little thought of in the granting of this appropriation, but it is fully appreciated that not only the direct subsistence of all the people, but of all manufacturing interests is founded on agriculture. This foundation of the welfare of all the people must be cared for. No better investment of state or national funds can be made. It must be admitted that some of the expenditures of committees and commissions are not the wisest. With the vast sums expended other results could not be expected, but on the whole the tendency is good and our prosperity depends upon this policy of encouragement.

Agricultural News Notes of the Pacific Coast

Northern California

Almond growers of Butte county will plant 60,000 almond trees this spring.

The most important deciduous orchard tree in Yolo county is the almond.

Planting of apple trees in Mendocino county this year will be larger than ever.

Over 50,000 young fruit trees have been planted at Placerville, Eldorado county, this season.

Strawberry growers at Florin, Sacramento county, shipped last year $49,580 worth of strawberries.

The state horticultural commissioner has issued a circular describing the potato eel and manner of combating it.

Cotton growers in the Imperial Valley have investigated probabilities of cotton culture at Oroville, Butte county.

The Sacramento Valley Farm Company, capitalized at $125,000,000, has filed articles of incorporation at Oroville.

The snow in the Sierra has reached the depth of four feet and in some sections buildings have collapsed under its weight.

The Western Pacific railroad is contemplating a branch which will reach some of the richest timber sections of the state.

A large tract is being subdivided near Willows, Glenn county, and pumping plants have been installed for irrigation. It is known as the La Croix tract.

Haywards has developed the asparagus industry so that shipments have been made during the past month to San Francisco and at prices most satisfactory.

There are 16,781 head of cows in Humboldt county. During 1910 the county produced 4,273,694 pounds of butter, or an average of over 250 pounds per cow.

During the past year there was sold from the national forests of California timber to the amount of 64,492,000 feet board measure. The stumpage price was $2.36 per thousand feet.

Oroville orange growers are contemplating a combined citrus and snow carnival, the snow feature to be at Portola. The connection between the two towns is by way of Western Pacific.

The contract between the reclamation service and the Truckee Electric Company which provides for diversion of the waters of Lake Tahoe, causes much concern on the part of California irrigators.

The state normal school at Chico, Butte county, has just installed a course in agriculture including study of fruit trees, diseases, spraying, methods of cultivation, marketing, etc. Plots of land will be given for experiments.

Humboldt county creameries report prices on last deliveries as follows: Pioneer Creamery, 39½ cents; Central Creamery Co., 38½; Capital Creamery, 39; Grizzly Bluff Creamery, 38¾; Libby, McNiel & Libby, (condensary) 39¾; Sunset Creamery, 34; United Creameries in Arcata, 39.

Central California

Salinas Valley fruit growers declare that section ideal for the culture of Smyrna figs.

A large number of eucalyptus trees are being planted at Prunedale, Monterey county.

Rain damaged raisins are given as the cause of disastrous prices earlier in the season.

Some potato dealers are caught short and are now paying $1.75 for goods for which they will receive only $1.30.

Many sections of the San Joaquin Valley are favoring the fair grounds bill which provides for state support of county fairs.

The raisin market is still strengthening and while some packers are only paying 3¼, 3½ is readily commanded for fair stock.

The horticultural commissioner of Madera county reports that the warm season necessitates immediate planting of deciduous trees.

The determination to push water transportation up as far as possible in the San Joaquin Valley is being strengthened every day.

Japs are working another corner on us and it is now predicted that onions will reach $5.00 a sack before the new crop comes in.

Stockton shippers are jubilant over the fact that a line of ships operating from the Atlantic to the Pacific will make the Gate City a terminus.

The Kings county fair association recently elected directors as follows: M. Bassett, C. L. Newport, H. R. Cousins, W. H. Brailsford, E. G. Sellers, Geo. A. Smith and Walter Gallup.

Potato growers over the state who are cornering the supply, maintain that no trust has been formed and that the natural shortage only is responsible for the big jump in prices.

The big mass meeting held at Lindsay, Tulare county, last week, endorsed the work of Horticultural Commissioner Schulz, and asked the board of supervisors to sustain him in his work.

Horticultural Commisioner Sharp of Kings county says this is the time to spray for brown apricot scale and recommends distillate oil 28 degrees test, 6 gallons; lye 2½ pounds, water 100 gallons.

Tulare Grange held its annual meeting last week and elected W. A. Bates, master, and Lizzie Patterson, secretary. Resolutions were passed endorsing the mutual fire insurance bill now before the state legislature.

War is being declared on the large gun clubs which have corralled practically all the duck hunting grounds of the state and it is predicted that measures will be started to compel a closed season the year round.

Commissioner Schulz of Tulare county reports the inspection of 536,070 grape vines, 266,700 citrus trees, almost a million small nursery stock, 218,000 deciduous and nut trees, and 30,000 olive trees during the last year.

The new irrigation district on the west side of the San Joaquin Valley is to be approximately 50 miles wide and 25 miles long. The board of engineers recently made extended report to meeting of property owners at Merced.

Southern California

Escondido now has three large fruit packing houses.

Orange county has 45 farms engaged in the production of garden seed.

A thousand acres of cotton will be planted in the Palo Verde Valley this spring.

About 800 cars of oranges are going forward weekly from Southern California points.

A Pomona woman has a $7.50 gold nugget which she claims she secured in the gizzard of a hen she dressed.

Lake Hemet is rapidly filling with the storm waters which have been flowing in since the beginning of the rain.

Hemet is shipping oranges to London by the way of New York. Each box is reinforced with several strands of wire.

Beaumont, San Bernardino county, apple growers have been so successful that this year's planting will exceed all former years.

The rainfall in various parts of Southern California aggregates from seven to twelve inches and is now up to the average.

Mecca promises to plant 6000 acres of cotton. Plantings during the past season netted to the growers from $30 to $60 per acre.

El Centro leads all Imperial Valley points with production of 1700 bales of cotton. Picking is practically at an end for this season.

F. B. Van Fleet has been elected president, and Benton Ballou, secretary of the California Vineyard Improvement Company at Cucamonga.

The forestry department has in the past depended largely upon pines and other native trees in reforesting work, but this season will plant extensively of eucalyptus in Santa Ana canyon.

Plans for the erection of a new sugar plant on the San Joaquin ranch near Santa Ana, Orange county, are assuming definite shape. Capacity will be 600 tons daily.

The main irrigation canal for the Palo Verde Valley is being extended along its western border at the rate of about one mile per week. This will bring a large number of acres under intensive culture.

Imperial Valley irrigators are somewhat concerned over the situation in which they are placed by the insurrection across the Mexican line. The lawless element on that side has it in its power to entirely destroy the Imperial irrigation system.

February 1st divides the rainfall season at Riverside nearly in the middle, that is, its average for a period of 21 years shows that prior to February 1st the fall is 5.38 inches; after that date 5.44 inches. This year's precipitation before February 1st was six inches.

Four large creameries of the Imperial Valley have merged their interests. The new concern will be known as the Imperial Valley Creamery Company with headquarters at El Centro. The combined plant will be located in the immense cold storage plant recently erected by W. F. Holt. The output will be about 210,000 pounds of butter a month.

The Coast

The annual poultry show at Walla Walla exhibited 1500 entries.

Chelan, Washington, reports the production of $73,000 worth of high-grade fruit in 1910.

Plans are being made for an agricultural fair to be held at Zamboanga, Mindanao, P. I.

A campaign is on urging the culture of flax for its fiber in the vicinity of Salem, Oregon.

"No winter killing" is the report of wheat growers in the Inland Empire of Eastern Washington.

The legislature of Oregon is being asked to enact a law to compel tuberculin testing of all dairy cows.

The timber wolves are so numerous in Lewis and Clark counties, Montana, that cattle are being killed by them.

Jack rabbits have become a pest at Forest Grove, Oregon, and roundups and drives are of almost weekly occurrence.

The Whatcomb county Pomona Grange meeting at Bellingham, Wash., passed resolutions favoring direct legislation.

A large number of Norwegian farmers will emigrate from La Crosse, Washington, to Edmonton, Alberta, this spring.

The management of the Portland Fair and Live Stock Exposition is already planning for a big exhibition to open on Labor Day, September 4th.

The Willamette Valley Irrigated Farms Company has acquired 4000 acres of land in Marion county which will be irrigated with waters from the North Santiam river.

The annual meeting of the Albany Creamery Association at Albany, Oregon, showed a total business for its first year of $75,994.30. The amount of butter made was 228,355 pounds. The average price was 35¼ cents.

The recent meeting of the State Horticultural Society at Boise, Idaho, passed resolution calling for laws protecting fruit tree buyers, which brought out strongest opposition on the part of nurserymen present.

The apple orchards in the Inland Empire were threatened with injury because of the warm open season, but the recent cold spell came in time to retard growth and put trees in best of condition for blooming season.

The State Dairy Association of Idaho meeting recently at Twin Falls, was addressed by speakers from the State University. The silver cup offered for the best ten pounds of butter was won by the Jensen Creamery Company of Pocatello.

Fruit growers organizations near Walla Walla, Washington, including Milton, Freewater, Dayton, Waitesburg, Pomeroy, Touchet, Burbank, Wallula and Preston, have combined in a marketing organization. J. B. Taggart of Waitesburg is the manager.

A convention of delegates representing fruit unions of Washington and Oregon, meeting at Portland on January 26th, was unable to reach agreement in the matter of overproduction of apples which many fear in the near future. An adjournment was had until February 28th when the same delegates will meet at Walla Walla, Wash.

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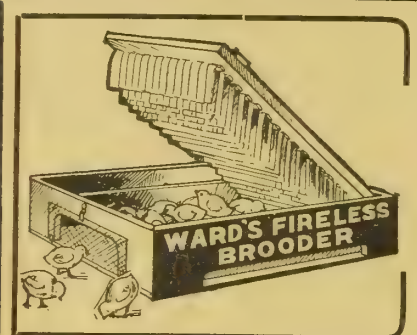

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Clay Center, Nebraska

Practical Poultry Culture

THE PREVENTION OF DISEASES IN THE POULTRY YARD.

By Mrs. A. Basley.

It is some time since I have talked to my many friends among the readers of the Cultivator but as I have been asked to contribute an article on the prevention of disease in the poultry yard for this number, I take up my pen again, only wishing that a pleasanter subject had been allotted to me.

Prevention.

"Prevention is better than cure" is an old proverb with a good deal of truth in it. An illustration of this may be observed in the Panama canal zone. That territory was known as the zone of death, thousands perishing there, "dying like flies," the French termed it. But Americans took hold, went to the root of the matter, established proper sanitation and the latest reports from Panama show that the death rate there is lower per thousand than in the city of New York. Prevention has there proved better than cure.

There is no need for chickens in this lovely climate to have diseases, and I am glad to say that progressive poultry breeders in California and throughout the states west of the Rockies are realizing this more and more every year and soon we shall be as successful as the authorities in Panama in preventing disease and California will be acclaimed as the state where are raised the best chickens and ducks, turkeys, geese and pheasants in the whole of the Union. We are rapidly "getting there."

Vigor.

How to prevent disease? The reply to that is "get vigor." Before we decide how to get vigor let us consider what are the diseases that we wish to prevent. What causes disease? Chicken diseases found in this lovely climate are either from germs or from parasites, somewhat similar to the diseases in Panama among human beings. A vigorous, healthy fowl will resist most of the germ diseases unless inoculated, but a weak hen or a puny chick will easily fall a victim.

Contagion.

The germ diseases are principally roup, chicken-pox and tuberculosis. All of these are easily preventable by vigor.

The parasitical diseases are, with the exception of Entero-Hepatitis or blackhead of turkeys, either parasites that are on the exterior of the fowls, such as lice, mites, fleas, ticks, bugs and mosquitoes, or the interior parasites as worms, or mites of several kinds, which can easily be combated by following a few simple rules in sanitation.

I do not hesitate to say after many years of experience, that chicken diseases can all be prevented, and that most of them result from the carelessness or ignorance of the owners of the fowls.

To Secure Vigor.

How do you get vigor in your chickens? First get vigor yourself. The chicken business is not a lazy man's work, as any of the successful poultrymen will tell you. Then follow in your care of the fowls my old "Rule of three," as my friends call it. "Comfort—Exercise—Proper food." These are the three essentials in producing vigor, and vigor will prevent disease. Vigor will produce eggs that will hatch sturdy chicks that will vigorously break open the shell and kick out. Vigor will make them grow quickly, feather well, commence to lay early and be a joy, delight and profit to their owner.

Vigor! Vigor! Vigor! is what we want. Let us review a little the three essentials for vigor. First "Comfort." Comfort means cleanliness, freedom from vermin, sanitary coops, with no drafts but perfect ventilation, shade as well as sunshine in the yards, and a good dust bath to wallow in. Freedom from vermin means a vigorous and observant owner. Let me tell you that seventy-five per cent of the chickens that die of disease are killed by vermin. I will mention a few of these.

Yesterday I received a letter from a man saying, "I have some young chickens whose feathers are all ruffled up, and the chickens themselves are very weak. They have countless very small bugs all over them. These bugs are so very small that it is nearly impossible to see them. They are of a lightish color, and literally swarm all over the chickens. What kind of bugs are they? Where do they come from? Are they the cause of the chickens being weak? What can I do to kill them at once?"

Mites killed his chickens. Mites kill many a sitting hen, and they so weaken others that they cannot hatch out healthy chicks. Mites are the most pernicious and deadly of the pests here. They not only cause intolerable itching, but they puncture the skin and suck the blood of their victims till the chickens, exhausted from misery and loss of blood die. One man told me that one day he found one mite, he did not think much about it, but in three days there were three million of them and he had a big fight on his hands.

Lice are not quite so bad, but they injure the feathers, annoy the hens, prevent their laying and carry disease from hen to hen.

Fleas are almost as deadly as the mites, but are more visible and not so common as the mites. However, one man came to me on a fine September day, with the plaint that he had had seven hundred fine Cornish Indian chicks and the fleas had killed five hundred of them.

Ticks are as hard as anything to fight, but they can can be killed as bed bugs can in Kansas. To get vigor and to keep it you must get rid of and keep clear of all vermin.

Drafts.

Another item that comes under the head of "Comfort" is freedom from drafts. Human beings in California are very susceptible to drafts, especially near the coast. We simply cannot sit or sleep in the house in a draft without getting neuralgia or faceache, earache and a swelled face. It has the same effect on hens; influenza, swelled head and roup most always commence from a draft, often combined with lice.

Comfort also means pure, fresh air, a clean roosting house and clean nests, besides shade in the yards as well as sunshine. A good place to wallow in, with freshly turned up earth, is a great invigorator and keeps the hens clean and healthy. It is their way of taking a bath, and it is absolutely

cruel not to provide the earth bath for them.

The second essential in our "rule of three" is exercise. You know in the human family exercise is needed to keep the digestive and other organs healthy and active. You know how necessary exercise is to athletes, how they are forced to take even violent exercise to keep in training, and when one of them fails in some achievement it is credited to lack of training, lack of the necessary exercise. So with fowls. They must have exercise to give them vigor to keep them vigorous. The utility breeds are especially susceptible to the need of exercise. They are bred for a double purpose, first to lay plentifully and secondly to be good table fowls. These are easily turned into table birds before we want it, instead of laying they get fat, and all for lack of exercise.

Exercise makes vigor but fowls are like a good many human beings; they will not take the necessary exercise unless they are encouraged to do so or made to do so. The usual program is to give them a nice warm mash in the morning, when the sensible things will lie down or go on the perch and take a rest. Why should they exercise? I have seen them so lazy they would not even take the trouble to dust themselves, but lie around until their owner brought them another meal. Did it ever occur to you that the Israelites had to get up before sunrise and hustle to pick up the manna before their wives could bake the cakes or biscuits for breakfast. Work out of doors in the morning is invigorating and chickens should be encouraged to work early. The work of scratching is the proper exercise for hens. It invigorates the digestion, and above all things it develops the egg organs. An egg from a vigorous, healthy hen will hatch into a vigorous chicken and if that chicken is encouraged to scratch, (I do not like to say forced to scratch), from its babyhood, its little ovaries will increase in size, will develop, and the chicken will prove to be as vigorous and sturdy as its mother and most probably a better layer than she. Do not think hens will scratch without some reward to them; they are not such fools as that. If their food is put down where they can get it without work, of course, they will pick it up, and will not trouble to scratch or exert themselves in any way. Fowls in confinement must have encouragement to exercise and the best way is to provide them with a deep scratching pen and scatter all the grain in that, buried under clean straw. By this means you will have vigorous fowls if you feed them the proper food.

This brings us to the third essential for vigor—the proper food. You can do anything you like by feeding the proper ration. The subject is so big, so long, that I think we had better reserve it for another day.

NEW ZEALAND HARES.

The New Zealand hare, recently imported to this state from New Zealand, is pre-eminently the animal for the fancier, as well as for the practical market breeder. Its value as an economic factor in the pressing problem of the world's food supply has been demonstrated and insures the permanence of the industry. His value to the fancier is apparent when one becomes acquainted with his beauty.

His color is a sort of reddish buff,

This open front door makes perfect ventilation

Mandy Lee is Miles Ahead

It is the only Incubator without a "Sealed," Air-tight Egg Chamber. It supplies the life-giving oxygen freely, draws off the carbonic acid gas, and is saving the lives of millions of chicks.

READ the story of the Mandy Lee triumph in our new catalog. Other incubators are already preparing to imitate and profit by our great discovery.

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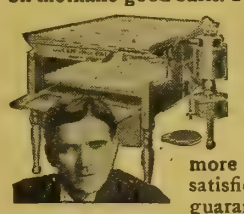

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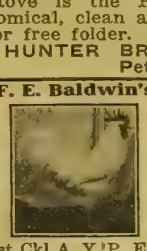

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It keeps the chicks healthy—makes them develop fast and brings them quickly to the point of profit-paying. If your dealer can't supply you with COULSON'S CHICK FOODS write us. Any way write for the free book "Poultry Feeding for Profit."

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1000 birds to select from. Trios, $7.50 and up. Eggs for hatching, $2 and $3. Special selection; prices on application. Mr. & Mrs. W. S. Sullivan, 50 Market St., Agnew, Santa Clara Co., Cal.

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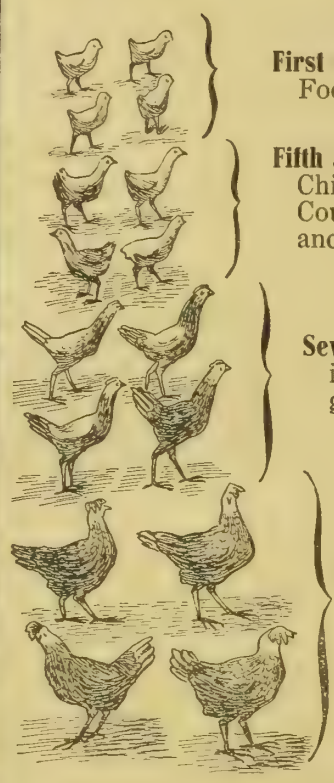

First Four Weeks: Coulson's Special Chick Food entirely.

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We present herewith a convenient diagram showing the proper time to feed our poultry foods to insure the greatest success.

Our foods are on sale by all reliable poultry supply houses. If your regular dealer cannot supply you, drop us a card and we will tell you our nearest agent.

Beware of substitutes which are claimed to be "just as good," "the same thing" or "just like it."

We manufacture only from selected grain, blood meal, meat scraps, etc. When you buy our food you get the best on the market.

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PETALUMA, CALIFORNIA

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ONE MILLION BABY CHICKS

is what we will sell this year and possibly even more than that number. Our FREE book tells all about every kind of chick, duck, turkey and goose, etc., that we hatch. Gives prices, and tells how we ship. Investigate now and get your order in early if you want chicks this year, as the demand will far exceed the supply. We sell every standard variety of hatching eggs.

If you want chicks during the months of January, February and March, now is the time to let us know what you wish, and we can have them ready for you on time. WE SHIP EVERYWHERE SAFELY WITHIN 48 HOURS. Write today for book and give us the names of your poultry friends, and we will send them a book also. Largest baby chick dealers in the WORLD.

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and for fancy they show to far better advantage than the Belgians do. They will mature in less time, and in weight and breeding qualities are the equal of the Belgians.

The meat is white like the breast of a chicken, and there is practically no waste, if they are properly dressed. They lack the heavy oily substances found in ducks and chickens.

For digestibility and nutritive value there is no meat comparable with that of the domestic rabbit. Beef gives 55 per cent of net nutriment; chicken 50 per cent, while rabbit meat yields 83 per cent of digestible nutriment, and is far superior to any other meat.

Not half the meat side of the hare industry has been told. Nor can it be at present.—D. Caldwell, Los Angeles.

ABOUT DUCKS.

By B. A. R. Stocker.

Queries and replies in The Cultivator are often very suggestive. When they talk ducks I feel like chipping in. It is asked, for instance, which will lay most eggs, ducks or hens? Proud I'd be if I could get a band of hens to lay half as much as my Indian Runner ducks.

The work with ducks is heavier because of cooking and mixing mashes and carrying water, but it is simpler. That is, it is possible to learn to do it right and results are sure. Hens I have kept off and on for some thirty years, always a student of books and papers, and to this day I can see no certain sequence between the things I do and the things they do or fail to do. Ducks I have kept perhaps a quarter of the time, have none now, alas! because no market here. Of that more anon. But I learned exactly what they needed, and they everlastingly rolled out the eggs. People ask when do your ducks begin to lay? meaning, October, March? I have but one answer. They begin to lay at four and a half months old, whenever that strikes them, and lay till they die. You don't have to renew your ducks every year like the hens, for they will keep in profit six or eight years.

Far away the best base for their mash I found to be beans, bean screenings, pretty clean and sound, any variety, boiled. Into this we stir bran, middlings, cornmeal, ground beef scraps, etc., in much the same proportions as we use for hens, to make a crumbly mash, only with never a fear of getting a duck too fat. Succulent green feed, as rape, kale, green oats, etc., passed through the cutter goes in the mash. This is important. They won't eat enough of the green to produce the most eggs unless it is mixed in their mash. The mash is fed morning and evening, all they will eat up clean. At noon they have a handful each of oats or other grain in a trough of water. Soft oyster shells at hand.

A pair of Indian Runners ten or twelve weeks old roasted are something superb.

But the market is the big half. Round the Bay cities we had a splendid market both fancy and common. I figured my hens netted me $2.00 each and ducks $7.00 each a year.

I brought my San Francisco winners and record-breakers down to San Luis Obispo county and after some months bitterly realizing the hopeless conditions, sold them to the Chinamen for forty cents apiece. Ducks that laid 230 eggs each per year, beautiful, ivory white, large and delicious.

Nothing wrong with ducks, but look out for your public!

THE PACKAGE SELLS THE GOODS.

Nearly everything we eat is nowadays sold in packages, excepting most fresh fruits and fresh eggs, which still are doled out by the pound or the dozen. Why is this?

Are poultry breeders wanting in enterprise in the exploitation of their products? Is it not just as feasible to build up a private trade for new laid eggs as it is for breakfast foods and family soap? It has always been a pet theory of ours that it is just as practical to create an egg and poultry route as it is a milk route.

Such routes are not unknown in the East; here and there poultry breeders in California carton their product with a guarantee as to quality and date the egg as laid. Wherever breeds have sufficient resource in the shape of laying hens, the plan has worked out; failure has invariably been due to a want of reliable supplies. The cost of cartons and labels need not exceed 3 to 5 cents per dozen, while prices received vary from 10 to 15 and 20 cents per dozen above ordinary store eggs. The carton label, which should seal down over three sides of the package, so as to avoid refilling by shrewd dealers, might be worded something like the following:

TWELVE NEW LAID EGGS
FROM THE
SUNSET POULTRY FARM
JOHN AND RICHARD DOE
GARDENA, CAL.

FOR PRIVATE TRADE ONLY.—Guaranteed to have been laid on the day stamped on each egg or package.

The side might state: That the poultry plant producing these eggs is clean, light and sanitary, and that the hens are pure blooded fowl, healthy and robust.

On one end state that the birds are fed nothing but wholesome foods—choice grains, fresh greenery, and pure animal foods, thus insuring the flavor and nutritious quality of the eggs.

On the other end state that if the seal of the package is unbroken, that the eggs it contains were laid on the date stamped on the shells. Invite inspection of your plant, and impress the public with the fact that you are in a position to carry out these promises.

Does the plan not look feasible? And if so, why not try it?

Every one engaged in raising poultry for profit should endeavor to take advantage of every source of profit. The value of poultry feathers is an important reason for dry-picking the birds. Dry-picked body feathers bring from 17 to 19 cents per pound, while scalded feathers are worth less than a cent a pound. The demand for feathers adds to the poultryman's profits.

The sunshine and fresh air should be able to reach every corner to destroy any germs that might be lurking in dampness. The fowls should exercise by scratching that they may cause a good circulation of the blood. The above are the three best medicines in the poultry doctor's art.

Don't put fifty fowls in a house built for half that number.

Timely Ranch Suggestions

SUGAR CONSUMPTION IN THE UNITED STATES.

The people of the United States consume half their own weight in sugar every year. This may seem a startling statement, but if we take the quantity of sugar produced in the United States and add to this the quantity brought from our own islands and the quantity imported from foreign countries, and subtract therefrom the amount exported, we get a grand total of considerably more than 7 billion pounds consumed in the country; and by dividing the population into this grand total, we get an average of 81½ pounds per capita, speaking in round terms, for 1910, and about a like quantity for 1909. It is not assumed, of course, that each person necessarily consumes sugar equal to one-half his individual weight; but taking the total consumption and comparing it with the total population in the section known as continental United States, the average yearly consumption of sugar is found to be about 81½ pounds per capita.

In fact, the people of the United States are larger consumers of sugar per capita than those of any other country of the world except England, for which the latest figures show a consumption averaging 86 pounds per capita, against our own average of 81½ pounds per capita. The next largest per capita is in Denmark, 77¾ pounds; followed by Switzerland, 64 pounds; Sweden, 54 pounds, and Germany and Holland, each about 43½ pounds.

Not only is the United States the second largest sugar consumer per capita, but the total amount consumed annually is much greater than that of any other country, aggregating, as above indicated, more than 7 billion pounds per annum, against about 4 billion pounds in England and about 3 billion pounds in Germany.

About one-half of the sugar consumed in the United States is brought from foreign countries, about one-fourth from our own islands, and the remaining one-fourth is produced in this country. The total production of sugar in the United States now amounts to 1¾ billion pounds a year, of which more than 1 billion pounds is beet sugar and about three-quarters of a billion cane sugar. It is only recently that the production of beet sugar in the United States has come to exceed that of cane sugar. In 1900 domestic production of cane sugar was twice as great as that of beet sugar, and 20 years ago was more than 60 times as great; but the growth of beet sugar production has been very rapid in recent years, and in 1907, for the first time, exceeded in quantity that produced from cane and has so continued since that time.

Of the sugar brought from other countries, nearly all is made from cane. While about half of the world's sugar is made from beets, most of it is produced in Europe and consumed in the country of production or in other parts of that grand division, while most of the world outside of Europe obtains its sugar supply from cane, grown of course, in the tropical and subtropical sections. Of the cane sugar which we consume, most of that coming from foreign countries is drawn from Cuba, the Dutch East Indies, and smaller amounts from the West Indies, Mexico, Central and South America. All of that coming from our own islands—Porto Rico, Hawaii, and the Philippines—is cane sugar, while of the domestic product about forty per cent is produced from cane. The beet sugar of the United States is grown chiefly in Colorado, California and Michigan, and some in Utah, Idaho and Wisconsin; while most of the cane sugar is produced in Louisiana, with smaller quantities in Texas, Florida, Georgia and South Carolina.

The sugar "habit" is evidently a growing one with the people of the United States and probably with those of other countries, since the total world production of sugar, including all countries for which statistics are available, has increased fifty per cent in the last decade and about doubled in 15 years. In our own case the consumption has shown a rapid growth, the per capita consumption having been, in 1880, 40 pounds; in 1890, 51 pounds; in 1900, 59 pounds; and in 1910, approximately 81½ pounds.

What is the cost of this enormous quantity of sugar consumed in the United States? This is more difficult to answer. The valuation of that brought from foreign countries and our islands is set down at about 175 million dollars in 1910, and the stated value of that produced in the United States, at approximately 75 million dollars; though this comparatively high figure when considered by the price per pound, is due to the fact that the valuation is based upon the refined article, while that of the sugar from abroad is the value of the unrefined article in the country of production. If, however, we accept a general average of five cents per pound as the retail price paid by our people for the 7 1-3 billion pounds of sugar consumed by them in 1910, we should get a total of $366,000,000, or an average of approximately $1,000,000 a day paid for sugar by the people of the United States.

SOME POPULAR PROVERBS.

Proverbs contain the condensed wisdom of the ages. The man who can phrase a proverb that takes hold of the popular imagination and retains it, wields an influence long after he has been forgotten. It is essential to a proverb that it be easy of comprehension, that it strike the popular fancy, and that it be capable of various applications.

It is easy to remember a proverb; it is not always easy to remember the application. Take, for example, the proverb, "Don't bite off more than you can chew." Many a farmer recognizes its wisdom, its force, but keeps on buying more land than he can pay for, renting more land than he can farm, farming more land than he can farm properly, keeping more cattle than he has grass for; at every stage of the game biting off more than he can chew, undertaking to do more than he can do well and profitably.

Few proverbs, however, express the whole or complete truth. Most of them express only half truths. The following are examples: "Don't put all your eggs under one hen." Don't confine your farming operations to one crop, whether that be wheat, oats, corn or rye. In other words, rotate your

THE EASIEST WAY TO INSURE THE EFFICIENCY OF YOUR IRRIGATION SYSTEM . . THE efficiency of your irrigation system depends on the efficiency of the engine that operates it. You may not need to use it for months, but when you do need it, your need is urgent. It means actual financial loss then if it doesn't work. Bear this in mind when you select your engine. Pick out one that is a known quantity—not an experiment.

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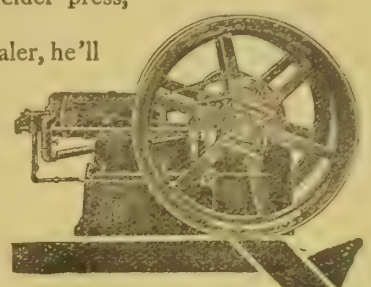

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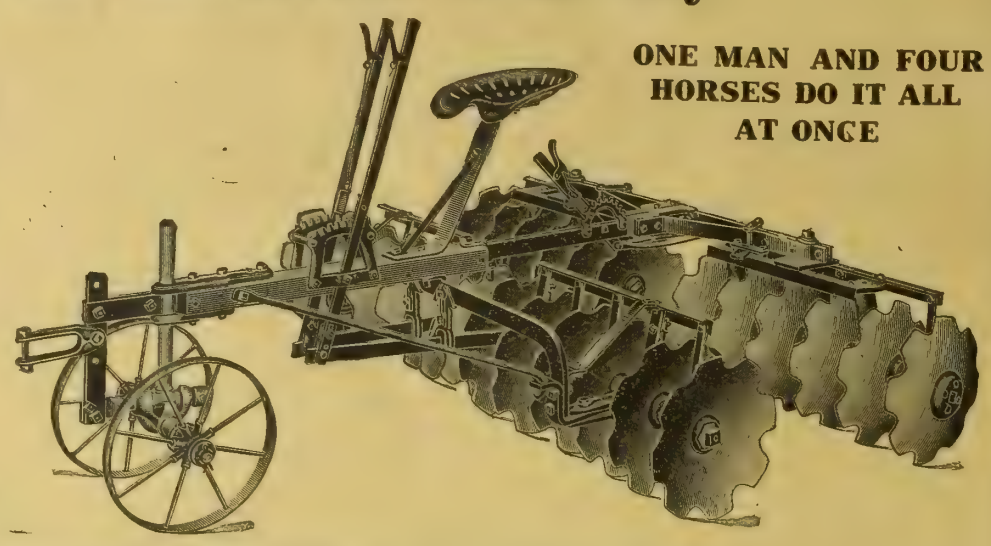

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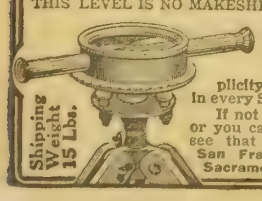

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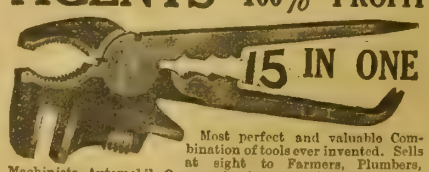

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crops. If one crop fails, another will win. There is wisdom in this proverb which the bonanza farmer would do well to heed, wisdom which the wheat farmer in Kansas, the corn farmer in Illinois or Iowa, will disregard at his peril.

The other half is found in such proverbs as these: "Don't scatter your shot," "Bunch your hits," "Master one crop, one book, one subject thoroughly. The real wisdom of the farmer is to have the main crop that for which his land is best adapted; then other secondary crops which will spread his energies over the year and diversify his resources.

Problems of heredity and environment are favorite subjects for the makers of proverbs. For instance: "Get a cat of a good kind," "Like father, like son," "The fathers have eaten of sour grapes, the children's teeth are set on edge." All these emphasize the importance of heredity, the law that runs through nature, that like produces like. This, however, for the farmer is only half the truth.

The other half is expressed in the proverb, "The breed goes in at the mouth," or "the corn-crib cross." The man who follows this exclusively will make a mistake. He should realize that it is intended to express only a half truth. It is not possible by any kind of feeding to make a first-class animal out of a scrub. The "corn crib cross" will greatly improve the scrub, but it will not make it a first-class animal. On the other hand, no matter how well-bred an animal is, how excellent its sire and dam, its grandsire and grand-dam, its great-grandsire and great- grand-dam, unless it has the proper feed and proper environment it will gradually retrograde.

We mention these proverbs to set our readers to thinking and studying the meaning of the proverbs that are floating around in their community. Always find out whether a proverb expresses a whole truth or a half truth. It will generally be found to be a half truth.—Wallace's Farmer.

THE POSTAL DEFICIT.

The remedy for the postal deficit is good business management, divorced from politics; and there is no other remedy. Tinkering with it by complicated and discriminating patchwork legislation is simply dodging a plain duty and is adding more complications to an already complicated wrong method.—Don C. Seitz in the World's Work for February.

Farmers are accomplishing great things for themselves by different forms of co-operative effort in Ireland, England, Germany, France and Denmark. There are many people who ridicule the idea that the farmers of this country, as a class, will ever be able to accomplish much by organization. This is certainly placing a low estimate on the ability of our farmers and on the training that comes to them through the exercise of self-government. One of the qualifications for success in modern life is the ability to work with others for the attainment of common ends. When the American farmer feels the need of this he will acquire the faculty in a hurry.—Agricultural Epitomist.

There are sixty-five factories in the United States making sugar from beets. Yet there is room for many more such factories, for the home output does not equal the demand and much sugar must be shipped from countries outside the United States.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Best Dairy Breed.

Which is the best breed or strain of stock for dairy cows. I am undecided whether to choose Durham or Holstein, or is there a still better breed? I wish to keep from ten to fifteen cows. Will have more or less range. Will keep hogs and chickens and wish to raise calves for veal. Of course, cream is the principal factor, and I prefer strong constitutioned cattle.—A. N., Paso Robles.

Either of the breeds selected will fit the conditions named. The idea of using pure-bred animals has not come into your mind probably. I should certainly have a registered bull and a couple of registered heifers if not all registered stock. The idea then of selling veals can be dismissed and the animals will sell rapidly at fifty dollars each, for breeding purposes, instead of eight or nine for butchering. The cows are usually called cows rich in butter fat, not cream, as that may mean anything from 12 per cent to 40 per cent butter fat. With ten or fifteen cows a small separator should be used and then the calves will do nearly as well on skimmed milk as on the whole milk. Now the cows must receive all they can convert of food into butter fat and milk at all times. While the range is good, still heavy milking fresh cows make very few steps answer their purposes. The cows are, therefore, best corralled and fed and the young growing stock kept on the range as much as possible. If a month before the heifers freshen they are put in with the cows they become gentle and used to going with them. If the heifers are allowed to calve out in the fields they are much harder to handle. The healthiness of the cows depends on the feeding and care they have received and if only tuberculin tested cows are purchased there cannot be any diseased ones in at the start.—M. E. S.

Onions.

Which are the most productive onions for this section and how should they be planted? Which is best to use, seeds or sets?—C. M., Arroyo Grande.

The best onion for your section is the Brown Australian, seed for which may be planted and later thinned to proper distance, using plants taken out to set other rows if desired, or plant by sowing seed in beds and transplanting all to rows later. Planting in rows and thinning is probably cheaper. There is very slight difference in time of ripening of seeds and sets, and the seeds are of course much cheaper.

Oranges Without Irrigation.

I notice in daily papers reference to an orange grove in San Bernardino county which was doing well without any irrigation, simply being thoroughly cultivated. Can you give me the method of handling such an orchard, and is it advisable to plant oranges where there is no irrigating water?—Subscriber.

Such a question cannot be answered positively for the reason that soil and sub-soil conditions must be understood to know how much of a possibility there is of securing and conserving the natural moisture. We have never yet heard of an orange grove that bore any material amount of fruit and brought it to merchantable size unless irrigated. It is possible to bring young trees up to bearing age if the soil conditions are favorable, but the planting of an orange orchard where there is no possibility of irrigation would, we think, be unwise.

Bermuda.

What is the best and cheapest method of eradicating Bermuda, by some called salt grass? It is a great nuisance, especially in irrigating ditches in which the seed ripens and is later carried over the land. It is especially perplexing in alfalfa fields. We must eradicate it.—Subscriber, Imperial.

The only way of eradicating Bermuda satisfactorily is by thorough cultivation. It surely is a most perplexing problem along ditches. Chemical methods have been tried and both because of expense and indifferent results have been usually put aside. Railroads have used gasoline burning contrivances, but we never heard of their successful operation along ditches. The use of low-grade distillate sprinkled over the grass on a hot day will have some effect in reducing the pest, but this, of course, must be continually repeated. Any subscribers who have any light upon this subject will confer a favor on many if they can give more explicit information.

Pruning Grapes.

I have a seven-acre vineyard of Muscats near Selma. At present it is growing only brush and practically no grapes. When three years old the seven acres bore three tons, but since then only about a ton. They are troubled with thrips. There is abundance of bloom, the land has good care, is irrigated once in the season and afterwards thoroughly cultivated to hold moisture. When is the best time to prune? Does it injure the vines to bleed after pruning?—Subscriber, Selma.

If these vines are given a little more room by leaving one bud more on some of the spurs they may set fruit better. If the fault is in the pollination, planting a few rows of Palomina vines will help greatly. The Palomina is a vine grape that bears white grapes of good quality. It is a profuse bloomer and has a dry pollen that is carried well by air and wind. The Muscat has a waxy pollen that does not carry well in damp weather. —M. E. S.

Mange.

I read some time ago in The Cultivator a formula for curing mange in calves. My paper has been destroyed. Will you please give me a remedy. Have a horse badly affected. Hair comes off in spots which become sore and scabby and seem to itch terribly. J. O. S., Parlier.

The difficulty with curing mange is in reaching it, as the burrowing insect that causes the trouble secretes a waxy-like substance that keeps the remedies from reaching him. The first thing to do is to remove this waxy coat. Take kitchen soap and slice it thin, put into warm water to dissolve. Add to each pound of soap a pint of coal oil, stir or beat it into the soft soap. Then start in by covering the places on the horse with the soft soap, let it remain on five minutes, then soak it off with hot water and repeat until the hardened surface is removed. Then cover the places with either tar oil or with a mixture of lard and sulphur mixed at home. Repeat this

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WINSEL'S GARDEN CALENDAR

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FIELD GROWN ROSES. Two-year-old. We have a complete assortment of varieties best adapted to Southern California. Price 35c each, $3.50 per dozen. Freight prepaid to any point in Southern California on orders of one dozen or over. Send for our Rose List.

VEGETABLE GARDEN. Sow Peas, Beets, Carrots, Cabbage, Lettuce, Parsnips and Radish. Plant Onion Sets, Rhubarb Roots, Cabbage and Cauliflower Plants, Shives, Horseradish, Tarragon and Asparagus Roots. On the Hot Beds, sow Egg Plant, Tomato and Pepper Seeds.

LAWNS. Put in your Lawn with our Kentucky Blue Grass and White Clover Seeds. We carry the best grades only.

FLOWER GARDEN. Sow the seeds of Asters, Sweet Peas, Coreopsis, Centaurea, Alysum, Poppies and Pinks. We have on hand the following plants that can be set out now at 25c per dozen, $1.50 per hundred: Gaillardia, Verbena, Pansies, Violets, Stocks.

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SIMPLE—SAFE—DURABLE

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Cycle Hatchers $6.50, Brooder Hatchers $8.50

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THE PHILO SYSTEM

Philo System Book and Poultry Review (one year) $1.00

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Cycle Hatcher Co., Oakland, Cal.
Gentlemen: A year ago we started with the Philo System, and raised as fine a lot of White Orpington pullets as anyone would wish to see. The two machines we purchased of you last season have given excellent satisfaction. We shall probably need more this year, and shall use the Cycle machines in preference to a larger incubator. Yours truly, S. N. Haines

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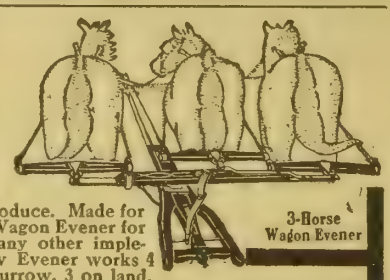

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STRAWBERRY PLANTS

75 per cent of the strawberries sold in Los Angeles last season were **KLONDIKE BERRIES** 90 per cent of the strawberries shipped last year were **KLONDIKE BERRIES.** Why? What plants are you going to set out.?

E. H. LEARNED ***R. F. D. No. 5, Los Angeles***

Grower of Strawberry Plants only, and only the best.

treatment of washing and soaking off the waxy coating after three days and again cover heavily with the lard and sulphur. These cases are stubbon to heal and the hair should be cut around the spots very short so that there may be none hidden away in under it. When the trouble is cured or if at any time the surface becomes sore, omit the soap and wash well with warm water, and coat with plain lard until the irritation subsides. The curing of mange, like itch on the human body, is by keeping everything clean around the animal, for when it is cured it may be reinfected from the sides of the stalls. We use on our stalls a mixture that is very cheap. Take crude oil and thin it enough with engine distillate to spread with a whitewash brush. Go over the entire surface of the walls with this wherever the animal rubs. Repeat every little while until the animal is well.—M. E. S.

Warbles.

On taking up heifers from pasture I find their backs lumpy. Neighbors tell me this is from grubs. Can you prescribe?—G. W., Fresno.

These lumps are caused by warbles, a common grub which infests cattle in all sections. They can be forced out by pressing with the thumbs or some kill by injecting a very few drops of coal oil, using the ordinary tin oiling can. A small hole will be found through the skin over each of the grubs and through these the oil can be injected.

Planting Near Pepper Trees.

How near to pepper and cottonwood trees is it advisable to plant orange and olive trees?—W. E. H., Hemet.

This would depend somewhat upon soil conditions, size of the trees, etc. We have heard orchardists say that they have seen pepper and eucalyptus trees affect the bearing of oranges 100 or more feet from them. If the soil is given abundance of manure and a large sub-soil plow is run to cut the surface roots of the peppers, it is very probable good results might be secured from fruit trees. In any case it is a continual fight, especially if the tops are large, for in that case the draft is still greater on the soil moisture and fertility.

Indian Runner Ducks.

We have eleven ducks which began laying in November. In a short time they produced eight eggs per day. Later they dropped to four or five. Now we are getting six and sometimes eight. We are at a loss to know why they do not lay better. They lay a very large white egg, superior for cooking, yet the market classes them as No. 2. Is there any market where they will bring the same price as hens' eggs? Are ducks as profitable as hens as egg producers?—Old Subscriber, Santa Rosa.

We do not think this shrinkage should cause you any concern during these cool months, and think it a perfectly accountable condition. With proper feed conditions the spring months will bring egg production up to normal. It is an unfortunate, and we believe unfair, discrimination in the market against duck eggs, but so far as we know it prevails in all markets. As to the profitableness of ducks, would refer our subscriber to article by Miss Stocker on poultry page of this week.

Rabbit Troubles.

Have lost several two-months-old rabbits. Hair comes off under chin; also froth at mouth.—Subscriber, Martinez.

The loss of hair in young rabbits is perhaps due to some sort of parasite. Chick mites play havoc with them, and it would be well to anoint with carbolic salve, perhaps adding a little kerosene, for good measure. The frothing is a form of indigestion, the writer does not say how they are fed, but I suspect the green food, which is not always as fresh as it should be. Give only very dry bread, if toasted, so much the better, or wheat that has been browned in the oven. Too great care can not be exercised in seeing that green feed is always fresh, and not wet with rain or dew.—B. J. O. M.

Casabas Splitting.

Have planted casaba melons for the last two years and they all split before ripening. Do not irrigate. Have planted in all kinds of soil and it seems to make no difference. Is there any special kind of casaba that will grow without splitting?—Subscriber, Neenach.

This is a new complaint against the casaba. Splitting is especially characteristic of one or two varieties of melons, but has not been reported before as a serious factor with the later ripening varieties. The only explanation we can offer is that possibly the difference in temperature between night and day is great. Cold nights and warm days will cause the splitting. Irrigation may also cause it, but in the present instance that is not the case.

Apple Seed.

What is the best kind of apple seed for growing stock for grafting?—Subscriber, Colusa.

The usual source of seed is the pomace of the cider mill which of course gives seeds of all kinds of health and vigor. Where one can do so, seed from apples growing on largest and thriftiest of trees will in all probability give strongest growing stock.

Grafting Plums.

I have 80 large plum trees mostly of Japanese variety which I wish to graft over to American varieties. Neighbors tell me it cannot be done successfully, that I cannot get good union.—Subscriber, Vorden.

Plums are more easily grafted than most other stone fruits, and we doubt not you can successfully change over your trees if the work is carefully done.

Curing Olives.

Please give recipe for curing olives. —Subscriber, Ramona, San Diego county.

The formula is too long to give in these columns so we refer our subscriber to Mrs. Sherman's extended instructions on page 244 of the issue of The Cultivator of September 15th last. That is declared to be one of the best methods ever given for handling olives.

Bermuda.

I enclose specimen of grass which has appeared in alfalfa. What is its name and nature?—S. L. U., Ontario.

The subscriber sent in only roots and one or two spears which had become dried so it is impossible to be sure, but there is little doubt that it is Bermuda or joint grass. Another name often applied, which also expresses its nature, is "devil" grass. It is a serious pest in alfalfa and practically the only method of eradicating it is to plant other crop which will permit of clean culture for a year or two.

(Additional Queries on Page 191.)

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Bloating in Cows.

Is turpentine good for bloat in cows—what is the proper dose and how administered? What other simple remedy is good? What value has bicarbonate of soda in this disease? Can bloat be reduced by means of a garden hose passed down the throat? How should the trocar be used?—Subscriber.

Turpentine given in doses not exceeding two ounces, as a drench, and mixed thoroughly with a pint or more of raw oil, sweet oil or melted lard, is a safe remedy and one of the most reliable. It has the advantage of being a direct stimulant to the stomach and a general stimulant to other organs.

One pound of epsom salts, a half teacup of table salt, and a tablespoonful of strong red pepper pulverized mixed in a quart of water and given as a drench is also an excellent remedy, usually reducing the bloat in about thirty minutes.

Baking soda (bicarbonate of soda) is seldom used for this purpose by practical veterinarians.

I would not recommend the garden hose. Often almost incredible amounts of fluids may be syphoned out of the stomach by the use of the stomach tube, the introduced end of which usually remains imbedded in the liquids and the food in the stomach, hence the gas which rises above this mass is not reached.

The trocar affords the quickest means of relieving bloat and its use, even in the hands of farmers, is accompanied by little danger. Select the point of highest distention, which is usually about four or five inches in front of the angle bone of the hip; hold the trocar in place with the left hand and strike it a firm blow with palm of the other hand. Now grasp the protruding part with the thumb and finger of the left hand and withdraw the stilet with the other. Retain the hold on the tube while it remains in place in order to steady it. When all the gas has escaped reinsert the stilet and withdraw the instrument. Always give one of the drenches recommended to check further production of gas.—F. G. M.

Summer Itch.

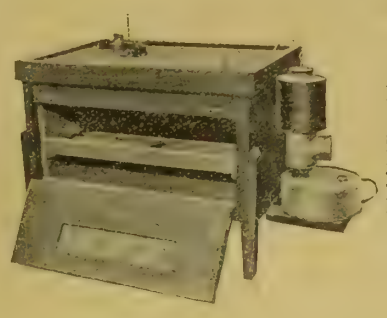
There is some kind of itch spreading over the neck and sides of my horse. Have noticed it coming on for about two years. Is this mange?—Subscriber, Riverside.

A microscopical examination would be required to determine whether this is some form of mange or eczema. Mix liquid sulphur and sweet oil, equal parts, shake thoroughly and rub into the affected skin every third day.

Worms in a Dog.

I am sending under separate cover a specimen of worms which my collie pup has been passing with her stools. She is active and apparently well, but thin, though ravenously hungry and well fed.—Subscriber, Morgan Hill.

The specimens submitted appear to be segments of the melon-seed tape worm. Mix five grains each of santonin and calomel and divide into ten equal powders, then after having starved the pup twenty-four hours, give one powder every two hours till four are given. Follow two hours after the last dose with two tablespoons of castor oil. Repeat after ten days.—F. G. M.



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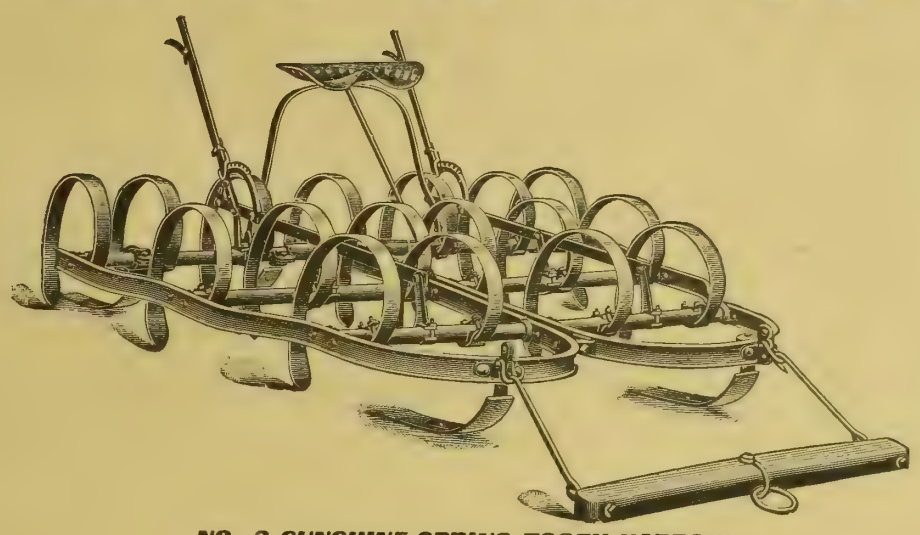
HARROWS



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The main frame is made of double I steel of high carbon, made narrow in front so as readily to pass obstructions.

Cross bars are 1¼ inch structural tubing, and have no holes drilled through them, compression clamps instead of bolts being used for fastening. The full strength of the bar is thus preserved.

Teeth are 1¾ inches wide, ¼ of an inch thick, and 44 inches long, made of the best quality of spring steel and are warranted against imperfections. The teeth pass under the bar and are held by a compression clamp—no holes through the teeth to weaken them.

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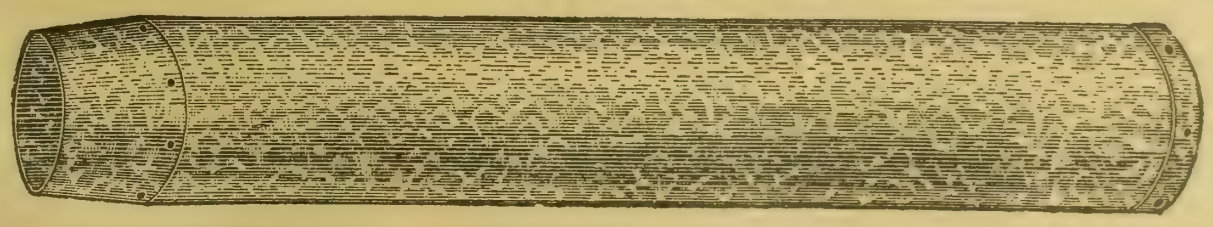

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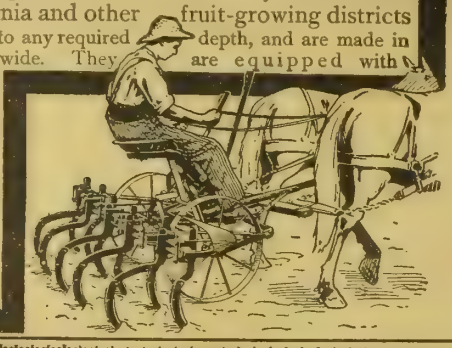

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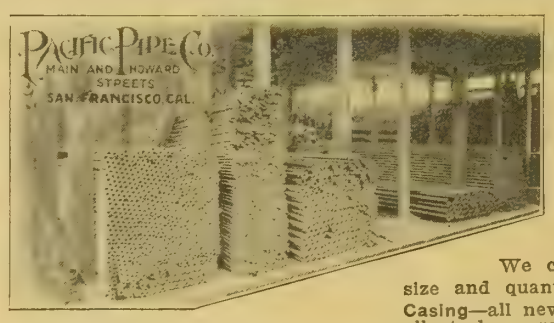

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Roses, Roses—all the leading kinds. Acacias, Silk Oaks, Peppers, Dracaenas, Hedge Plants, Fruit Trees. Black Walnut Seedlings cheap.

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Irrigation and Forestry

FOR SETTLEMENT.

More than 1,000,000 acres of agricultural, grazing and timber lands will be available for homestead purposes as soon as the Colville Indian reservation, north of Spokane, Wash., is opened to settlement, according to Clair Hunt, alloting agent in charge of the apportionment of the reserve land. While at Spokane recently Mr. Hunt said:

"There are 2250 allotments to be made and the Indians are choosing chiefly agricultural and grazing lands. This will take 300,000 acres of a total of 1,400,000 contained in the reserve, leaving 1,100,000 acres that will belong to the people.

"Much of this will be first-class agricultural land and a large part of it will be covered with some of the finest timber in the state of Washington. A few of the Indians have shown a disposition to take land in the timber regions.

"The Colville Indians are good agriculturists and grow all kinds of grains, fruits and vegetables. Some of the finest peaches raised in the state of Washington are grown on reservation lands. The Indians are peaceable and friendly to the whites. They are industrious and thrifty, and only a few of the older men, who are incapacitated for work, require aid from the government."

Mr. Hunt added that while no date has been fixed for the opening of the reservation, it is likely this will follow soon after the allotments have been made to the Indians. Much of the preliminary work of assigning lands has been completed. The work is progressing and with the arrival of another agent and additional help it is expected to complete the assignment and allotment in short order.

BLOWING OF SANDY SOILS.

Sandy soils are especially liable to damage by blowing, not only because of their low natural cohesion but also because they are usually well drained and retain water poorly in the surface layer, and hence lack the surface moisture which is a great preventive of blowing on soils composed of finer materials. The danger of blowing must always be borne in mind in reckoning the value of sandy lands and in designing for them a proper system of cropping. On them, as on others, the proper adjustment of the cropping system is frequently all that is necessary to prevent blowing. The principles which must govern its design are not essentially different in the case of sandy soils from those for soils in general. It should be noted, however, that the possibility of letting the stubble of one crop stand until the ground is ready for the next is more common on sandy soils than on others. Such soils absorb water readily, and the main reason for fall plowing, namely, the increase of ability to absorb mois ture, is in their case absent. The use of windbreaks offers also no new problems on sandy soils. Whether they are to be used or not used will be decided by factors with which the texture of the soil has little to do, except that of course this texture may be the cause of the trouble which makes some method of control necessary.

Aside from the cropping system, and in case windbreaks are not advisable, the main control method which is applicable to sandy lands is the increase of humus by the addition of organic matter, such as manure or straw or by the plowing under of some green crop. Sands are frequently deficient in humus, and its addition not only aids in preventing blowing but increases the usually low water-holding power and betters the general structure of the soil. Cases are rare in which sandy soils do not need humus, and their cultivation should always be so carried out as to increase this constituent. Blowing may frequently be prevented by this means alone.

The methods of cultivation (rolling, and the maintenance of a rough surface) advocated for decreasing blowing in general are of little use on sands. The cohesiveness of sand is slight, even when packed, and the formation or preservation of clods is nearly always impossible. Furrows run transverse to the wind may be occasionally of use, but are at best a minor means of control. This is true, also, of artificial moistening. Water runs so quickly through a sandy soil that it is usually impossible to keep the surface moist unless the whole soil is saturated—a procedure manifestly impossible if the land is to be used.—Bul. 421, U. S. Dept. Agr.

HORSEPOWER.

Will you be so kind as to explain what is meant by horsepower as applied to machinery? The dictionary says: "That unit of power of work of a steam engine, 33,000 pounds lifted one foot in one minute." That may be very clear but I do not understand it exactly.—B. J. O., Anderson.

The definition of horsepower given by the inquirer is of course very condensed. To explain more clearly the meaning of horsepower we quote at some length from Bailey's Cyclopedia of Agriculture as follows:

"The unit for measuring work is the foot-pound, and may be defined as the overcoming of one pound of resistance through a distance of one foot, or, as the lifting of one pound one foot. A horsepower is equal to the accomplishment of 33,000 foot-pounds of work in one minute, and is the customary unit applied in designating the power of a motor. The term 'horsepower' is an abstract mathematical unit and bears no fixed relation to the amount of work a horse is capable of doing. In fact, few horses are capable of doing more than two-thirds of a horsepower of work for any considerable period, though their maximum effort for short periods may be greatly in excess of this amount, as stated above. It has been found by experiment that the average sized man can do one-tenth to one-eighth of a horsepower of work, covering the usual working day of eight to ten hours. For a few minutes he can do half a horsepower, or a full horsepower for a few seconds.

"In changing from animal to mechanical power, experience would seem to indicate that these statements in regard to the power of animals are incorrect, inasmuch as it requires a motor of six or seven horsepower to do the work usually performed by three horses in handling farm machinery. The reason for this apparent discrepancy is found in the fluctuations of the load. On an average the load may be only two or three horse

power, but occasionally runs as high as six or seven. The horse can exert enough additional power for short intervals to get over these high places, while an engine, unless large enough to meet maximum requirements, will get stalled. Therefore, in replacing animal power with mechanical, it is best to install an engine capable of meeting the maximum requirements of the work in hand. In addition to this, there must be taken into account the amount of power required for traction if the engine is self-propelling.

"Professor King states the amount of power for hauling as follows: 'The hauling of two tons on a wagon at the rate of 2½ miles per hour, under the varying conditions on the farm, requires the team to develop energy at a rate ranging from 1.13 horsepower to as high as 4.98 horsepower.' In stubble plowing when the soil is in a medium condition, Professor King finds that two 1600-pound horses find their full capacity for work taxed by the 14-inch plow cutting four to five inches deep, while a team of 1200-pound horses find sufficient work in hauling a 12-inch plow cutting the same depth of furrow."

FERTILIZERS SHOULD BE TRUE TO ANALYSIS.

A fertilizer case was recently tried in an English court, the details of which ought to interest our farmers. It seems that in England there are small mixers or manufacturers who buy up refuse at slaughterhouses and mix with potash and phosphates. Then they sell the mixtures at low prices as special crop manures. They do a small trade, but are not expert chemists, and usually make a rough mixture without the improved machinery used by the large manufacturers. One of these dealers sold a mixed fertilizer to a farmer, guaranteeing that it contained two per cent of potash. Analysis showed that it contained less than half of one per cent, and the farmer sued for damages. The farmer proved that the goods were what he bought under guarantee, and the chemist proved his analysis. For a defense the manufacturer claimed that, while the potash was short, the nitrogen and phosphoric acid were in excess, so that this extra value more than made up for the shortage of potash. The farmer admitted that he used the fertilizer, but that he could not yet tell what the result was. In brief, his claim was that he ordered potash under guarantee, and did not get it. The judges imposed a fine of $25 and costs, or over $50 in all. Under the English fertilizer law, therefore, the dealer cannot justify a low analysis in one element by showing an excess in others. In this country some manufacturers cover this point by stating with their guarantee that extra value in nitrogen, for example, shall be considered to make up shortage in phosphoric acid. We do not regard this as fair, for the excess of one could not possibly make up for the other. The lesson from this English case is to buy fertilizers from the larger and more careful manufacturers, since their goods are more likely to be carefully and evenly mixed.—Rural New Yorker.

The great majority of the people of Imperial Valley have united in the effort to establish an irrigation district under the Wright-Bridgford act to take over the holdings of the California Development Company.

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Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Help Wanted—We want several good solicitors to solicit for a high class suburban monthly publication. Good profitable employment to the right party. For particulars address Box H, Cultivator Office, Los Angeles.

Wanted—To purchase within easy shipping distance, a registered Jersey bull, old enough for service. Polled Jersey preferred. Give price and description in first letter. Geo. A. Osborn, Oceanside, Cal.

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Trees and Sour Orange Seed bed stock for sale—Freight prepaid to any part of State. Peaches, Muirs, Lovells, Elbertas Tuscan, Phillips, Orange and McDavitts clings, first class trees 5 to 7 ft. at 12c. Apricots, Tilton, Royal and Peach trees 4 to 6 ft. at 18c. Plums, Burbank, Satsuma, Kelsey, Wickson, Cherry and Peach 5 to 7 ft. at 15c. Prunes, Sugar, French, Tragedy, 5 to 7 ft. at 15c. S. E. Courtney, Rose Lawn, Hanford, Cal.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Ballou's Nursery, 728 East Orange Grove Ave., Pasadena, Cal.

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Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal

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For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal

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Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal

Iris—We will send postpaid (our selection) 8 distinct varieties for $1.00, 24 in six varieties for $2.50. The Dean Iris Gardens, Monrovia, Cal

SEEDS

For Sale—Oregon evergreen sweet corn seed 7c per lb. White seeded Chilean watermelon seed 40c per lb. L. C. Lea, Buena Park, Cal., or 125-126 Los Angeles Public Market, 6th St.

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160-Acre Ranch in Tulare County Cal.—2 miles from Poplar, near Portersville. All under cultivation; houses, two barns, granary and blacksmith shop. Mail delivery and telephone. Irrigating ditch running across ranch with full water right. Especially adapted to raising alfalfa, deciduous fruits and eucalyptus. Citrus fruits are grown on adjoining ranches. One mile from proposed electric railroad. Being unable to locate on this ranch I will offer it for sale at the bargain price of $55 per acre. Write for terms and further information to H. F. Stubbs, Bradshaw, Neb.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars, call or address Paxton, 612 Lankershim Bldg., Los Angeles.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale—815 acres in San Luis Obispo County. A typical dairy ranch. Plenty of wood, water, irrigable land, buildings, fenced and cross fenced. Orchards, vineyards, oranges, lemons and walnuts do exceedingly well here. Forty acres of land suitable for these. Price $21 per acre. For further particulars apply to Mrs. F. A. Clink, Pozo, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

Cuba—Most productive soil. Delightful and healthful climate. Ample rainfall. Cheapest transportation facilities to the world's greatest markets. Particulars free. Sanderson, 13 Palace Building, Minneapolis.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Information where there is good state land in California now. Where? How to obtain. Send dime. Total cost $2.00 an acre. Joseph Clark, 830 M St., Sacramento, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

Parker & Sternberg live in the San Fernando Valley and sell bargains in Ranches, Houses and Acreage. Office 310 Brand, Glendale, Cal. Write or call.

For Sale—160 acres Imperial County, two miles from Palo Verde; $16 per acre, cash. Address Joseph Zalkovsky, Palo Verde, Cal.

Farms for Rent or Sale on crop payments. J. Mulhall, Sioux City, Ia.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

TURKEYS.

Attention Turkey Raisers—To close out at once, we offer our fine breeding toms at $8.00 each, none weighing under 19 or 20 lbs. that up to 24-25 lbs. 9 months old. Bronze breeders raising for the market will find the White Holland Cross to excel them for the early market. (Thanksgiving) Try them. Let your wants be known at once. Foreman Bros., Corning, Cal.

White Holland Tom Turkeys, brothers to winner of first prize at Los Angeles show, January 5, 1911. Eggs and poults later. Also French Houdan and Rhode Island Red eggs and cockerels. French Houdan eggs $1.50 per setting, $9.00 per hundred. Red eggs 75c per setting, $5.00 per hundred. Mrs. Hocking, Guasti, Cal.

Mammoth White Holland Turkey Eggs for hatching, $5.00 per setting. Extra large and thrifty stock, not related. Toms weigh 26 lbs. at 7 months. Light Brahma eggs, $3.00 per 15; Barred Rock eggs, $2.00 per 15. A. H. Blakeley, Ontario, Cal.

For Sale—Few fine Mammoth Bronze Turkey Toms, standard weight. No eggs or hens at present. Mrs. A. C. Wisegarver, San Fernando, Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

White Orpington and White Wyandotte Eggs for hatching. A fine lot of breeding cockerels at $5.00 each. No culls, I market all those. I will send you the best bird possible for the money. Write for list of winnings. A. W. Huskins, 713 Waterloo St., Dept. C, Los Angeles, Cal.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

For Sale—A fine selection of Buff Orpington cockerels. This is thoroughbred stock and you will make no mistake in selecting one of these birds. Prices $2.50 and $3.50. Mrs. J. R. Snead, Dixon, Solano Co., Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

I Hatch White Rocks Exclusively—Baby chicks $15 per 100. Guaranteed pure bred and from heavy laying strain. Will book orders for stock one to ten weeks old. Circular free. J. Wesley Lord, Inglewood, Cal.

For Sale—A few extra fine Barred Plymouth rocks, males and females, single birds, trios, or breeding pens; prolific layers, good color, size, shape, etc; prize winning strain; prices moderate. B. H. Meerdink, 1543 N. Hoover, Los Angeles.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Indian Runner, Muscovy and Buff Orpington Ducks.—Stock and Eggs. Rabbits and Guinea Pigs. Book on rabbits. Price list free. Caldwell & Co., R. D. 3, Los Angeles, Cal.

Minorcas, White and Black—Get my mating list before ordering eggs. Quality and prices both attractive. L. C. Buhl, Pomona, Cal.

Blue Andalusian and Buff Orpington eggs—from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Crystal and Pearl White Orpingtons—Eggs from mature birds direct from Kellerstrass and Byers farms. Settings $5.00 per 15, fertility guaranteed. Also some very choice cockerels. Address B. Striner, Glendale, or phone Sunset Glendale 4363.

R. I. Red Eggs for hatching from scientifically tested layers. The Luedkes, Anaheim, R. D. 1.

White Rock eggs for hatching. Best laying strain, $1.00 per setting. A. G. Morley, R. D. 4, East Bakersfield, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

For Sale—Kellerstrass White Orpington cockerels from prize winning stock. Price $3.50. L. Welte, Del Mar, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

Eggs for Hatching—Duckwing Leghorn, Buff Orpington and Black Minorcas. H. R. Leek, Escalona Ranch, Santa Cruz, Cal.

Orland Hatchery—Just hatched White Leghorn Chix. Booking orders for later delivery. P. L. Simpson, Box 13, Orland, Cal.

For Sale—Ringed Necked Pheasants, "Mongolian." $5.00 a pair. Mrs. Geo. W. Jenkins, Route 1, Box 40, Sonoma, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

CHICKENS FOR SALE.

For Sale—1 yearling R. I. Red Cock, fine breeder, $3.00, 3 Barred Plymouth Rock cockerels, fine Eastern exhibition stock. Price $3 to $8 each. 6 fine Columbian Wyandotte cockerels, 20 yearling hens, very low for quality. Eggs from exhibition quality Columbian Wyandottes, Buff Orpingtons and White Cornish. $2.00 per 13, $4.00 per 26. Address J. W. Whitney, Upland, Cal.

Cook Strain White Orpingtons—"The Real Thing," where Kellerstrass and all other breeders had to go to get the pure blooded Orpingtons. The Standard Poultry Yards has them direct from Cook Brothers, Scotch Plains, N. J. Note report of late San Diego Show: "C. A. Loud, all awards White Orpingtons." Eggs and baby chicks for sale. Also Northrup heavy weight S. C. Black Minorcas. Send for folder. C. A. Loud & Bro., San Diego, Cal.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Very Fine Strain Barred Rocks, R. I. Reds S. C. Black and White Minorcas, White Leghorn chicks and eggs. A few splendid cockerels. Prices reduced Feb. 1st. All pure bloods. Also, I have a few cases No. 1, home-canned peaches for table use to sell. R. B. Sherman, Newcastle, Cal.

Day-Old Chicks from my pure bred and carefully selected stock of S. C. White Leghorns from January 15 to February 15, $10 per 100; after February 15th, $9 per 100. Spring orders taken now. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal. San Luis Obispo County.

Rock Haven—60 pens White Plymouth Rocks, 20 pens S. C. Rhode Island Reds. Our hobby is high capacity egg producers. Eggs the year round. Baby chicks every month in the year. Send for our booklet. Jos. E. Davis, Box 148, R. F. D. 11, Los Angeles, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

R. I. Reds (Tompkins Strain)—Eggs and chicks. Rancho Casa Loma, R. D. 14, Box 56, Los Gatos, Cal.

Barred Rock Pullets and Buff Orpington cockerels for sale. Eggs for hatching. Popular prices. M. A. Young, Los Gatos, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Barred Rocks exclusively. Eggs from best matings $1.50 and $2.00 for 15, incubator lots $3.00 to $6.00 per 100. Prices right. G. L. Hawley, Madera, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Baby Chicks and Eggs for Hatching—Orders now taken for January and later delivery of R. I. Reds (Tompkins Strain), White Minorcas and S. C. Black Minorcas (Northrup Strain). C U. Chamberlin, Los Gatos, Cal

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100, $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

NURSERY STOCK.

S. E. Courtney of the Capital Nursery, Hanford, Kings County, Cal., is now shipping first-class peach trees to his many customers in all parts of the state at the following low prices:

All varieties of Clings and Free Stones.

		Price.
Firsts	5 to 7 ft., freight prepaid	12c
Seconds	3 to 5 ft., freight prepaid	9c
Thirds	2 to 3 ft., freight prepaid	6c
Apricots	4 to 6 ft., freight prepaid	18c
Apricots	3 to 4 ft., freight prepaid	15c
Apricots	2 to 3 ft., freight prepaid	10c

Orange seed bed stock, Sour, per 1000 $12.00

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one year old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

Grafted Walnuts, all kinds. Grafted Giant paper shell pecans, Walnut scions and grafting wax. Elberta peach, Grand Duke plum in quantity. General Nursery stock, all kinds. Tribble Bros., Elk Grove, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

For Sale—Alexander, Muir, Crawford's Early and Foster Peach, Royal and Blenheim Apricot on peach root. First-class trees true to name. Abell's Nursery, Arroyo Grande, Cal.

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J. A. Powell, R. D. 1, Box 1, Ripon, Cal.

NURSERY STOCK.

For Sale—Sour, Sweet and Tripoliata citrus seed bed stocks. T. Jikihara, P. O. Box 215, Upland, Cal.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

MACHINERY.

ATTENTION, FARMERS!

120 Horsepower Pumping, Lighting and Power Plant, composed of two 60-horse gasoline or distillate engines, with Westinghouse generators, switchboard, circuit-breakers, storage batteries, etc.

In addition we can furnish four 20-H. P. D. C., one 10-H. P. D. C. and two 7½-H. P. D. C. Western Electric motors. All of these are in first-class condition, having been overhauled at our works.

Just the power for pumping several wells at a short distance from each other. We will sell one unit of 60 H. P.

This plant cost new $10,000, but we will sell complete for $4,000. The generators alone cost $2000. We can supply any extras as we have all the patterns of the parts. Will make prices on motors in proportion to the above.

Also one R. & V. 6-H. P. vertical gas engine, new, and one new 18-inch single-acting Addison pump head and cylinders. Price $360.00, which is 25 per cent discount on lowest purchasing price.

Do not miss this chance.

Axelson Machine Co., Wyse and Ann Sts., Los Angeles, Cal.

For Sale—Windmills, pumps, engines, piping, brass cylinders, guaranteed first class, wagons, buggies, harness, plow scrapers. Power feed cutters, 10 tons 12 lb. T rail dump cars, 20 H. P. self-contained hoist brand new. Sundries too numerous to mention.

5 H. P. Pumping Plant

Special sale 5 H. P. engine jack, 5-inch pump, belting, engine house, 6000 tank and 24 ft. stand $235. This is not junk, but running now. Cost double new. 2 H. P. pumping plant, engine, jack, pump 2000 tank nearly brand new very cheap. Also 10,000 gallon tank, 34 ft. stand, fancy cover, $90, only used one year. Also 5-ton brand new mower, hay rake, parts such as knives, guards, sickle guards, connection rods, 100 complete sets rake teeth. We will sell these fittings at 50 per cent off 1st price or wholesale in lots to suit. Checks accepted. Call, write office of Demmitt Co., 120 North Main St., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—A practically new No. 2 Sharples Separator. Snap. C. P. Dandy, 421 Wilcox Bldg., Los Angeles.

For Sale—9 H. P. portable gas engine on steel trucks. Almost brand new. Price right. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles.

For Sale—Double acting deep well pump and cylinder in fine shape. Cheap. Machinery Exchange, Main & Bruno Sts., Los Angeles.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S FOWL WHITE FARM, Moorpark, Cal

Business

EVERY FARMER CAN HAVE RUNNING WATER.

The one big advantage usually claimed for the city is running water where needed. There is no good reason why nearly every country place should not enjoy similar advantages in house and grounds and have water for irrigation and the many other uses to which running water can be profitably put.

There are few places not located within a mile of a stream or pond. With a fall of two feet or over a hydraulic ram can be installed to pump to a height of thirty feet for every foot of fall. It will work day and night without attention. The operating expense will be the renewal of rubber valves every year or so.

The Rife Engine Co. claim a pumping efficiency for their Rife ram of 60 per cent to 90 percent, depending on ratio of fall to pumping head. Any size ram, pumping from three to 700 gallons a minute can be obtained.

By addressing the Rife Engine Co., at 111 Broadway, New York, catalogues, complete plans and estimates for any place will be gladly furnished free.

MORE PROFITS BY GIVING COWS AND POULTRY BETTER SHELTER.

If more farmers would seriously take into consideration the amount of profits they forfeit every winter from poorly housed stock, they would lose very little time in remedying any such evil that exists on their own farms.

It has been conclusively proven that cattle and poultry when housed in dry quarters, free from dampness and intense cold, keep in a far healthier condition than under less favorable conditions.

Cows keep weight and give larger yields and richer milk, and hens lay far better when good shelter is afforded them.

The cost of properly fixing up the quarters is not so great as would at first be supposed. No heating is necessary, and if the stables and poultry houses are in fair condition, all that is necessary is a good, sound, substantial roofing.

Because Genasco Ready Roofing is moisture proof and a non-conductor of heat and cold, and gives lasting protection it is better adapted for this purpose than any other roofing, and it costs no more.

Genasco Ready Roofing is made of genuine Trinidad Lake asphalt—the great natural waterproofer. It is not affected by rain, sun, snow, ice or any climatic condition.

Any handy man can easily lay Genasco Roofing—all the tools required are a hammer and a pair of shears.

If you don't know the dealer in your neighborhood who carries Genasco, write to the Barber Asphalt Paving Company, Philadelphia, and they will send you his name and address and also a copy of their useful and instructive "Good Roof Guide Book."

SURPASSES ITSELF.

Chas. H. Lilly Co.'s new seed catalog is just off the press and is now being mailed to their customers on the Pacific Coast.

The 1911 edition not only comes up to all expectations but surpasses itself in accurate descriptive matter and advice. The cover is very attractively lithographed from a hand-painted water color drawing and the inside pages contain hundreds of reproductions from actual photographs. It is a guide and a safe guide in every respect and a volume which should be consulted by everyone who plants seeds for business, profit or pleasure.

The catalog was compiled and printed by the Chas. H. Lilly Co., who are beginning their twenty-sixth year of successful seed selling in the West.

A SUGGESTION.

We wish to tell you of a remarkable business house that offers genuine advantages. We refer to the National Cloak & Suit Company of New York City, whose advertisement appears on page 165 of this issue. It will pay you both to read and answer this advertisement.

The "National," as this famous house is familiarly known, has customers in every town and county in every state in America. It has been in business nearly a quarter of a century, and in some ways, is one of the most remarkable business houses in the country.

It is remarkable first, because it pays all express charges on everything you buy, no matter whether ten cents' or ten dollars' worth. Now, the "National" sells by mail all kinds of Apparel for Women, Misses, Girls and Boys. Write for the free "National" Style Book, offered in the advertisement. It is very interesting, very beautiful, and it will save you money. You will be delighted with the treatment you receive, with the prices, and with the merchandise you receive from this grand old house.

So write for your copy of the "National" Style Book which, at our request, they are now holding personally for you.

HIGH-PRICED LAND.

One of the most attractive descriptive catalogues touching upon special crops is that issued by A. O. Gilbertson, grower of special crops at Mason City, Iowa. Onions and raspberries seem to be the principal features touched upon in the booklet, and the varieties handled by Mr. Gilbertson are certainly profit-bringers. The information he has to give is well worth writing for. He tells how to handle crops and high-priced land and how to create high-priced land.

FARM LEVEL IS ESSENTIAL.

The farmer who undertakes to level his land for irrigation, run irrigation ditches, canals and laterals; plan a drain, or establish a grade with the eye only to suggest, or some home-made makeshift to assist, invariably meets disappointment. The only way to attain successful results is to use a dependable telescope leveling instrument. If all of us were engineers and owned costly levels, these simple matters would be easy. Fortunately there are on the market simple, inexpensive levels, made purposely for the farmer; $15 will buy one, and so invested will bring great returns.

The Bostrom improved farm level advertised in this issue will meet the requirements for all kinds of irrigation work, drainage, either tile or open; terracing, ditching, road building, house foundation work, grading of all kinds, setting out orchards, running fences, getting angles and every sort of farm work requiring a level. Farmers, as a rule, have most of the common tools and implements for doing farm work, the level excepted. Now that this is available to up-to-date farms of the substantial farmers, this recent addition to the farm equipment may prove most helpful in performing many of these tasks that have heretofore been done by guess, and, therefore, unsatisfactory. Write nearest agent for particulars, mentioning that you saw this ad in Cultivator.

A PIONEER.

One of the oldest business houses on the coast is that of Barker Bros., furniture dealers of Los Angeles, established in that city more than thirty years ago, at which time it was a very modest concern in a town of 11,000 people. The town has increased to 319,000, and the increase in the business of the Barker Bros. has been in keeping with the growth of the city. They have one of the most complete lines of furniture of all grades from the most modest to the most fastidious, and have always believed in good furniture at popular prices.

THE EGG-MAKING MACHINE.

With eggs holding a good price on the market and yielding big profits, farmers are bending every effort to increase their production. In order to do this, special attention should be given to the egg-making elements of the poultry food.

To insure a bigger laying at this season of the year, cracked corn, ground bone, oyster and other shells should be fed liberally. In fact this is a necessity. You can furnish your poultry this food at lowest cost by using an "Enterprise" bone, shell and corn mill. This mill has truthfully been called the "Egg-Making Machine." With it you can make the finest egg material possible. The increased profits in a single year will more than cover its cost. May be used also for making bone meal fertilizer. A good all-round mill for farmers and poultrymen, for grinding dry bones, oyster and other shells, corn, roots, bark, grain, etc. Its weight is 60 pounds—capacity 1¼ bushels of corn per hour. The name "Enterprise" is on every mill.

Your name and address with 4 cents in stamps will bring you a copy of "The Enterprising Housekeeper"—200 recipes and helps in the kitchen. Address The Enterprise Manufacturing Company of Pa., Department 61, Philadelphia, Pa.

GOOD COFFEE MAKING.

In this issue we show an aluminum, sanitary coffee percolator which will enable you to make excellent coffee at one-half the price you now pay. It holds the coffee at the boiling point because it floats. It keeps the pot free from sediment, does away with eggs for clarifying and does not require a strainer. The price at which it is sold makes it possible for every household to possess this modern convenience.

STEEL POSTS.

The American Steel Post Company has been awarded the contract for their "Carbo" steel posts to be used for building the drift fence for the United States Bureau of Animal Industry, Washington, D. C., which also has a branch office in Los Angeles, Cal. This fence is being built under the detail specifications of the United States Forester at San Diego, and great care is being taken with respect to construction to make this fence serve the purposes of keeping cattle from ranging from the Mexican territory into the United States, thus prohibiting the bringing in of ticks and diseases.

The stretch now under construction south of San Diego runs along the boundary line from the oceean to the mountains.

HEIDER EVENERS A GREAT INVENTION.

Horse and man power are saved by Heider Eveners, made by the Heider Manufacturing Co., 152 Main St., Carroll, Ia. Thousands of them are now being used by farmers everywhere because of their utility and satisfactory results. These eveners are made for two, three, four, five or six horses. The four-horse plow eveners work four horses abreast on gang, sulky or disc plows—one horse in the furrow and three on land.

Most dealers handle this line, but if yours does not, you can get an illustrated booklet free by writing the Heider Manufacturing Co., 152 Main St., Carroll, Ia.

The Empire Cream Separotor Co., Ltd., of Portland, Oregon, who handle the "Easy Running Empire Cream Separator," that is known the world over for its light running, close skimming and simplicity, have taken on the Lauson Frost King Gasoline Engine. They did this after trying out several makes, as it proved to be the smoothest running, most economical on fuel, and most simple to operate, and the engines that have been placed with customers are giving excellent satisfaction. Their ad will appear in this paper referring both to their cream separator and to the Lauson Frost King Engine.

HOW THE WORLD SAYS GOOD-BY.

In different countries, just as the manner of greeting is varied, so is the habit of saying good-by. The Turk will solemnly cross his hands upon his breast and make a profound obeisance when he bids farewell. The genial Japanese will take his slippers off as you depart, and say with a smile: "You are going to leave my despicable house in your honorable journeyings. I regard thee."

In the Philippines the parting benediction is bestowed in rubbing a friend's face with one's hands. The German's Lebe wohl is not particularly sympathetic in its sound, but it is less embarrassing to those it speeds than the Hindu's performance, who, when you go from him, falls in the dust at your feet. The Fiji Islanders cross two red feathers. The natives of New Guinea exchange chocolate. The Burmese bend low and say "Hib, hib!" The "Auf wiedersehn" of the Austrians is the most feeling expression of farewell.

The Cuban would consider his good-by anything but a cordial one unless he was given a good cigar. The South Sea Islanders rattle each other's whale teeth necklaces. In the islands in the Straits of the Sound, the natives, at your going, will stoop down and clasp your foot. The Russian form of parting salutation is brief, consisting of the single word "Braschai," said to sound like a sneeze. The Otaheite Islander will twist the end of his departing guest's robe, and then solemnly shake his own hands three times.

LOOK FOR GOOD QUALITIES.

One generally finds what he is looking for.

If we look only for crooked trees in the timber, we will find plenty of them; but we will pass by many straight, beautiful trees and never notice them. So, too, if we look only for blemishes in the character of others, we will find them; but we may not notice the many good qualities that they may possess.

TO TAKE OUT PAINT.

Equal parts of ammonia and turpentine will take paint out of clothing, no matter how dry or hard it may be. Saturate the spot two or three times, then wash it out in soapsuds. A tablespoonful of oxalic acid dissolved in a pint of hot water will remove paint spots from the windows. Pour a little in a cup and apply to the spots with a swab, but be sure not to allow the acid to touch the hands. Brasses may be quickly cleaned with it. Great care must be taken in labeling the bottle and putting it out of the reach of children, as it is a deadly poison.

Thank God for the man who is cheerful
In spite of life's troubles, I say—
Who sings of a brighter tomorrow
Because of the clouds of today.
His life is a beautiful sermon,
And this is the lesson to me:
Meet trials with smiles, and they vanish;
Face cares with a song, and they flee.

Mayer SPECIAL MERIT SCHOOL SHOES

These shoes are built exceedingly strong. The leather is tough and the soles are selected from the best wear-resisting hides. They are the only school shoes made with two layers of leather over the tip.

"WEAR LIKE IRON"

MAYER SPECIAL MERIT SCHOOL SHOES

outlast average school shoes two to one and cost no more. They are good looking shoes, built to fit and comfortable to wear.

The Genuine Special Merit School Shoes have the Mayer Trade Mark stamped on the sole.

FREE—Send us the name of a dealer who does not handle Special Merit School Shoes, and we will send you free, postpaid, a handsome picture of George Washington, size 15x20.

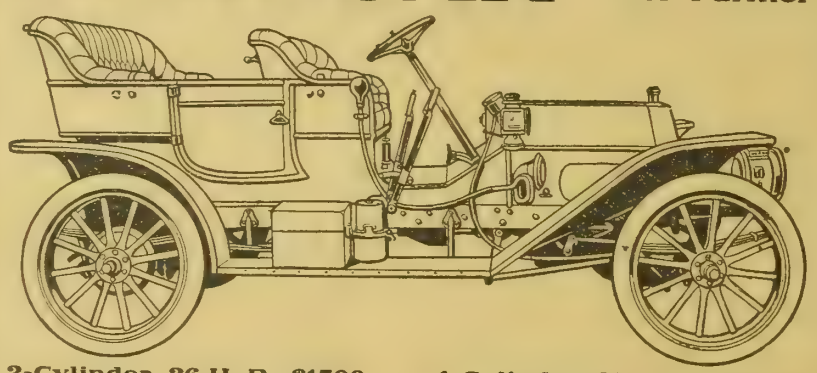
We also make *Honorbilt* Shoes for men, *Leading Lady* Shoes, *Martha Washington* Comfort Shoes, *Yerma* Cushion Shoes and *Mayer Work* Shoes.

Special Merit Trade Mark

F. Mayer Boot & Shoe Co., Milwaukee, Wisconsin

WESTERN BRANCH: Washington Shoe Mfg. Co.—Seattle, Wash.

DUROCAR The Car for the Farmer



2-Cylinder, 26 H. P., $1500 4-Cylinder, 35 H. P., $1750

Made in Los Angeles and factory open to your inspection. Come and see us.

Both Phones Durocar Mfg. Co., 935 S. Los Angeles St. Los Angeles, Cal.

SECURITY BUILDING Ground floor and Basement occupied by the Security Savings Bank and Safe Deposit Vaults.

SECURITY SAVINGS BANK

Spring and Fifth Sts. Los Angeles, Cal.

OLDEST AND LARGEST IN THE SOUTHWEST

Capital and Reserve $1,938,000.00

Resources - - - $30,000,000.00

Over 62,000 Open, Active Accounts

4% Interest on Savings Accounts

And on Six Month's Certificates of Deposit

3% On Special (Ordinary) Savings Accounts

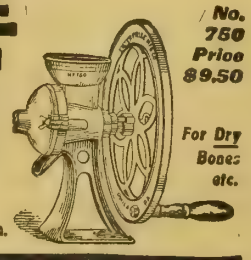
Which Accounts may be checked against without presentation of Pass Book. Interest is paid monthly on the minimum monthly balances provided it amounts to $300 or over.

The Safe Deposit and Storage Department is the largest and best equipped in the West

ENTERPRISE

Bone, Shell and Corn Mill

A money-saver and money-maker. Cracked grain, ground bone and shell, increase egg production when fed properly. The "ENTERPRISE" Mill is a wonder. Strongly built, reliable, runs easily and won't get out of order. Grinds dry bones, corn, oyster and other shells, etc. Price of Mill shown, No. 750, is $9.50. Weight, 60 lbs. Grinds 1¼ bushels of corn an hour. Hardware and general stores everywhere.



No. 750 Price $9.50

For Dry Bones etc.

Catalogue FREE. Famous Recipe Book, "The Enterprising Housekeeper," for 4 cents in stamps.

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Leader Since 1884 The Isaacs-Woodbury Business College Strong, Modern, Successful.

Fifth Floor Hamburger Bldg., Los Angeles—100 feet above street-noise and dust.

Entire year—enter any time. Catalogue—27th year. F 1850. Main 2305. Edward King Isaacs, Pres

When writing advertisers, mention Cultivator.

General Household Notes

GET TO WORK.

If the skies look dull to you,
Get to work;
If the atmosphere is blue,
Get to work.
Fostering your discontent
Will not pay the landlord's rent,
Will not gain for you a cent.
Get to work.

Brooding doesn't help your cause;
Get to work.
Nothing gained by picking flaws.
Get to work.
Weak are trampled by the strong?
You a victim of man's wrong?
"Stand the storm, it won't be long."
Get to work.

If success shall come, you must
Get to work.
There's no other way but just
Get to work.
It may yield not wealth or fame;
Much or little, just the same,
If you perish you'll die game.
Get to work. —Ex.

THE HAUGHTY MAUDE SUTTON.

"What do you think, girls? All my lessons are done for tomorrow, and I have nothing to fret about for twelve whole hours!" exclaimed Edith Carson, rushing into the room where three of her classmates were wrinkling their pretty brows over their algebra problems.

"Who helped you?" inquired Bess, without looking up.

"I helped myself," retorted Edith, indignantly. "The minute I got home I fell upon the lessons and hadn't a bit of trouble."

"Then, for pity's sake, take a look at my eighth. I've worked and worked and it won't come out even," said Nora, handing over a paper on which much erasing had been done.

"'Never ask assistance till you have exhausted your last bit of patience,'" quoted Edith, with a capital imitation of Mr. Stern's manner as he counseled his pupils in the schoolroom.

"Edith is as stuck-up over getting her lessons for once as Maude Sutton," said Bess. "I don't want to be wise if it makes people act like that girl. I hope you have not taken her for your model, Edie."

"I might do worse," said Edith, figuring away with a stubby pencil. "She knows everything and always gets the highest grades."

"Yes, I know that, but see how haughty it has made her. She seems to say, 'I am the youngest member of the class and the best scholar,' with every move she makes. I have tried and tried to be polite to her, but she barely speaks when we meet."

"She looks unhappy rather than haughty to me," remarked quiet Rose. "She is so pale and delicate looking that maybe she can't have fun like the rest of us."

"Unhappy! Nonsense!" said Nora, vigorously. "Her grandmother gives her everything she wants, and lets her do as she pleases. Look at her clothes! She wears better dresses to school than we have for best."

"Good clothes don't always stand for happiness. I think if papa and mamma were not with me I wouldn't care for anything, and maybe that is the way Maude feels too. I love grandma, but she don't take my parents' place," said Rose.

"I guess you are right," answered Nora, thoughtfully, "but I don't see why she is not at least pleasant to us. She ought to make an effort to be happy, or she will be miserable all her days. There! My work is done, too. Mamma said we might make taffy if we got through early, so come on to the kitchen."

* * * *

"Such an odd thing happened today, papa," said Bess Fuller, as she walked home with her father. "I picked up a letter on the street addressed to Joseph Smith, Indianapolis, Ind., and was walking toward the postoffice, intending to mail it, when Maude Sutton came along looking everywhere for something. I don't know what made me ask her, but I did if she had lost a letter, and she fairly snatched it out of my hand. She murmured something about losing it on her way to the train and then burst into tears. I can't think what I could have said or done to make her act like that, but she is always queer."

"Have you always been good friends?" inquired Mr. Fuller. Being a lawyer, he went at the root of the matter promptly.

"Why, yes. That is we never had any trouble. Maude has no friends, for she ignores all the girls. The letter had "I. P." on the corner and a long number—I mean something like five thousand and forty, though that is not the right one."

"It does seem odd that she should cry about a little thing like that," said Mr. Fuller. "It will be best if you don't mention this incident to your girl friends, Bess. Sometimes the wildest kind of reports start from little things like this, and it is always well to guard our lips closely. Be as kind as you can to the poor girl, for she may be too shy to make friends and is really longing for companionship."

"Her father and mother are dead—at least Rose said they were—and she lives with her grandmother. She has the nicest clothes of any girl in high school and gets the best grades. None of us can do as well in anything as she, but she never seems to work very hard."

The tribulations of examination drove everything else out of Bess's mind, and the letter was forgotten till one day she saw Maude coming from the southbound mail. "I wonder why she goes to the mail car so often to send her grandmother's letters," mused Bess, as the silent girl passed her with a slight bow. "They must be important."

Suddenly Maude turned and came back. "I beg your pardon, Miss Fuller, but would you go with me to your father's office?"

Bess was astonished beyond all measure at being addressed as Miss Fuller, and by the haughty Miss Sutton, but she managed to gasp out, "Certainly, whenever you want to go."

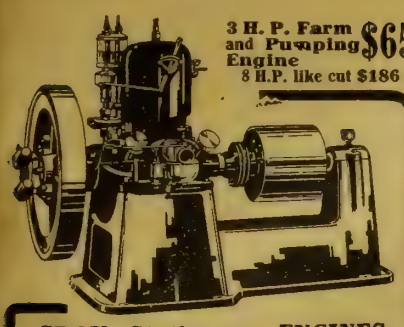
"I want to go right away if you think he is there. I have tried and tried to tell you how much I appreciate your not mentioning what you saw on my letter that day, but I just couldn't."

"I never said a word to anyone except papa, and he told me never to tell about it. He didn't say why, and I forgot about it till today."

"Didn't you know where it was going to?"

"Yes, to Indianapolis. I looked at the address to see if it belonged here, and noticed the city it was directed to."

By this time the two girls had



3 H. P. Farm and Pumping Engine $65
8 H.P. like cut $186

GRAY Stationary ENGINES

For IRRIGATION and PUMPING, Spraying Machines, and driving churns, cream separators, washing machines, grindstones, wood saws, feed mills and all kinds of machinery on the farm and in the shop.

Full Horsepower, Perfectly Governed, Workmanship and Material Best Obtainable.

Absolutely guaranteed by a firm who have the reputation of standing back of their guarantee. Ask Dunn or Bradstreet or any bank in Detroit.

Branch Agencies in San Francisco, Sacramento, San Diego and Los Angeles. For catalogue and full information about 3, 4, 6, 8 and 12 H. P. Stationary Engines, write to the main office at Detroit.

Gray Motor Co., 125 Leib St. Detroit, Mich

Storm Clothing

Oiled Canvas, Rubber and Leather.

Tents, Tarpaulins, Wagon Tops, Roll Canvas, Picking Bags, Stack Covers, Etc.

The Wm. H. Hoegee Co. Inc.

138-142 So. Main Street

Home 10087, Main 8447 LOS ANGELES

Triangle Trip
OVER THE
Northwestern Pacific Railroad

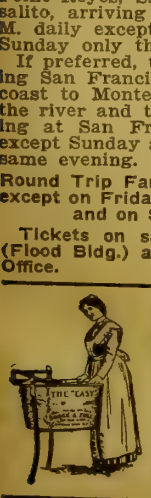
One of the most delightful scenic One-day jaunts in America
150 Miles of Mountain and Redwood Forest Scenery, a Boat Ride on San Francisco Bay and by Rail Along the Russian River.

Leave San Francisco 7:45 A. M. daily except Sunday, and 8:45 A. M. Sunday only, by boat across the Bay of San Francisco, in full view of the Golden Gate to Sausalito (the Sorrento of America). Thence via picturesque San Rafael and thriving Petaluma (home of the chicken industry), through Sonoma Valley to Santa Rosa and Fulton. From Fulton, through magnificent mountain scenery and redwood forests and along Russian River, to Monte Rio. Return is made along the coast, passing Tomales Bay, Point Reyes, San Anselmo, etc., to Sausalito, arriving at San Francisco 6:35 P. M. daily except Sunday, and 7:05 P. M. Sunday only the same evening.

If preferred, trip can be reversed, leaving San Francisco at 8:15 A. M. via the coast to Monte Rio and returning along the river and through the valleys, arriving at San Francisco 6:35 P. M. daily except Sunday and 7:35 P. M. Sunday the same evening.

Round Trip Fare for Triangle Trip, $2.80 except on Fridays or Saturdays, it is $2.50 and on Sundays only $2.20.

Tickets on sale at 874 Market Street (Flood Bldg.) and Sausalito Ferry Ticket Office.



***Syracuse Easy* Vacuum Washers and Hand and Power Vacuum Cleaners. Patented Clothes Line**

Sold for cash or easy payments. 30 days Free Trial. Freight paid. 6000 sold in California.

JAS. SCOTT & CO., 824 E. 9th St., Los Angeles. Cal.

The California Cultivator leads in advertising and circulation.

reached Mr. Fuller's office, and Bess introduced Maude, who was making an effort to keep back the tears. "Come into the private office," said the gentleman, wondering what the young girl could want.

"You come too, Miss Fuller. I don't care if you hear, for you won't tell."

"It is about my father," began Maude, plunging into business at once. "Everybody here thinks he is dead, but he is in the state prison at Indianapolis. He was sent there two years ago, shortly after mamma died, and I have not seen him since. Grandma took me to live with her, and we came here where no one knew us, for she never wanted mamma to marry papa, and I don't dare mention him at home. She changed my name to Sutton, though it is really Smith, but as soon as I am old enough to earn my own living I will take my own again. Papa never stole the money they said he did, but we were too poor to hire a lawyer and grandma wouldn't do a thing for him."

"What is it you want me to do for you, you poor child?" said Mr. Fuller, as Maude paused to wipe away the tears. His own eyes were suspiciously wet, and Bess was sobbing in a big leather chair in the corner.

"I thought perhaps you could do something to get papa out. I haven't got any money now to pay you, but I'll soon be able to teach or do something, and I'll pay back every cent. I know papa is not well, though he does not say so, and I'm afraid he'll die in that horrid place. Grandma won't let me visit him, and he always says I must obey her, but I am so very unhappy."

"I will gladly do what I can, and you must not worry about paying me," said Mr. Fuller. "I have to be in Indianapolis next week on business and I'll call on your father if you give me his name and number. Perhaps we may think of some plan to help both of you. In the meantime, don't worry. Let Bess and the other girls cheer you up, so I may truly tell your father you are doing well. He worries about you, too, and you must take care of your health for his sake."

* * * *

"Was Mr. Smith a competent bookkeeper?" asked Mr. Fuller of the man who had been the prisoner's last employer.

"Very, and I wish we had never accused him of defaulting. You see, it seemed like a clear case, for he was caught passing the bills we had marked. I think we will do what we can to have him pardoned."

"But he won't accept a pardon," Mr. Fuller, looking the old man squarely in the face. "He says he has suffered unjustly and wants complete vindication. I think you know who robbed your safe and have never told."

It was a bold thing to do, but Joseph Smith had told him of suspicious things that happened in the office from time to time, and he determined to make at least one effort with the employer. To his surprise the rich man broke down and cried as if broken-hearted. "You are right," he said, feebly. "I do know, but I only found out last week. I hope, Mr. Fuller, that you may never know what it is to have a son rob you. Last week I discovered that my son was stealing from me, and that an innocent person was in prison for it. For his mother's sake I should like to keep it quiet, but if it must come out, justice shall be done."

"I will not ask that you name the thief," said Joseph Smith, when the matter was laid before him, "but you must make it plain that I have suffered unjustly. Mr. Fuller, I can never thank you for your efforts on my behalf. It seems like a dream that I am to see my little girl once more."

"You must come back to your old place at once," said his former employer. "In your native town the wrong was done, and there it must be righted. It is not to your old place either, for you will be made a member of the firm this very day. I can never thank you enough for allowing Edward to go free. It would break his invalid mother's heart to hear of it, but justice must be done. Can you ever forgive me?"

"Indeed I can," said Mr. Smith, looking pityingly at the heartbroken man before him. "You must not despair. We will see Edward a saved man yet."

* * * *

"Did you see papa?" inquired Maude, eagerly, as she and Bess saw Mr. Fuller coming from the train.

"Indeed I did, and he is well and happy," answered Mr. Fuller, shaking hands heartily. "He has a leave of absence and is coming to make you a visit."

Before half his sentence was uttered Mr. Smith had his daughter in his arms, and the two were laughing and crying in a way to astonish passers-by. Maude released her father at last and sobbed her thanks to Mr. Fuller, while Rose stood looking on with eyes and mouth wide open. "Am I dreaming?" she managed to ask at last.

"Not a bit of it," laughed her father. "We will all go up to our house for tea right away. Mr. Smith and I are almost starved."

"And to think this is the haughty Miss Sutton?" said Rose, as all the girls gathered around to congratulate a radiantly happy girl next day.

"You never called her haughty," said Nora, kissing Maude. "The rest of us did though. You said she was unhappy."

"You may say what you please, all of you," declared Maude. "Grandma and papa are good friends, and I am perfectly happy to think all my troubles have disappeared."

"Maude Sutton has disapeared," explained Bess, gravely. "Ladies, allow me to present my friend, Miss Smith. She has a very unusual name, but I hope you will not have to use the prefix 'haughty' to keep her in remembrance."

"Nor unhappy either," added Rose, and Maude thanked her with tears of joy in her eyes.—Classmate.

TO MAKE A GOOD CONSOMME.

To nearly five quarts of clear, cold water add two and a half pounds of lean beef, cut in small pieces, one fowl cut in pieces and the larger bones cracked and the meat also cut in pieces. Cover tightly and bring slowly to a boil. Watch carefully and skim off every particle of scum as it rises. Now add one slice of onion, one carrot, a bay leaf, a small bunch of sweet herbs, and a slice of turnip if it is not bitter. Let it simmer very gently for two hours, then add salt and pepper to taste; about one rounding teaspoon of salt and a third of the quantity of pepper will suit the taste of most persons. Cover again and let it just bubble for four hours longer. At the end of that time strain and set away to cool. Remove the fat and store in a cold place until wanted.

HEAR IT.

Ball: What is silence?

Hall: The college yell of the school of experience.—Harper's Bazar.

The Right Paint For This Spring

You can't afford to let your house stand exposed till oil drops in price. The way things look now, the buildings would be paint-hungry before that time comes.

Get the cost of 100 pounds "Dutch Boy Painter" White Lead, 4 gallons pure linseed oil, 1 gallon turpentine, 1 pint turpentine drier—this makes 8 gallons of pure white lead paint. Divide by 8 for the price per gallon and compare this with the price of any other paint you'd think of using.

You'll find that the best is the cheapest; also that, after all, the increase in the cost of "Dutch Boy Painter" White Lead made-to-order paint is trifling.

Write for our free "Helps No. 426
It answers all paint questions.

NATIONAL LEAD COMPANY
An office in each of the following cities:
New York Boston Buffalo Cincinnati Chicago
Cleveland St. Louis San Francisco
(John T. Lewis & Bros. Company, Philadelphia)
(National Lead & Oil Company, Pittsburgh)

Save for the Home at the Home Savings

Your Money Grows Here

You draw out more than you put in when you become a savings depositor at this Home Bank. Your profit is definite, sure, constant. Every year is a prosperous one. Begin now. Keep your surplus funds at work.

We Pay

3% Interest on Minimum Monthly Balances of $300 or More, Account Subject to Checking.

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Sievert Distillate Oil Burners

the most efficient all round Heating appliances for Stoves, Ranges, Boilers, Water-Heaters, and especially Hot Air Furnaces of all kinds. Brooder House and Heating Stoves. Send for Free Circulars.

Sievert Oil Burner Co., Manufacturers.
710 N. Main St., Los Angeles, Cal.
All Kinds of Oil Storage Tanks.

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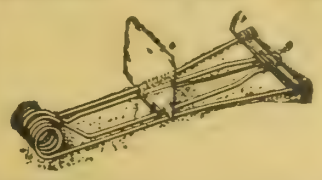
BUILDING & LOAN ASSN.
223 S. SPRING ST., LOS ANGELES, CAL.

THE LARGEST ASSOCIATION IN CALIFORNIA
Assets, Jan. 1, 1910, - $2,485,188
Send for 20th Annual Statement and Booklet

MACABEE GOPHER TRAP



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Z. A. MACABEE, LOS GATOS, CAL.

When writing to CULTIVATOR advertisers **BE SURE** to say where you saw their advertisement. It will cost you nothing and ***MAY*** do you some good.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 8, 1911.

Butter.

A strengthening of the butter market here permitted an advance of a cent a pound during the week.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	33½
Firsts	30
Ladies	22
Cooking	20

Cheese.

Local	18
Northern, fresh	17½@18
Oregon Daisy	17½@18
Domestic Swiss	20
Imported Swiss	32

Eggs and Poultry.

Candled eggs declined a cent on Tuesday, owing to heavy receipts. Market fairly strong under present receipts. Case counts also down a cent.

Paying price f. o. b. Los Angeles is:

Local ranch candled	31
Case count buying price	27
Northern	26@30
Eastern storage	23@24
Eastern case count	19

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	17
Roosters	10@15
Broilers	25
Fryers	21
Roasters	19
Turkeys	23@25
Ducks	21
Geese	20
Squabs, per doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8½
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	2.15@2.35
Salinas	2.50
Watsonville	2.35
Nevadas	2.00@2.10
Oregon, Early Rose	2.00@2.25
Northern Early Rose	2.00
Lompoc	2.50
Idaho Rurals	2.10@2.25
White Rose, local	2.10@2.25
Sweets, yellow, cental	3.50@3.75
Colorados	2.10@2.25

Onions.

Wholesale quotations:

Oregons	2.75
Australian browns	2.75
Nevadas	2.75
Utah	2.50
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.00@1.25
Asparagus, lb	40
Beets, sack	90
Brussels sprouts	10
Bell peppers, lb	15
Green chilis	11@12
Cucumbers, box	1.00@1.25
Cabbage, sack	75@85
Celery, crate	2.25@2.50
Cauliflower, crate	1.25@1.35
Carrots, sack	90
Egg plant, lb	15
Horseradish	12½
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@1.25
Oyster plant, doz	40
Peas, lb	8@10
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Pumpkins, lb	1@2
Radishes, doz. bunches	20@25
Rhubarb, No. Strawberry	1.75
Rhubarb, Crim. Winter, box	1.00@1.25
Spinach, doz	20@25
Hubbard squash, lb	1@1½
Tomatoes, crate	1.50
Tomatoes, Mexican	1.50@1.60
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.75@2.25
Grapefruit	2.50@3.00
Lemons	1.50@2.50
Tangerines	1.50@1.75
Limes, per 100	1.25@1.50

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflower	1.35@1.50
Spitzenbergs	1.75@2.50
Jonathans	2.25@2.35
Greenings	1.10@1.25
Pearmains	1.10@1.50
Newtown Pippins	1.20@1.35
Pineapples	6½@7½
Mangoes, doz	1.75
Persimmons, lb	7
Pomegranates, lug	1.00
Pears, lb	5@6
Bartletts, lb	8@10
Winter Nelis	2.50@2.75
Strawberries	8@15

Dried Fruits.

Wholesale prices are:

Apricots	12@13
Evap. Apples, fancy, lb	11½@12½
Figs, box	1.65@2.00
Peaches	7@8½
Nectarines	10
Pears	11@12½
Prunes	8½@12
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.25@6.50
Black eyes	7.00
Pinks	6.50
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Lentils	7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	15@16
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb, new	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10½
Extracted light amber	9
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	12.00@13.00
Wheat hay	13.00@14.00
Tame oat	14.00@16.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, ctl	1.80@1.85
Corn	1.60
Popcorn	3.75@4.00
Egyptian corn	1.75
White oats	1.80
Rye seed	2.00
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.15
Cracked corn	1.65
Cracked wheat	1.95
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed meal	1.70
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Feb. 7, 1911.

Butter.

Butter is firmly held by sellers, though the trade is buying only as needed. A slight decline was made on Saturday, after an advance from 30 to 32 cents on Friday. It is now two cents under last week.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	31
California firsts	26
Seconds	24
Storage	2[illegible]

Cheese.

California flats, new	13@16
Cal. Y. America, fy, new	15½@16½
Oregon fancy	13½

Eggs and Poultry.

Eggs declined sharply until Friday, when they reached 29 cents. Saturday enabled a recovery of one cent, which is 3½ cents under last week's quotations.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	30
Firsts	29
Seconds	27
Hens, doz	5.00@10.00
Fryers, doz	6.00@6.50
Ducks	6.00@10.00
Broilers	3.00@4.50
Roosters, doz	5.00@9.00
Turkeys	18@21
Geese	2.00@2.50
Pigeons	1.50@2.50
Squabs	3.00@4.00

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	5@6½
Hogs	6@8½
Milk lambs, unshorn	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4½@5

Potatoes.

Wholesale market quotations:

River White, cwt	1.60@1.90
Salinas Burbanks, cwt	2.25@2.30
Oregon Burbanks, cwt	1.90@2.15
Lompocs	2.25
Sweets, ctl	3.00@3.25

Onions.

Onions, California, sack	2.25@2.50

Vegetables.

Wholesale quotations:

Asparagus, forced	20@25
Asparagus, natural	40@50
Artichokes	10@75
Beans, string	10@15
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	85@1.00
Celery, crate	50@2.00
Bell peppers	10@12½
Chili peppers, lb	4@8
Egg plant, lb	10@15
Mushrooms	10@35
Okra, box	40@60
Peas, lb	3@10
Summer squash, box	1.50@2.00
Rhubarb, box	1.25@1.50
Tomatoes	1.00@1.75
Turnips	65
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.25
Grapefruit, seedless	1.50@3.00
Grapefruit, seedlings	1.50@2.00
Lemons	1.00@3.00
Limes, Mexican	5.00@5.50
Tangerines	50@1.25

Fresh Fruits.

Alligator Pears, doz	1.00@1.50
Mangoes	50
Apples, box	75@1.00
Apples, Belleflowers	1.15@1.25
Newtowns	1.15@1.40
Spitzenberg	1.75@2.50
Bananas, Hawaiian	75@1.25
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb. Apples, 10@11c; apricots, 10¾@13c; do, Moorparks, 14c; peaches, 6@7½c; with a premium of ⅛@¼c on Muirs; prunes, bulk basis, Santa Claras, 6¾@7¼c, with ¼c premium on 60s to 90s; outsides, 6@6¼c; figs, 6¼@7½c for white and 5@5½c for black; pears, 9¾@13c.

RAISINS—1910 crop: London layers, in 20-lb. boxes—6-crown clusters, $2.50; do, 5-crown, $1.75@2; 4-crown, $1.30@1.40; 3-crown layers, $1@1.10; do, 2-crown, 95c@$1. Seeded, per pkg.—Fancy, No. 16, 5¾@6c; choice No. 16, 5½c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5c; do, 3-crown, 4⅜@4½c; do, 2-crown, 3⅞@4c. Dried grapes, 3c. Seedless—Muscatels, 4c; Sultanas, 4¾@5c; Thompson's, 5⅜@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13¼
Almonds, '10 Nonp	15
Almonds, '10 I X L	14
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.00
Pink	5.70
Black eyes	5.50@5.60
Small white	3.50
Large white	3.50
Kidneys	6.25
Garbanzos	3.00
Bayo	4.90
Horse beans	2.50
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	20@22
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Scott, Magner & Miller say:

Arrivals of hay for the week have been 2700 tons, which is exactly the same as we received on the San Francisco market for the previous week.

At interior points we find a continuation of the recent demand, and this, no doubt, will continue while weather conditions remain as they are, and until there is a chance for the grass to show itself.

There has been a little better feeling in the export trade during the week, and there has been quite a lot of hay sent forward on export and coastwise orders. This trade has relieved the market this week considerably.

The demand for alfalfa hay recently has been better than was anticipated, and the market continues steady for what is being offered.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	11.50@12.00
No. 2 wheat or wh and oat	10.00@11.00
Choice tame oat	11.50@12.00
Other tame oat	9.00@10.50
Wild oat	8.00@10.00
Stock hay	6.00@7.00
Alfalfa, ton	9.00@12.00
Straw	40@50

Grain.

Wheat, No. 1	1.42½@1.52½
Barley, fancy	1.16¼
Barley, good to choice	1.12½@1.15
Barley, poor to fair	1.07½@1.11¼
Oats, white	1.45@1.52½
Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5¼
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00@18.00
Bran, ton	29.00@30.00

Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Ground barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	34.00@36.50
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	29.00@31.00

Citrus Fruit Market

LOS ANGELES, Feb. 8, 1911.

The keeping quality of the fruit is disappointing. The spotting of the skin has caused lowering of its appearance, and now some of the fruit is going down as badly as it usually does during blossoming time. It is possible this is from the continued rains to a certain extent, but it is felt that it is more because of general soft condition. Good fruit is commanding a slightly better sale than last week.

The lemon market continues exceptionally strong, and all fruit that is offered is picked up at good prices.

Shipments.

Shipments of oranges to date since November 1, 1910: 7,462 cars; lemons, 1,189. Total citrus fruits, 8,651. To same date last season: 4,385 oranges, 1,067 lemons; total, 5,452.

NEW YORK, Monday, Feb. 6.—Twenty-six cars navels and four cars lemons sold. Market easier on navels, steady on lemons. Snowstorm raging.

NAVELS—	Avge.
Titus Ranch, fy, S M G P A	2.10
Elephant, Or, Elephant Orchard	2.75
Blue Banner, Imp, Sutherland F	2.60
Blue Banner, Sutherland F	2.55
Green Banner, Imp, Sutherland F	2.25
Valle Vista, Imp, Growers F Co	2.00
East High A, E Highland C F A	2.55
Euclid, Growers F Co	2.75
Uplanders, Growers F Co	2.35
Old Mission, fy, Chapman	2.40
Golden Eagle, Sd, Chapman	1.95
Stag, Imp, A C G Ex	2.25
Pointer, Imp, A C G Ex	2.10
Stag, A C G Ex	2.15
Gavilan, Riverside Ex	2.30
Braeside, Imp, Riverside Ex	2.10
Truth, Riverside Ex	2.05
Pine Cone, S B Ex	2.45
Carrier, S B Ex	2.00
Rossmoyne, St Rossmoyne, Imp	1.95
Lake Hemet, A F, Hemet	2.10
Mission Indian, A F Ex	1.85
Stag, A C G Ex	2.15
Pointer, A C G Ex	1.80
Stewart Lotus, O K Ex	2.20
Monogram, O K Ex	1.85
Diamond S, O K Ex	1.75
Pointer, A C G Ex	2.00
Liberty, Escondido F G A	2.05
Pine Cone, S B Ex	2.50
Arrowhead, S B Ex	2.20

TANGERINES, halves — Orchard, $1.45.

LEMONS—Peerless, xc, $3.30; Sunset, $2.95; Champion, $2.75; Independent, fy, Growers F Co, $3.80; ch, Growers F Co, $3.25; Limoneira, selected, $3.80; Limoneira, Lolas, $3.45; Whittier, $3.50.

ST. LOUIS, Monday, Feb. 6.—Cloudy. Market steady. Eight cars navels, one car lemons sold.

NAVELS—	Avge.
Ben Hur, R H, Redlands	2.15
Lochinvar, R H, E Highland	2.35
Red C, Covina Ex	1.95
Mother Colony, St, Anaheim	2.20
Redlands Pride, xc, B M, F G A	1.90
Newsboy, R H, Redlands	1.90
Belt, R H, E Highland	2.10
Butterfly, Covina Ex	2.00
Cougar, Covina Ex	1.95
LEMONS—	
Royal Knight, R H, Redlands	3.30
Lochinvar, R H, E Highland	3.90
Bridal Veil, V C, Haynes S	3.15
Lemonettes, V C, Haynes S	2.70
Belt, R H, E Highland	2.13
Loma, V C, Haynes S	3.60
White Cross, V C, Haynes S	3.00

BOSTON, Monday, Feb. 6.—Fourteen cars sold. Colder. Market doing better on oranges, strong and higher on lemons.

NAVELS—	Avge.
Sierra Vista, A H, Riverside	2.60
Peasant, A H, Riverside	1.90
Lochinvar, R H, E Highland	2.15
Arrowhead, S B, Highland	2.15
Rossmoyne, Imp, S T, Rossmoyne	2.05
Priscilla, S B, Highland	2.10
Golden Bar, S B, Highland	2.20
Jack Rabbit, S B, Highland	1.85
Orchard, Or, National O Co	2.80
Rose, xf, Red O G A	2.20
Mars, xc, E Peycke Co	2.00
Kennilworth, A H, Riverside	2.30
Gold Buckle, R H, E Highland	2.60
Pine Cone, S W, Highland	2.30
Rossmoyne, S T, Rossmoyne	2.05
Quail, O K Ex	2.10
Priscilla, S B, Highland	2.45
John Alden, S B, Highland	2.15
Laurel, Q C, Corona	2.70
Standard, Sd, National O Co	2.30
Bronco, xf, W American F	2.05
Clover, xc, Red O C A	1.80
LEMONS—	
Blue Flag, Q C, Corona	4.45
Pet, S A Ex	4.45

CINCINNATI, Monday, Feb. 6.—Cold, raining. Market steady on oranges. Two cars navels, four Floridas sold. Florida Brights, $1.40@2.10; Russets, $1.35@2.15.

NAVELS—	Avge.
Butterfly, Covina Ex	1.80
Pointer, A C G, Latin S	1.70
Teal, Covina E	1.75

PHILADELPHIA, Monday, Feb. 6.—Seven cars navels and one car lemons sold. Also seventeen cars Floridas, $1.15@3.05, average $1.85. Grapefruit, $1.40@3.30, average $2.40. Tangerines, $1.40@1.65, average $1.60. Market steady.

NAVELS—	Avge.
Canna, S B, Yerkes Spur	2.30
Pointer, A C G, Glendora	2.05
Quality, S T, Nordhoff	1.70
Stag, A C G, Glendora	2.45
Butterfly, Covina Ex	1.90
Golden Flower, f, Red G O	2.00
Cosmos, S E, Yerkes Spur	2.15
Pointer, A C G, Charter Oak	2.15
Campfire, S T, Nordhoff	1.65
Teal, Covina Ex	1.75
Golden Gate, xc, Red G O	1.95
LEMONS—	
Las Fuentes, Crocker Sperry	3.00
Montecito, Crocker Sperry	2.70

TANGERINES, halves—Stag, $1.60.

PITTSBURG, Monday, Feb. 6.—Twelve cars sold. Market steady on oranges and lemons. Cold.

NAVELS—	Avge.
Naralimo, Or, Sparr F Co	2.45
Fuchsia, S A Ex	1.65
Red Shield, A C G, Azusa	1.60
Kennilworth, A C, Riverside	2.15
Violet, D M, Duarte	1.75
Ben Hur, R H, Redlands	1.90
Butterfly, Covina Ex	1.65
Iris, D M, Monrovia	2.50
Jasmine, D M, Monrovia	2.10
Del Oro, ch, Sparr F Co	2.10
Paul Neyron, S A Ex	1.80
Planet, S S, Orange	1.95
Green Crown, A C G, Azusa	1.40
Peasant, A H, Riverside	1.95
Jasmine, D M, Duarte	2.00
Newsboy, R H, Redlands	1.75
Teal, Covina Ex	1.40
LEMONS—	
Parrot, S A Ex	3.55
Circus, xc, Sparr F Co	3.45
Mountain Crest, S A Ex	3.30
Del Oro, ch, Sparr F Co	3.35

CHICAGO, Monday, Feb. 6.—Three cars navels sold. Railroads and streets all blocked. Heavy snow, no business in consequence.

Lemons are firm. Supply light, and they sell fairly. Boxes, California fancy, 300s, $3.75; 360s, $3.50; off sizes, $3.00; extra fancy, $3.75@4.00; extra choice and choice, 25c per box discount.

Oranges—For navels there is a firm market. They are moving very well, and offerings are falling off somewhat. Boxes, navels, California fancy, 96s, $2.50; 126s, $2.50; smaller sizes outside in rather a small way, $2.50@2.75; choice and extra choice, 25c per box less. Cars, orchard run, $2.15@2.25.

The following were sold by the Central Fruit Auction Company:

NAVELS—	Avge.
Golden Gate, xc, Red G O A	2.10
Brownie, fy, Rialto F Co	2.20
Alchemist, xf, Gn, O G A	2.15

QUERIES.

(Continued from Page 182.)

Orange Wine.

Can you give me recipe for making orange wine?—Subscriber, Ramona, San Diego county.

We cannot, and will ask our subscribers who have had experience to send in their formulas.

Borers.

Please tell me how to prevent borers from killing young trees. Would like to have the formula consisting of carbolic acid and other ingredients. —Subscriber, Vacaville.

The best way to prevent borers from getting into trees is to prevent sunburn which gives them opportunity for starting their work. Sunburn may be prevented by tree protectors, newspaper wraps, or any protection against the afternoon sun. When the injury to the trunk has been permitted use wash of one pound of coal tar to five pounds of quicklime, the coal tar being added while the lime is slaking. This should be applied during the month of April. The borers now in the trunks of the trees should be cut out or killed with slender wire. Another application which has been recommended is a good cheap wash consisting of a pound of paraffine, seven pounds of rosin and a half pint of flaxseed oil.

Fertilizing Alfalfa.

I have a small patch of alfalfa for green feed for chickens. Soil is very light and sandy. Will stable manure help it grow or is there a commercial fertilizer that would answer? How can I kill the grass which is infesting it?—Subscriber, Glendora.

Stable manure certainly would be beneficial to your alfalfa. It would carry some weed seed, but apparently you have a good supply of wild grasses infesting your patch already. We know of no better way of eradicating weeds than by plowing deeply and reseeding with alfalfa. Sometimes where Bermuda or other grasses are serious pests it is best to give the land over to clean culture of some other crops for a year or two until the pest is eradicated. Any good complete commercial fertilizer would help alfalfa, but unless the field is fairly free from weeds, it would not pay to apply it. 1000 pounds per acre should be sufficient.

Horsepower of Engine.

How can I figure out the horsepower of my gas engine?—Subscriber, Lincoln.

It is a physical impossibility to determine the horsepower of gas engine other than by "brake" system of actual test. The difference in engines with same diameter of piston head is so great as to make wide variations. We know of one engine which was sold for 15 horsepower. Under actual brake test it showed only 12. A thorough overhauling with installing of new valves on more scientific basis, enabled the engine to develop 23 horsepower under "brake" test.

To describe manner of taking this test with rules for figuring out is too extended for these columns and practically impossible for the novice to manipulate without expert advice. In a word, it consists of a friction belt or lever working on the flywheel of the engine, applying friction just sufficient to prevent any "cutting out." The friction pull on spring scales gives the data for determining the actual horsepower developed in the engine.

No matter if you are hidden in an obscure post, never content yourself with doing your second best, however unimportant the occasion.—General Phil Sherman.

16 CENT SEED SALE

10,000 KERNELS OF Selected FERTILE SEEDS for 16c

1500 Lettuce	1000 Celery
1000 Onion	100 Parsley
1000 Radish	1500 Rutabaga
100 Tomato	1000 Carrot
1500 Turnip	100 Melon

1200 Brilliant Flower Seeds, 50 sorts

Any one of these packages is worth the price we ask for the whole 10,000 kernels to start with. It is merely our way of letting you test our seed—proving to you how mighty good they are.

Send 16 cents in stamps to-day and we will send you this great collection of seeds by return mail. We'll also mail you absolutely free our great catalog for 1911—all postpaid.

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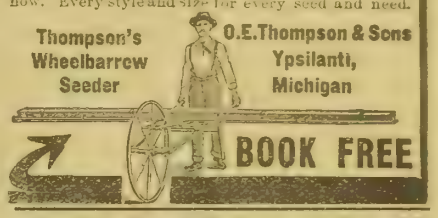

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and most all other insects in the orchard, garden and field are readily killed by spraying with

ACME NICOTINE LIQUID

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One gallon makes 700 gallons of strong spray material.

Pint, $1.10; half gallon, $4.25; gallon, $8.00. SOLD DIRECT TO THE CONSUMER.

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For highly productive resistant trees.

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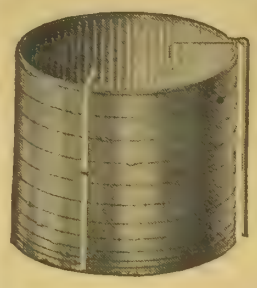

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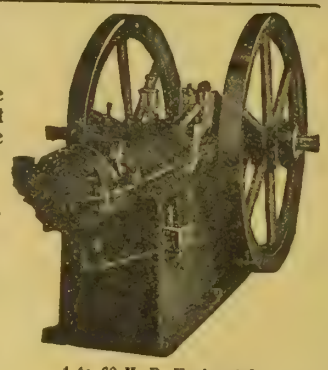

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2, 4, 6, 10 H. P. Vertical

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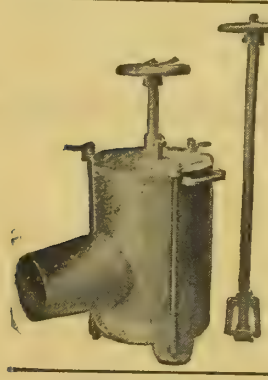

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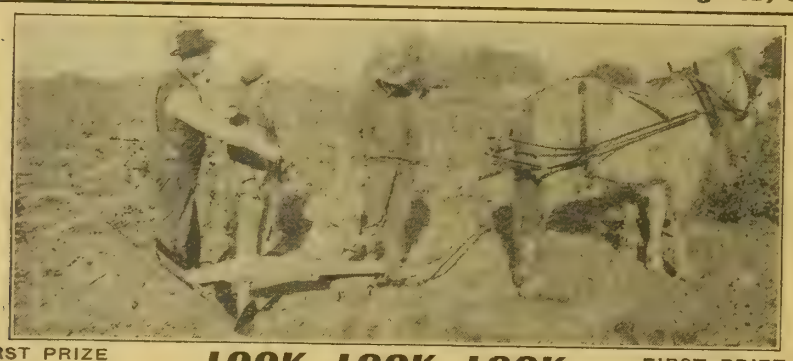

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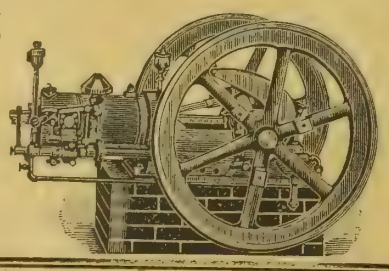

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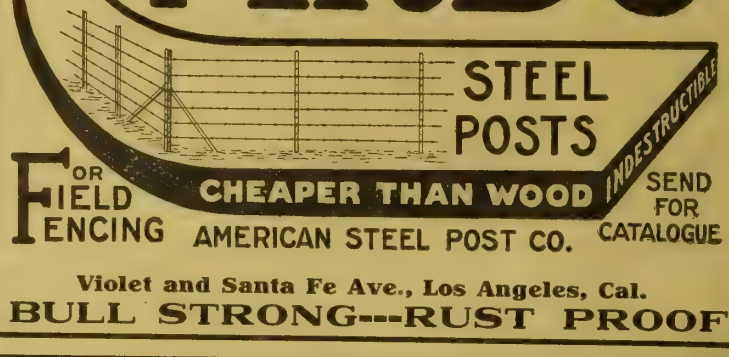

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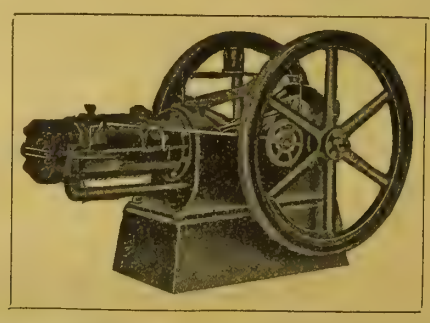

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An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES FEBRUARY 16, 1911 SAN FRANCISCO

EUCALYPTUS MARGINATA IN THE PRIMEVAL FOREST OF AUSTRALIA

THE JARRAH

We regret that Eucalyptus Marginata, commonly known as Jarrah, does not do well in California, for many admirable qualities obtain in it. In Australia it is the peer of all the best of the timbers. We refer readers to article by Mr. Blackburne on page 216 of this issue.

The Jarrah grows in Australia all over the Southwestern division and almost invariably intermixed with red gum (Eucalyptus calophylla) and in some places with blackbutt (Eucalyptus patens) as well, the latter always in the hollows and richer portions of the district. In some parts of the karri (Eucalyptus diversicolor) country Jarrah appears to mix with the former, except in places where the karri takes possession of the ground to the exclusion of all others.

Its resistance to white ants is remarkable and houses built of the wood when thoroughly seasoned, are almost indestructible, and have been known to exist in perfect preservation for nearly 100 years. It gets extremely hard with age and then becomes almost unworkable, even strong nails can not be driven into it and when struck the wood rings like a bell. Altogether. it is a remarkable timber and is highly suitable for outside works. Should any decay or destruction have occurred in the timber after having been years in use, it will always be found that this is confined to the sap-wood.

The weight of the wood when newly cut, is little over 70 pounds per cubic foot, which is reduced to 60 pounds when thoroughly seasoned. It is red in color, polishes well and is comparatively easily worked.

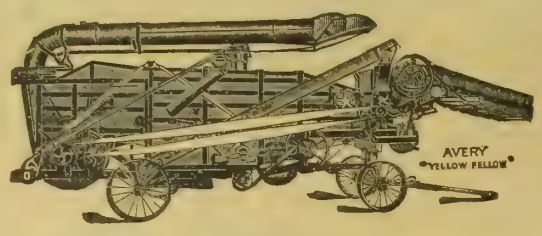
There are instances of railway sleepers which were laid down eighteen years ago and still appear as sound as ever.

Unfortunately, sufficient attention is not always paid to the seasoning of timber and hence disappointment sometimes ensues. When used as flooring boards, it should especially be thoroughly seasoned, otherwise there will be much warping, buckling and an unsatisfactory floor altogether; if seasoned before being laid, however, a better floor could not exist.

The Avery "Yellow Fellow" Grain Separator

It's the Machine to *Make You Money* —Mr. Thresherman

Built to last—not one of the kind that is worn out as soon or before you get it paid for. Better braced frame, heavier shafting—tank steel windstacker, not sheet iron—tool steel teeth, not machine steel—these are samples of the stronger—longer lasting—construction of the Avery.



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It's the Machine to *Save Your Grain* —Mr. Grain Growing Farmer

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A farmer wrote us "Never had such a clean job done before." An elevator owner says, "The Avery 'Yellow Fellow' sends me the cleanest grain that I ever received." Study the construction of an Avery and you will easily see why it's a grain saver and a grain cleaner.

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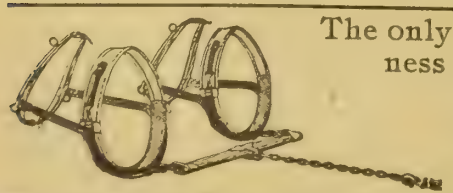

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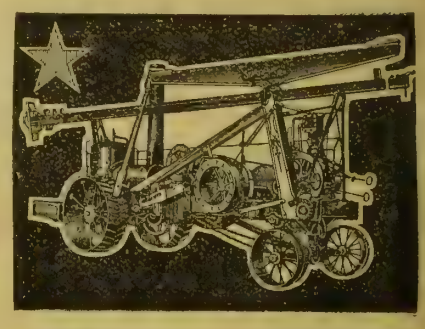

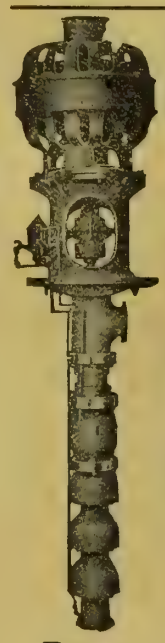

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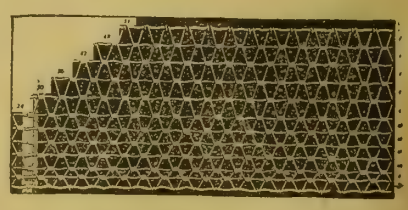

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California Cultivator

Vol. XXXVI. No. 7. LOS ANGELES: THURSDAY, FEBRUARY 16, 1911 One Dollar the Year

New Method of Grafting Fig and Olive Trees

Interesting Article by Mr. George C. Roeding, of Fresno, who Originated the Method. Scions Should be Cut at Once and the Grafting Done Very Soon. Undesirable Orchards are Made More Profitable.

Time for grafting is here. Methods of grafting there are many. Those who have grafted the apple with the cleft in which a couple of scions are wedged on either side have found it extremely simple and almost certain of growth. The fig, the olive, and some other trees require other methods. We have asked Mr. Roeding to give of the latest methods for The Cultivator. He writes the following which he gave in part in The Cultivator once before, but it is now revised and added to by him, and two of the photos and engravings were made from grafted specimens prepared especially for this issue.—Ed.

* * *

The successful production of the Calimyrna fig and its undoubted future as one of the great industries of this state has led many owners of fig orchards to make inquiries as to whether or not their old trees of the ordinary varieties could be grafted over into the new fig. The answer to such questions is that there is no necessity of digging up old trees, as they can be readily worked over into either the Calimyrna or Capri fig, without in either case affecting the quality of the fruit produced.

The writer has been experimenting with the grafting of the fig for a number of years, and has finally adopted a method, which may be said to be entirely new, and is to be recommended over the ordinary wedge or cleft graft, which, to say the least, is crude and unworkmanlike, and can not even with the greatest care be done with any degree of satisfaction, particularly on an old tree with large branches, where the great pressure on the scion often destroys the cambium layer and kills the scion. Another objection to the method of splitting is that the split made by the chisel has a tendency to split wider open when the warm weather sets in, and it takes a long time for the wound to heal over.

Best Size of Stock.

In grafting over orchard trees the branches to be grafted should be cut off to within 18 to 24 inches from the point of divergence from the body of the tree, allowing at least two branches to remain, one of which should be on the southwest if possible, so that the grafts will be shaded from the afternoon sun.

The object in leaving the branches is for the purpose of having an outlet for the sap, for the removal of the entire top of the tree is dangerous. In the coast counties fig trees, and other trees as well, can have their entire tops removed, and still withstand the shock, the scions taking readily, if properly inserted, but in the interior valleys, where the atmosphere is dry and warm, to remove the entire top of a fig tree close to the main body would result in the loss of the tree, a fact which has been fully demonstrated by the writer by actual experience. The two branches which have been allowed to remain can be sawed off entirely the following season, or they can be in turn grafted, if the scions of the year before have not taken well, or if you have not sufficient branches from your preceding season's grafting to form a good head on the tree.

The Scion.

After having sawed off the branches the stumps or subjects to be worked on should have the tops neatly smoothed over with a sharp knife so as to have a clean, smooth surface, particularly along the edge. From two to four scions should be placed in each stock, the number of course being regulated by the size of the stump. Cut out a V-shaped piece of bark; the distance from the top of the stock to the point of the V should be from 1 to 1¼ inch.

In recent years, I have made a decided improvement in fitting the scions to the stock. The scion is placed against the stock. The outline of the scion is cut into the stock so that when the bark is removed, the scion fits closely into the groove made for it. (See Fig. 1.)

Select a scion of the proper size, making a sloping cut along the lower end, as long or somewhat longer than the incision on the stock. The scions should be cut the same as for a whip graft, except that the cut is all on one side and should have a little more bevel and the second cut for the tongue of the whip graft should be omitted. The scions should never be smaller than an ordinary lead pencil; as a rule scions from two-year-old wood, as they have very little pith, with a diameter of 5-16 to ½ inch will be found to give the best results.

The scion should be of such a size that it fits snugly into the opening in the stock, so that the bark on both sides of the scion touches the bark of the stock. After the scions are placed, wrap tightly with five or six-ply cotton twine, so as to hold them in place, and cover the wounds as well as the stub with liquid grafting wax. Also be careful to wax the top of the scion to prevent drying out. Never use wax cloth for wrapping, or if you do, be careful to remove it early in the summer before the warm weather sets in or the bark, when the grafts are set, will be smothered and the grafts will die. After the scions have become well united, which takes from two to three months, the strings can be cut.

The writer prefers this method of grafting to all others and has had no difficulty in making fully 90 per cent of the scions grow, many of them making a growth of 5 to 7 feet in a single season. This method of grafting cannot be practiced until the sap begins to flow, and from the latter part of February to the 1st of April has been found to be the best time. The scions should never be more than 4 inches long.

Figure 1.—Fig stump with scion exposed, showing method of cutting, also opening cut in stump for scion. Two scions set in other stump and tied ready for waxing. At base are fig cuttings showing proper character of grafting wood, about ½ to ⅝ inch in diameter.

Figure 2.—An olive stump showing method lifting bark for inserting scion with scion cut for insertion. Other stump showing three scions set and tied ready for wax. Note twig buds on scions. These should be obtained if possible. Scions ¼ to ⅜ inch in diameter.

Wax.

The grafting wax should be melted in a pot and put on hot, using a small paint brush or a brush made out of short pieces of hay rope tied to a small stick answers the purpose just as well. The best results have been secured by using a wax made of one pound beeswax, three pounds resin and three ounces of raw linseed oil by weight. Place the beeswax and resin in a kettle and cook same until thoroughly dissolved, then add the oil and allow the ingredients to cook slowly for ten or fifteen minutes longer. Remove from the fire and as soon as the wax has cooled some pour a small quantity into a bucket of lukewarm water. Grease the hands and take the congealed mass and knead and pull it until it becomes very tough; wrap in oiled paper and it is ready for use. By preparing the wax beforehand the ingredients are mixed in proper proportions, which is not easy to do when you have a large amount of work to do in the field. This wax is also far superior to wax which has not been pulled.

(Continued on Page 198.)

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THE SCALE PROBLEM.

By G. W. Waterbury, Corona.

That we are breaking even in our warfare with the scale I doubt. In making this assertion I cannot but express my appreciation of the high standard now extant in the desperate efforts of the scale fighters to subdue the microscopic insects that seemingly are not alone bent upon self preservation, but upon actual conquest. That the well-organized system for scale destruction was never upon such a high standard as at the present time we know; that the number of trees to be fumigated and refumigated next year will be larger than ever before we know to be an actuality that cannot be ignored. With financial losses running over half a million dollars annually for Southern California for scale fighting and no end in sight; with the bulk of our orange shipments this year bringing less than $2.50 per box and a magazine publishing anti-tariff write-ups on information furnished by the New York importers, what then will be the outcome? Clearly then, the one hope is to cheapen operating expenses. Without doubt our largest expense is fumigation.

In my trip through the citrus sections of the coast last fall I found in too many cases, more especially in San Diego county, a tendency to let the natural parasites handle the scale problem, unaided by man. This is a failure because the scale was far more willing to work overtime than the parasites. Seemingly the scrutellista spent much time in sleep. I am equally sure the scale never indulged in such foolish pastimes.

The agricultural experiment station of our State University has ever been willing to do what it could in the work of scale eradication and Mr. C. W. Woodworth was working on the question twelve years ago. The national government has likewise been interested and Entomologist R. S. Woglum spent two years investigating the question of fumigation. He gave us a dosage chart, suggested sodium cyanide and said that the scales could be killed "if conditions were right." Seemingly conditions are never right —except for the scale.

That the black scale can be controlled within reasonable bounds we know; that the red can be handled with a considerable degree of success on the orange we also know. But that the red and purple scales on the lemon are more than a match for us I am now led to believe. Before the battle turns in our favor there must be variations in our present system and one of two things must occur: either we must declare embargo districts after fumigating a solid block of groves, or a more powerful, more deadly form of gas must be found that will do the work.

With the embargo district there must be a strict set of rules that will allow no variation. Every box must be fumigated before going into that section, as well as picker's bags and clippers; probably different clothes should be furnished when the men come from infected districts. There is some expense to all this, but it will fade into insignificance compared to that annual toll of 40 cents per tree. As soon as a tree shows fruit with live scale on it, it should be flagged and fumigated. The picking foreman would then become the real inspector in the lemon districts that are gone over every month for the fruit.

Should a more deadly gas be found that will solve the problem, it will win the battle for the orchardists, for the whole fight is over that three to five per cent of live scale that remains uninjured by our present form of cyanide. And the rapidity with which that three to five per cent spreads and compounds itself numerically is little short of marvelous. If the scrutellista or various vedalias or coccophoctonus would work half as lively we could well afford to house them in mansions of gold, with special service of silver plate to serve scales on.

In Corona 1700 acres were fumigated during the past year, according to Deputy Commissioner Tuthill, and probably all of this will have to be gone over during 1911 and another $50,000 taken out of the pockets of the orchardists. In Redlands $100,000 was spent and the scale is as vigorous now as a year or so ago. There are some lemon groves in Corona that have been fumigated twice during the last year and the scale not killed. One grove has had three fumigations for red scale in 15 months and another one is now due. One thrifty grove was fumigated last spring and now shows 300 trees infected badly. In this last case it may be stated that this was partly due to placing too much credence in Woglum's chart and his conversion of potassium to sodium bases for generating gas. It was found without exception that 60 per cent of sodium was not equal to 100 per cent of potassium cyanide and a change was made to 75 per cent, with better results.

H. H. Holmes, once horticultural commissioner of Riverside county, used to state that by thorough work by the fumigating companies, our lemon trees should not be fumigated oftener than once in two years, possibly once in three. Today he is less optimistic, and believes it is now a question of once every year.

Mr. Strong, at one time commissioner of Los Angeles county, was convinced that the red scale could be killed but stated all branches should be up from the ground, all fruit and brush raked from under the trees and climatic conditions just right. During the past twelve months all these conditions have been fulfilled at different times and yet the second inspection some sixty days later showed live scale on the leaves and fruit. The commissioners are no longer sanguine about complete extinction; to hold the scale in check with annual doses of cyanide is their present endeavor.

On my own grove the fumigation was very carefully done last May, when Deputy Commissioner Tuthill, with Mr. Stacy, the local fumigator, carefully stepped and estimated the dosage per tree during the day time and the extreme limit of Woglum's chart was used in the work at night. The work was carefully done and all conditions were favorable at the time. A second inspection sixty days later showed some 18 trees with live scale and now there are enough red scale to warrant another fumigation before May unless I wish to take chances of

the scale getting on the fruit, causing it to grade lower.

The cases I have mentioned were not due to careless fumigation; the work was of the best. There were new tents, plenty of gas was used and the tents were measured by up and down figures and the circumference taken with a tape line, thus eliminating the guess work once far more prevalent. Probably in no infected section of the state is the work of fumigation more thoroughly done than in the lemon district of Corona, for we realize that unless the leaves are kept healthy and full of chlorophyll proper nutrition cannot take place and if our lemons go out spotted there will be lowering of the high standard now maintained. By fumigation, constant fumigation, I admit it can, in the majority of cases, be kept down, but how about that $35 per acre annually and the $1,500,000 annual toll for scale fighting in California? With the constant increase in heavy orange plantings and the New York importers, free use of hack writers to attack the lemon tariff where will the citrus growers be unless operating expenses can be curtailed and chief of such expenses, as I said before, is the annual financial outlay for fighting scale.

ADVERTISING FRUITS.

Answering the complaint that Florida oranges are not the favorites they once were, the Fruitman's Guide says:

Lots of reasons, more or less plausible, have been presented in the way of explanation. The favorite one seems to be the abnormal lateness of the Florida harvest and the abnormal earliness of the California product. We do not recollect, however, running across the theory that the real root of the trouble lies in the consumer and not in the fruit.

Once upon a time, as the fairy stories have it, the country swore by the Florida orange. Its uncomely looks were held as a sure sign of a hidden sweetness. Its very rustiness and roughness betokened its aristocratic lineage and proudly proclaimed that its virtues were far above and beyond mere skin-deep beauty. People wanted oranges to eat, not to admire. They aimed to please their palates, not their eyes.

Times have changed, though, and people with them. The consumer buys by the eye. A large percentage of the fruit you will see on a swell dinner table is there to adorn, not to be eaten. It is a pity, but pity 'tis, 'tis true.

For all that, Florida need not lose hope. It is merely a question of a campaign of education. The public needs to be reintroduced to the unsurpassed excellencies of the Florida product. There is only one way to do this, and that is to advertise. If the different shippers and marketing agencies of Florida, exchange and the independents alike, would sink their differences and join in the common cause, much could be done. An arrangement whereby so many cents per box on every box shipped out of the state should be pulled back to swell an advertising fund, is the suggestion of a broad plan, the details of which could be worked out in plenty of time for next season.

California has done much along this line to her great profit. She has, and righteously so, worked the newspapers to a fare-you-well. The excellencies and beauty of her navel oranges and the advantage of their seedlessness, have been sung from coast to coast in type, leaded and solid, display and pure reading matter, preferred position, three stars, and every device known to topography. She neglects no device in the advertising bag of tricks, and returns are such that the more she advertises the more she wants to.

Florida must get next to the consumer. It must tell him all over again what his fathers knew so well. It must re-educate him to the glories of lusciousness hidden behind that not-over-attractive skin. Teach him the proper way to eat an orange, suggest to him new methods and dishes in which the orange may be employed. Teach him that an orange with seeds has compensations to back up its claims against an orange without seeds. In fact and in short, plug for Florida just as California first, last and all the time plugs for California. In the lump it may be a costly campaign, but the burden divided up among so many shippers will be individually a light one.

There should be no difficulty in doing for the industry what Kimball C. Atwood has done for himself individually in the matter of the Atwood grape fruit. It is merely a question of getting together on a plan that will provide the sinews of war and. when provided, put it in the heads of the right man or men to do the best they can with the funds gotten together.

Just recall for a moment what advertising did for the California prune; what it has done and is doing right now for the Hawaiian pineapple. It will not be so difficult a job as some people think to reawaken the American people to the merits of the Florida orange and recreate the appetite for this delicious fruit—an appetite which during the past few years, seems to have waned most woefully.

But, and this is a great big "but," all the advertising in the world will not carry the story home if at the very outset of the season the public taste is nauseated, disgusted, or set on edge by shipments of immature and acid fruit that ought to be kept at home. Advertise to the public that Florida has an orange that cannot be surpassed, and back up your advertisements by giving them such an orange. —Fruitman's Guide.

MEALY BUG PARASITES.

Commissioner Beers of Santa Barbara county reports:

"The clean citrus fruits being received from local orchards evidence the effective work of the parasites against scale troubles. We are enabled to gradually extend the number of colonies of the parasites against the Mealy bug and are frequently receiving additional material from the state insectary to keep our stock in the local hatching cage thrifty and abundant. We hope to finally secure a mastery over this dreaded pest."

LEMON SIZES.

The sizes of lemons packed for shipment differ from those used in packing the orange for shipment. The sizes are 210, 240, 250, 275, 288, 300, 360 and 420. Occasionally larger and smaller sizes are packed, should the market warrant their shipment. Of the sizes named, the 300 and 360 are recognized by the trade as regular sizes, and all others known as off sizes.

Soils breathe. If left open and well tilled, the breathing is facilitated, and great benefit is secured through aeration and encouragement of beneficial bacteria.

The Orland irrigation project is now ready to irrigate 4000 acres of land.

RHODES DOUBLE CUT PRUNING SHEAR

Pat'd June 2, 1903.

THE only pruner made that cuts from both sides of the limb and does not bruise the bark. Made in all styles and sizes. We pay Express charges on all orders. Write for circular and prices.

Dept. J RHODES MFG. CO., GRAND RAPIDS, MICH.

Trees

Eureka Lemon, Valencia Late, W. Navel and Marsh's Seedless Grape Fruit.

Lemon trees a specialty

A. D. PAXTON

Phone Sunset 1051

Postoffice Orange, Cal.

150,000 2 year old Sweet Stock

Not dugover culls, but splendidly rooted, strictly first class 2 year olds. A bargain stock for those who want the best in this variety. I offer a good size at lowest quotations.

One Year Sweet Stock. One Year Sour Stock.

Navels, Valencias, Lemons

Chas. S. McMillan, 300 South Marengo Ave. Alhambra, Cal.

Citrus Trees Exclusively,

FLORIDA SOUR ORANGE SEED. and Sweet Seedlings For Sale

OTIS E. HYDE, 1314 W. 51st St., LOS ANGELES, CAL

Just Arrived

FLORIDA SOUR ORANGE SEED

Write for quotations.

Superior Flower, Garden, Tree and Palm Seeds.

Eucalyptus seeds a specialty. Pamphlet "Eucalyptus Culture" mailed free.

Roses, Palms, Ornamental Trees and Shrubs.

Fruit Trees and Berry Plants.

Theodore Payne

345 So. Main Street

Los Angeles, Cal.

You Need a

SOIL SAMPLER

—Prof. King introduced this valuable tool before the Los Angeles Citrus Convention. Spring is coming, your soil will need attention. Its condition should be known throughout the orchard. With the Soil Sampler, in a few minutes and a little effort, you can get solid cores of soil to a depth of four feet, enabling you to see condition of each stratum. Don't delay, let me tell you about it. Write Fruit Growers Supply Co., or C. D. FILSTEAD, Mgr., RIVERSIDE, CALIF.

Genuine Florida SOUR ORANGE SEED-BED TREES

Extra fine one year stock, the best to be had; be sure you are getting the genuine article. If you will send your orders in now, we are prepared to fill them, be they large or small; but order early, as the supply is limited.

3,000 fine large two year Valencias, get our prices.

Southland Nurseries, F.H.Disbrow,Prop. Phones, Main, 949. Home,2520. R.D.1.Pasadena,Cal.

SOUR ORANGE SEED

Just received from Florida

Write for price in any quantity.

Send for our catalog.

AGGELER & MUSSER SEED CO

113-115 North Main St.

Los Angeles, Cal.

"Mother, were you ever a little girl?" "Oh, yes, years ago." "Well, where's the little girl that you used to be?"—Twin Journal.

ORANGE TREES

Lemons

Pomelos

Limes

SUPERIOR STOCK, BEST VARIETIES, PRICES RIGHT

Supplied in carload and less than carload lots.

WRITE NOW

Nurseries Located at Exeter, Tulare County Whittier, Los Angeles County.

ROEDING & WOOD NURSERY CO.

EXETER, TULARE COUNTY, CAL.

Citrus Trees

(Exclusively)

Buy now and it pays to buy the best. We offer a complete, clean, vigorous stock which, we think, are as good as can be grown.

Pollard Bros.

Cor. Mission St. and Los Robles Ave.

South Pasadena, Cal.

Use

HYDRATED LIME

Fertilizer

Increases Yield of Alfalfa

and Our Sulphur Mixture, or a dry spray, for Red Spider

Hydrated lime is the ideal diluent and vehicle for the sulphur—and reduces the cost.

$15.00 a ton net in 100 lb. Sacks. Sacks 15c extra.

W. H. TAYLOR 846 Commercial St. Los Angeles, Cal.

or

J. S. SCHIRM 4th. and K Streets, San Diego, Cal.

Orange Trees

First-Class Navel and Valencia one and two years old.

J. S. Killian, El Monte, Cal.

Phones: Sunset, 8x4. Home, Red 31, or

L. C. Rice, Tropico, Cal.

Phone Sunset Glendale, 263

Lime Your Lands

200 Tons--air slacked lime.

H. B. MATTHEWS

733 Merchants Ex. Bldg. San Francisco

Genuine Turkestan Alfalfa seed makes **more and better hay** than the common variety because of its very **small stalk** and astonishingly **thick foliage:**

It reaches its fullest growth with **half the water** required for ordinary Lucerne.

Our stock is a direct importation, Government inspected, and free from weed seed.

At the slight difference in cost this seed should be used by every growerwho can secure it. The supply is limited. Ask for prices. Have you seen our 1911 Catalogue? It's Free.

PLEASE MARK LETTER DEPT. C

Germain SEED & PLANT CO.

Established 1871.

326-328-330 SO. MAIN ST.

LOS ANGELES, CALIFORNIA

Farming Tools

are *money savers.* High quality considered, the lowest price tools made. Last twice the "life" of common tools. Cost nothing for repairs and do better work after years of use than many other tools do when shining new from the Hardware Store.

Every hand farming tool on which you find the Keen Kutter trade mark is covered by a broad gauge guarantee. If a Keen Kutter fork, hoe, rake, scythe, snath, shovel, axe or hay knife, shows an imperfection of any kind, or fails to do the work for which it was intended, easily and fast, you get your money back. The same guarantee covers Keen Kutter shop tools, razors, shears, pocketknives and table cutlery.

"The Recollection of Quality Remains Long After the Price is Forgotten."

Trade Mark Registered. —E. C. SIMMONS.

If not at your dealer's, write us.

Simmons Hardware Company, Inc.,
St. Louis and New York, U. S. A.

FRUIT TREES And GRAPE VINES

All leading varieties of **PEACHES and other FRUIT TREES.** Wine, Table and Raisin **Grape Vines.** All stock TRUE TO NAME. We do not handle Cheap Grown Trees. Our reputation for sending out good stock, true to name, is established. Price List Free. Send a list of wants for quotations. Address

The Fresno Nursery

F. H. WILSON, Prop.
Box 615 Fresno, California.

FRUIT TREES SELLING FAST

But have a splendid assortment yet on hand.

Special offers on Acacia trees and other Ornamentals to reduce stock. Let us send you our Complete Catalog to aid you in making a selection, and let us figure on your requirements.

ARMSTRONG NURSERIES Box 117 **Ontario, Cal.**

Deciduous Bush-Tree Fruits

GRAFTING FIGS AND OLIVES.

(Continued from Page 195.)

Walnuts, pears, olives, in fact, almost any variety of deciduous tree, can be grafted by the method described, with far less work and much better results than with the clumsy and crude cleft graft, and a branch 12 to 14 inches in diameter can be as readily worked over as one 4 inches in diameter.

Olive Grafting.

In olive grafting, the method followed is to make an incision from the top of the stump down, just as would be done in setting a bud, and slip the scion into this incision. In following this method the wedge should extend further up on the scion, and should not be as abrupt as the cut on the scions for either figs or walnut grafting.

The best time to cut walnut, fig and olive scions is in February.

In selecting olive scions, as far as possible try and have the little twig buds on each scion, as these very rarely fail to start out, while the ordinary buds do. When this occurs the scion will die altogether in very hot climates or they will remain dormant until the following spring before starting. (See Fig. 2.)

Walnut and fig scions should never be less than three-eights of an inch in diameter, and always avoid very pithy wood. Olive scions should be not less than one-quarter inch in diameter.

The accompanying illustrations tend to make the descriptions very clear. The V-shaped or perhaps more correctly a U-shaped cut in the bark of the fig stock carried down to the alburnum or sap wood and the scion with its proper oblique cut, even and smooth, so that it plants itself evenly on the bared sap wood and is held firmly against it by the wrapping of cotton twine.

CALIFORNIA CHERRIES.

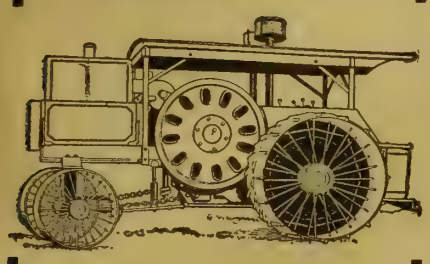
By J. W. Mills.

Cherries are one of the most profitable crops grown in the state when proper selection of soil and climate is made. Like other fruits, that grown in early sections brings the highest prices, first shipments from the Vacaville, Marysville and Newcastle sections often approach the $3,000 a car mark. About the time the cherry crop is cleaned up in these early sections, the main crop of the state is ready for shipment. This comes from counties bordering San Francisco Bay. The home market is soon stocked, when carload lots are daily sent to market in cherryless belts and the Eastern states. Those sections producing early cherries usually pay less for the fruit than their own brought.

WHITE ADRIATIC GRAFTED WITH CALIMYRNA FIG SCION

Some of the cherry growers in the bay section have what can rightfully be called gilt-edged fruit farms. Orange growers of the south, even those having the choicest groves, have a knotty problem compared with them. The orange grower has his scale insects to fight, monthly irrigations to attend to, and not the least perplexing task is keeping up proper fertility of the soil. Frost problems are always on the minds of the great majority of orange growers. One crop of oranges is scarcely off, in the most favorable cases, before another is coming on, and in many cases two crops are on the trees at the same time. Eternal vigilance is the price of an orange crop, and, of course, it is worth it; but, comparing it with a cherry crop, note the difference. Within four months from the time of blooming, the entire crop is matured and a thing of the past. Irrigation is seldom practiced, and pruning and trimming up the orchard for the coming season can be done immediately after harvest,

Distillate Traction Engine



Double Cylinder 50 H.P.

For Plowing or Hauling will do the work of Twenty-Five Horses

For Pumping or Other Power 50 H. P. Available from Pulley on Engine

Two Speeds Forward, One Back, all on Direct Drive

Easy as an Automobile to Handle. Only Two Levers, One to Drive, One to Control Power Steering Gear.

No Tank Wagon Required.

75% Less in Cost Lighter in Weight Than A Steam Traction Engine

Come in and See a Demonstration. Send for Circulars

Smith-Booth-Usher Co

212-214 So. Los Angeles St.
Los Angeles, Cal.

For Sale
Livermore Valley Ranch

210 acres, beautifully situated in the Valley of Mocho Creek, four miles from Livermore, Alameda County.

30 acres now in Almonds, producing last year nine tons, and capable of much greater production. Crop has never been lost on account of frost.

Improvements: Good house of five rooms, stone milk house, windmill with steel tower, two water tanks, large barn, cow barn, granary, tool shed containing almond huller, gasoline engine, lug boxes, trays, etc., and a number of farming implements.

House is beautifully situated in grove of oak trees, on an elevation commanding a fine view of valley and mountains.

IDEAL RANCH FOR POULTRY RAISING.

School in one corner of the tract.
Bargain. Price $8,000.00. Terms.
Address at once,

F. D. Burr Co.
968 Broadway, Oakland, Cal.

Apple Trees

12000 Winesap, Rome Beauty, Jonathan etc.
Cherries Calimyrna Figs
Plums
Satsuma, Hale, Kelsey; etc.

Luther Burbank's New "DUARTE"
Two weeks earlier than Satsuma.

PIONEER NURSERY CO.
Dept. C., *Monrovia, Cal.*

San Jose Gum
(var. Eucalyptus Gillespiei)

The best for commercial planting, producing timber 3 to 5 years sooner than common Blue and Red Gum. Timber 100% better. Send for description or call and see our 200,000 feet of fine lumber from parent trees.

$7.50 to $15 per 1000–the latter balled by our "straight-root" process.

T. J. Gillespie, & G. W. Wallace
146 East St., San Jose, Cal

The Turlock Irrigation District's high line canal work is being pushed, one contractor arriving last week with 80 mules.

leaving the balance of the year, till plowing time, for the grower to devote to other things. Those growers who devote their land exclusively to cherries have from June till late in the winter to follow other occupations. We know a grower who has a cherry orchard big enough to insure a handsome income, and when harvest time is past he locks up his house, and he and his family travel for several months.

This is what would truly be called gentleman farming, but where one man can do it there are several thousand who cannot. Besides, cherry growing is not all velvet, for it entails many difficulties some seasons, and when harvest time comes the cherry grower has to get a hustle on that a hundred years of orange growing would never suggest. Oranges will wait a few days, or weeks, or months, after they are ripe, but time, tide and cherries wait for no man. A moderate rain, followed by cool weather, will crack almost the entire crop. San Jose scale is a pest that requires watching, but compared with any of the citrus scales it is a very simple problem.

There have been many cherry failures, due almost invariably to unwise selection of soil or location. Cherries require a deep, rich, well drained but moist soil, but if it is subject to spring overflows there is danger of losing the trees. We have in mind a small orchard of Black Tartarians that was planted on deep black loam of the Feather river bottom, and in the third year they were perhaps the most magnificent trees of their age to be found anywhere in the state. When in bloom, at four years of age, high water from the spring rains killed every tree.

There are many nooks and corners along mountain streams in all parts of the state where cherries grow to perfection. Some of the finest cherries I have ever seen came from the San Bernardino mountains, above Mentone.

SURGERY FOR OLD APPLE TREES.

Do you have old apple trees on the place, with badly decayed trunks, and main branches which are starting to rot? If so, economy dictates that you do one of two things. If the trees are of a desirable variety and have been bearing well for you, you should do a little tree surgery. Otherwise the trees had better be cut down and the ground be put into some paying crop. Tree surgery is quite simple. All that is needed is several good, sharp chisels of various sizes and shapes, Portland cement, crushed rock, and corrosive sublimate solution (one part of corrosive sublimate in 1000 parts of water). The first thing to be done is to thoroughly cut out with the chisels all decayed wood. This done, the wound is washed out carefully with the corrosive sublimate solution. Then the hole is filled up with cement; cement alone if the hole is a small one, or cement and rock for economy's sake if the hole is a large one. A good, workmanlike job of putting in the cement should be done, and the outer surface of the cement should come out flush with the healthy wood. This simple treatment will stop decay and often preserve almost indefinitely valuable apple trees. Of course more treatment than this is necessary to completely rejuvenate an old orchard, but this, together with pruning, manuring and possibly tillage, will give back to many an old orchard its lost youth.—Wallace's Farmer.

SPRAY FOR WALNUT BLIGHT.

We note in Horticultural Commissioner Beers' report that Santa Barbara county is to prove out the Wylie walnut blight patent. Prof. Beers says:

"A definite movement is being made towards systematic spraying for the walnut blight, to demonstrate whether or not the solution discovered and patented by Mr. Wylie will prove as effective in other portions of the walnut sections as in his own orchard. Some extensive tracts will be sprayed, while very many have signified their purpose to try the same on small parts of their trees. The only hope seems to be that it prove efficacious."

We hope the hope will be realized, but many walnut growers declare only disappointment will result. It is most wise for the county to prove out the treatment before the growers make extensive trials.

WHITE ADRIATIC WITH SUMMER GROWTH OF GRAFTS

POTASH PRODUCES PEACHES.

Peach trees like potash. A tree growing in the rear of the kitchen got the soap-suds for many years. It made twice the growth of the peach trees in the orchard, although these grew in naturally better soil and had good cultivation and fertilization. The soap-sud tree never had an "off peach year."—Guy E. Mitchell.

It is useless to try to grow a good crop of apples unless plans are made to harvest the crop quickly and economically—and just here is where some fruit growers have lost a great deal of money. Their business methods were faulty, and they could not care for a crop after it was grown. If buyers could be secured to take the crop on the trees, all well and good; if not, then great loss followed.

Hanford, Kings county, reports the most extensive plantings of apricots in some years. Tiltons and Royals are the favorites.

True to Name TREES

Hurry Up Send Us Your Orders All Varieties.

We have the largest stock on the Coast of FIGS, APPLES, PEACHES, PEARS, PRUNES, POMEGRANATES, CHERRIES, PERSIMMONS, PLUMS, OLIVES, LEMONS, ORANGES, POMELOS, WALNUTS, ALMONDS, GRAPEVINES, ETC., as well as small fruits and

BURBANK'S NEW CREATIONS

Including the FORMOSA PLUM, the STANDARD PRUNE and the PATAGONIA STRAWBERRY.

Wonderful Pomegranates.

If you have strong alkali or very damp ground, there is nothing that will bring you such handsome returns as this most showy fruit. Outwardly with the coloring of the Baldwin Apple, only three times as large, and so attractive that it is impossible to resist the temptation of sipping at the pulp which is of the richest garnet color, with juice of an exquisite flavor and as dark as port wine.

This fruit sells readily in the eastern markets at from $2.00 to $4.00 for a twenty-pound box.

WE HAVE A FINE STOCK OF WELL-GROWN, STURDY BUSHES READY FOR IMMEDIATE SHIPMENT.

Jerusalem Artichokes

THE GREATEST HOG FEED IN EXISTENCE.

Planted in precisely the same manner as potatoes and require little or no care. Yield heavily and make excellent feed for stock during the winter months when feed is scarce and high priced. Prices furnished for small or large quantities.

FREE

OUR ANNUAL ILLUSTRATED PRICE CATALOGUE

which lists and describes over 2000 varieties of trees and plants. SEND FOR IT TODAY.

PAID-UP CAPITAL $ 200.00000
RANCHER CREEK NURSERIES
INC
Geo. C. Roeding Pres. & Mgr.
Box 12 Fresno, California, U.S.A.

KIRKMAN NURSERIES

TREES THAT GROW AND BEAR TRUE TO NAME

We are wholesale growers of deciduous and citrus fruit trees, grape vines and eucalyptus trees.

Our stock this season includes 650,000 deciduous fruit trees alone. A large lot of these are on Eastern seedling root, which has proven to be almost proof against root knot.

Get the best stock available and at the most reasonable cost from a man who selects the buds and scions of the best strains.

Deliveries made from our sales yards at Fresno, Madera, Merced, Turlock, Banning and Chico.

Write for quotations on your order. Address Main Office, Fresno, Calif.

MORSE'S GARDEN GUIDE *for* 1911

Our GARDEN GUIDE for 1911

Is Now Ready

This is the finest catalogue we have yet issued. **It is free to you.** As our edition is limited, we will only promise delivery to early requests. Send yours in to-day.

C. C. MORSE & CO.
The oldest and largest Seed House west of Chicago
115 Market St., San Francisco, Cal.

Wholesale 360 Acres Retail

Smyrna Park Nurseries

Ceres, California

A complete line of Nursery Stock. Special prices on Peach, Plum and Apricots. It will pay you to let us figure with you before placing your order for Spring planting. All stock guaranteed true to name.

Smyrna Park Nurseries

Campin & Moffet, Prop's.

High Grade Fertilizer

For Orchards, Vineyards. Gardens, Lawns.

GUARANTEED ANALYSIS shows a fine compound of sheep manure and commercial plant foods. Write for free booklet "A Recipe for Making Gold." It gives details and instructions for using.

FANCHER CREEK NURSERIES, Fresno, Cal.

GEO. C. ROEDING, Pres. and Mgr.

Running Water on the Farm Turn a faucet in kitchen or barn. Pump without expense with an automatic

RIFE RAM

Cheapest and most efficient water supply for country place, irrigation, farms, etc. Satisfaction guaranteed. Booklet, plans, estimates free.

Rife Engine Co. 2491 Trinity Bldg., N.Y.

Tilton Apricot

And its introducer has it for sale, along with Early Royal and Routier Peach Apricots, and the best varieties of Freestone and Cling Peaches. J. W. Bairstow, Hanford, Cal.

Garden and Field Crops

SWEET POTATO CULTURE.

By R. H. Forbes, University of Arizona

Sweet potatoes and yams, being of tropical origin, are favored by a long, hot growing season.

Growing Slips for Planting.

Sweet potatoes are best propagated by means of slips or sprouts started in hotbeds or coldframes before danger of frost is over. In Southern Arizona we have found fire hotbeds most satisfactory, temperature in them being under better control than in the case of manure or coldframes. A very good sweet potato hotbed at little cost may be constructed as follows: A frame of rough boards seven feet wide, twenty feet long and fourteen inches deep is laid down over two flues made by digging two trenches one foot deep and about two feet wide, lengthwise of the bed. These trenches are covered with plank or iron roofing, and equipped with a fire pit at one end and short smokestack at the other.

Four inches of soil is filled into this bed and sweet potatoes placed upon it in a layer which is then covered with two or three inches more of good soil. Large potatoes may be split and laid flat side down. The whole bed is then covered with muslin, operating on a roller by which to cover and uncover the bed. Thus prepared, the bed may easily be kept at a temperature of 60 to 70 degrees F. by smouldering mesquite fires in the fire boxes. The potatoes, kept moist at this temperature, sprout promptly and will be ready to transplant in about six weeks. A bed of the size mentioned will receive five to seven bushels of seed roots which will make slips enough to plant an acre or more of potatoes. In Southern Arizona the seed potatoes should be bedded about February first in order to have slips ready for planting in March, when danger from frost is over.

The Soil and Its Preparation.

Light, sandy soils produce smooth potatoes; while heavy soils produce crooked, knotty tubers by reason of the physical resistance to developing roots offered by such soils.

Sweet potatoes are best grown in ridges about four feet apart from center to center, with irrigating furrows between. The field is first irrigated. At four foot intervals double furrows are then broken out, right and left, and a layer of manure placed in the bottom. The fertilized furrows are then plowed in, and ridges thrown up over them with the plow, leaving dead furrows for irrigating between. The rough ridges may finally be smoothed by lightly harrowing or planking them lengthwise; but they should be left high in order that the potatoes may have an abundance of loose soil in which to develop.

Transplanting.

Along the fertilized ridges thus prepared, slips from the hotbed are then firmly pressed into the soil at intervals of about one and a half feet, using a little water to insure success in transplanting. Only well-rooted slips should be used. An immediate irrigation in the furrows between ridges will then favor a high percentage of growing plants. Some varieties, as White Vineless, give a high percentage of loss in transplanting. It is therefore well, when possible, to plant late in the day or shelter from the sun by such covering as may be available.

Irrigation and Cultivation.

Frequent irrigations (two or three times a month at Yuma, Arizona, from April to September) are essential to a good yield of sweet potatoes, although once well established, they will withstand considerable drought. Until the vines prevent, the furrows should be cultivated after each irrigation to keep down weeds.

Varieties.

Under Southwestern conditions different varieties vary widely in quantity and productiveness. White Vineless, Yellow Jersey, Red Jersey, Large White, Mammoth Red and Georgia Yam have all been tried in the Yuma garden. The White Vineless is a good market potato, sweet and juicy, but very uncertain in transplanting, a large number of missed hills always occurring. As its name implies, this variety makes but a limited growth of runners. The Yellow Jersey transplants and yields well, producing a desirable crop of smooth, yellow tubers. The Red Jersey thus far produces poorly; while the Mammoth Red is of inferior quality. The Large White and the Georgia Yam are juicy and sweet, and produce heavily. Following are the results of a test of varieties made at Yuma in 1910. The yields are calculated to perfect stands of plants in the field: Red Jersey—8,090 pounds per acre; dry and sweet when baked. Yellow Jersey—24,830 pounds per acre; dry and sweet when baked. Mammoth Red—34,170 pounds per acre; moist and sweet when baked. Large White—43,290 pounds per acre; moist and very sweet when baked. White Vineless—25,000 pounds per acre (estimated); moist and very sweet when baked. Georgia Yam—53,310 pounds per acre; moist and very sweet when baked.

Taking yield, quality and hardiness into consideration, Yellow Jersey and Georgia Yam are probably the best of these six kinds. In this connection it is well to remember that Southern people usually choose sweet, juicy varieties, such as Georgia Yam, while Northerners prefer small, dry varieties, of which Yellow Jersey is one.

Harvesting and Marketing.

Sweet potatoes are often dug early in the season, on account of high prices; but are not then so sweet as later, when mature. The yield increases steadily until frost, at which time it is customary to cut the vines, in the belief that otherwise the quality will deteriorate.

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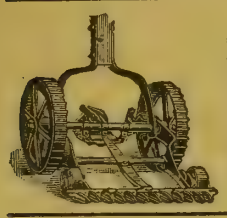

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THE CARNATION.

An excerpt of a paper read by W. T. Bell of Franklin, Pa., before the American Carnation Society.

Early History of the Carnation.

The Carnation, or, to express the name in strictly botanical terms, Dianthus caryophyllus, is, according to London, a native of southern Europe, and has been found growing naturally, in England. The generic name, Dianthus, is compounded of two Greek words, meaning the flower of the gods, which has led certain writers to call it the Divine Flower, a name that might well be exchanged for one more simple and comprehensible. The specific name, carophyllus, has reference to the clove-like fragrance of the flowers; while the common name, carnation, has for its base the Latin word "carnis," meaning flesh, in allusion to the pink or flesh color of the flowers in their wild state.

There are many different species in the genus Dianthus, including the familiar Sweet William; but the one that most nearly resembles the carnation in apearance is the pink, with its several varieties.

Where it grows naturally, the carnation has single flowers, about one inch in diameter, having but five petals; but variation, selection, and cultivation have so changed its character that flowers four inches in diameter are now produced, having a very great number of petals.

The ordinary garden carnation is a hardy perennial that blooms but once a year; the florist's carnation of today is undoubtedly the result of changes that have taken place in its habits, through selecting and cultivating the most promising plants produced by natural variation.

The development and improvement of the carnation have taken place within a comparatively recent time, both as regards the size, color and quality of its flowers and the number of desirable varieties. Thirty or forty years since, the florist was confined mainly to such kinds as Edwardsii, DeGrauw, La Purite, Miss Jolliff and Astoria.

Buttercup, one of the best of the earlier yellows, although like most of the later kinds of that color, decidedly bizarre, came later, and was followed by Grace Wilder, Albertini, Mrs. Bradt, and a host of other slowly improving kinds, until the list of aspirants for a place on the carnation stage reached well up into the hundreds.

Daybreak, originated and disseminated by Simmons of Geneva, Ohio, was one of the best and most profitable carnations of its day, which is now over, and was probably one of the progenitors of the fine variety Enchantress and other kinds having the Daybreak shade of pink. William Scott was another easily grown and useful sort, but it, too, is now eclipsed.

While the carnation is not a native of this continent, certain writers speak of the varieties now in cultivation here, collectively, as the American carnation; but a better term would be the American varieties of carnations, as they nearly all originated here.

At the Royal Show, held at Newcastle-on-Tyne, England, in 1908, and practically open to all exhibitors, many vases of British carnations were shown, having, in the main, stiff stems, and large flowers; but the flowers were nearly all of coarse texture, and the most of them had split calyces. Decidedly the finest carnations in the great show were those of American origin.

ORNAMENTAL SHRUBS AND TREES.

A subscriber wishes to know what trees to plant for ornamental purposes on his ranch that will bloom for sometime, as does the oleander. So many shrubs are in bloom for a short time and then are done bearing for another year. He also wishes to know what varieties are suitable to the district about Lindsay, Tulare county, varieties that will stand some frost and the heat of summer, and that will not require much irrigation; also the most ornamental varieties of acacias and eucalyptus. We give a partial list in the following:

Eucalyptus.

Probably the most ornamental eucalyptus is the Ficifolia with its great clusters of crimson flowers, but we question as to its doing well in the San Joaquin valley.

Amygdalina var. angustifolia is a very ornamental variety, rather dwarf in habit, not exceeding fifty feet in height in old age. It has very narrow leaves which are ornamental.

Eucalyptus cornuta is a more rapid grower and forms a much larger tree. Its timber is also valuable.

Polyanthema, Australian beach, produces a most valuable timber and a profusion of flowers which are of great value to beekeepers. This is the largest mentioned, acquiring a height of 150 feet.

Acacias.

Acacia floribunda is perhaps one of the best of the acacias for the conditions given. It blooms for a long time and the flowers are sweetly perfumed. It is not a large growing tree.

Cassia artemisia is a blue foliaged shrub, excellent for hedge or grouping.

Other trees which will prove fairly well adapted to the conditions named are:

Eugenia myrtifolia, Australian bush cherry, is a fair sized tree with beautiful shiny green foliage and is very graceful in habit of growth.

Of the pittosporums there are fifteen different varieties growing in California, all useful as ornamental shrubs; one or two varieties grow to large trees. All are evergreen.

Arizona ash is one of the very best deciduous trees grown on the Coast. It makes a rapid and systematic growth, is erect in habit, and is so hardy that it is recommended for hillside forest covering, standing the hottest and driest of desert climates. It has been found valuable as a timber tree.

Lonicera tataricia, or tree honeysuckle, is a fine shrub.

Swansonia grayana, the Darling river pea, is a most desirable everblooming plant. Its flowers are rose-color and produced in sprays of from twelve to twenty flowers each, the individual blooms resembling the sweet pea. The leaves are small and acacia-like. A similar plant is the Swansonia galegifolia alba, excepting that its flowers are pure white.

Hypericum moserianum has long, slender, much-branched stems, leaved to the base, all drooping toward the ends, produces freely flowers of large size measuring two or more inches in diameter, in color a rich golden yellow and rendered more effective by the yellow stamens and crimson anthers. These plants bloom continuously. Another hypericum with single yellow flowers is the yellow patulum, or St. John's wort. This does exceptionally well in dry heat and will stand a minimum of irrigation.

Plumbago capensis may be trained as a bush or does fairly well as a climber. Flowers are light sky-blue, verbena shaped, and produced during the entire summer. Stands drouth or water and the brightest of sunshine.

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Entomology and Bees

BEE DISEASES.

The honey bee annually produces a crop of honey valued at least at $20,000,000, and there are vast opportunities for increasing this output. The most serious handicap to bee keeping in the United States is the fact that there are contagious diseases which attack the brood of the honey bee. There are now recognized two such diseases, known as American foul brood and European foul brood. From data recently obtained by the United States department of agriculture, it is known that American foul brood exists in 282 counties in 37 states, and European foul brood in 160 counties in 24 states, and it is estimated conservatively that these diseases are causing a loss to the bee keepers of the United States of at least $1,000,000 annually. This estimate is based on the probable value of the colonies which die, and the approximate loss of crop due to the weakened condition of diseased colonies. The states in which the diseases are most prevalent are California, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Texas and Wisconsin, and it is unfortunate that these are the states in which honey production is most profitable, making the future outlook of the bee keeping industry so much the worse unless active measures are taken to control the diseases. Furthermore the distribution of these diseases is by no means fully known, and they are constantly spreading.

The cause of American foul brood has been found by the department to be a specific bacterium, and enough is known of the cause and nature of European foul brood, which is also a bacterial disease, to make it possible to issue reliable recommendations concerning treatment for both diseases. Both attack the developing brood, and as the adult bees die from old age or other causes, the colony becomes depleted since there are not enough young bees emerging to keep up the numbers. When the colony becomes weak, bees from other colonies enter to rob the honey and the infection is spread.

Both of these diseases can be controlled with comparative ease by the progressive bee keeper, but the chief difficulty encountered in combating these diseases is the fact that the majority of bee keepers are unaware that any such diseases exist; they therefore often attribute their losses to other causes, and nothing is done to prevent the spread of the infection. It is therefore necessary in most cases to point out the existence and nature of the diseases, as well as to spread information concerning the best methods of treatment. Several states have passed laws providing for the inspection of apiaries for disease, and the bee keepers in other states are asking for the same protection, so that careless or ignorant bee keepers can be prevented from endangering their neighbor's bees. This inspection is a benefit in the spread of information concerning disease, in so far as the inspectors can cover the territory. The department of agriculture is helping in this work by sending out publications to the bee keepers in infected regions, by examining samples of brood suspected of disease, and by sending out information concerning the presence of disease, so that bee keepers will be informed that their apiaries are in danger. The co-operation of agricultural colleges, state bee keepers associations, and other similar agencies is urged.

In view of the fact that these diseases are so widespread, every person interested in bee keeping should find out as soon as possible how to recognize and treat these maladies, and be on the lookout for them. A publication containing a discussion of the nature of these diseases and their treatment will be sent on request to the department of agriculture.

WATER.

Bees need more water when feeding brood on old honey than on fresh nectar, and thin food, if not unreasonably thin, will induce more rapid breeding and require less trips for water. The water hunting is responsible for more spring losses than any other item, unless it be actual want of food. As the colony grows and becomes more populous, the queen will enlarge her circle, and more combs will have to be added to the room of each weak colony. If things are carefully done and a vigilant eye kept over the hives, this method is by far the most successful. The populous hives themselves may be made much more serviceable to the apiarist with a little timely feeding.

Some beekeepers may have occasionally noticed in the spring a colony or two in the apiary running over with bees, and fairly roaring with activity while the others are only slowly progressing. A close watch would have shown that these two or three colonies have had a little extra feed in the shape of stores from deceased colonies, whose condition had not been perceived in time to prevent the strong ones from robbing the little honey remaining in their combs. If such accidental feeding is productive of so wonderful results, what may not be achieved by judicious provision? After the hive is filled with brood and bees put on the sections, and if any honey is gathered it must be put in the boxes. Each section should have a small piece of comb attached to the top of it for a "starter," or be filled partly or fully with comb foundation of the thinnest make, to entice the bees to work more rapidly in them; while the center tier of sections should, if possible, be full of comb left over from the season previous. But there is another thing which plays an important part in this matter, and that is a thorough knowledge of the location we are in. In nearly all localities where bees can be kept there are certain plants which give a yield of nectar at a certain time of year, while aside from this there is a little more honey contained by the bees than is needed to supply their daily wants.—Coleman's Rural.

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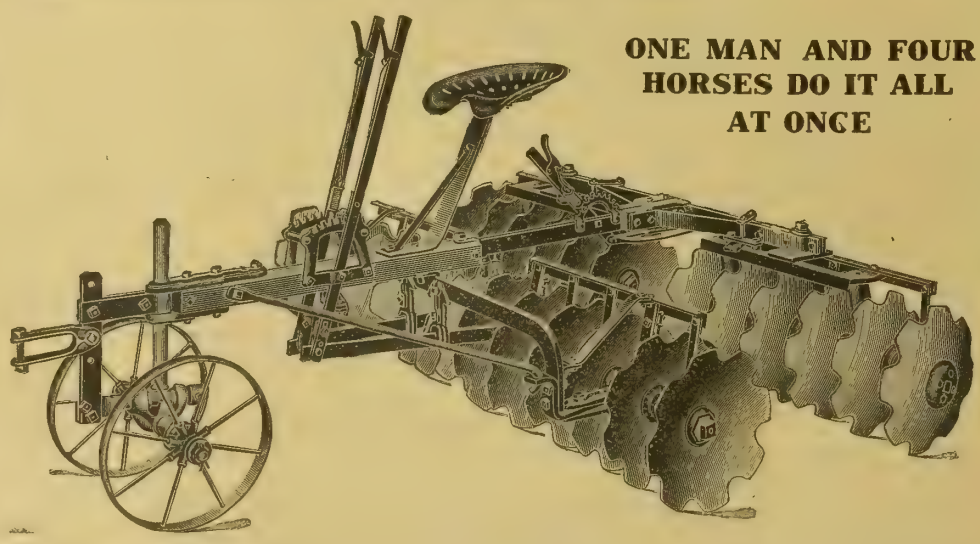

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CHEESE MAKING.

By M. E. Sherman.

[Owing to inquiries regarding home cheese making and a request to reprint Mrs. Sherman's articles which appeared some three years since, we give below the first; and next week will follow with another.—Ed.]

The use of cheese should be encouraged as meat is steadily advancing in price and cheese makes a good substitute for it. There is not a crumb of waste in using cheese. The broken bits are like pieces of stale bread, something that is valuable to make little appetizing additions to the family table. It is the use of these little touches that distinguish the home cooking from the hotel table. The loving little pats that are added to the food, because father, or mother or Johnny or Susie likes it. Added to macaroni or vermicelli seems to be about all the ways the average cook knows about using cheese. Try using a tablespoonful of crumbs of cheese in the ordinary flour to thicken milk dressing and put this over boiled cabbage in the pot ten minutes before serving. It makes the cabbage come closer to its cousin, the more expensive cauliflower in taste. Use the same sauce with stewed celery. In this little recipe there is a world of improvement over the ordinary white sauce.

Suggestions.

Again, add a little cheese to the celery and apple salad dressed with mayonnaise. Put the little bits of cheese on plain soda crackers with a dash of cayenne pepper and toast brown in the oven to serve with the after dinner coffee. Cheese omelet, cheese with scrambled eggs; scalloped white potatoes with the cheese white sauce are desirable acquisitions to the table. Cheese adds a tempting dainty blend to other articles used. A suspicion of fine flavor rather than actual knowledge of the contents of the dish should be the result of this blending.

Home Cheese Making.

Now that the cool weather is here there is no reason why the farmer's wife cannot from time to time make a small cheese and have it always at hand to use. It would be too bad if a careful woman cannot make as good cheese as the usual offering of California cheese at the local markets in country towns. Eastern cheese, or Swiss at a high price is usually not used by the farmer at all. If the first homemade cheese does not come out perfect in flavor for eating plain, then it can be used in cooking to advantage. The home cheese maker is more apt to fail in care in the curing than in the making.

Utensils.

These are cheap and few, compared to those used in making butter. A large, new granite dish pan can be used for a vat. Either a new wire toaster or a Christy bread knife for a cutting knife. If neither are available then use an ordinary silver table knife. Steel knives are undesirable to use, even though they be well scoured; there hangs about them a fishy, steely flavor that is not to be removed. Have a couple of tin hoops made by the tinsmith, or if you care to expend more money, the Guoda cheese hoops may be purchased in small sizes. Have the hoops ten inches across and six inches deep. Have two tin followers made that will just pass inside the hoops; have in these followers eight or ten small holes to allow the whey to escape from the cheese. A good dairy thermometer that can be put into the milk completes the outfit. Get some good cheese rennet tablets, Hansen or any other make, only do not get junket tablets, as they are not strong enough to make cheese quickly, some squares of cheese cloth; some long strips six inches wide for bandages and some ten-inch circles for tops and ends of the cheeses.

Milk.

If there is enough milk, say twenty-five gallons at a milking, use the morning's milk as soon as strained and aired. The airing is done by pouring from one pail held high to another, in a place where the air is cool and sweet. If there is not enough milk from one milking then use the night's and morning's milk. Strain the milk at night through six thicknesses of cheese cloth into a granite pan. Put the pan in a cold place covered with a piece of cheese cloth. Dust is the great enemy in California. It is everywhere; to avoid it in this milk will require care. I put the pan in a room apart and turn the key of the door so that no one walks over the floor to stir up the dust. Walking around in a clean room raises dust that may be imperceptible, yet is damaging to milk used for cheese.

Next Morning.

The next morning when the morning's milk comes in, strain it in the same manner and add it at once to the milk in the pan. Before adding the fresh milk, stir down the cream and taste the milk, to be sure it is absolutely sweet. If it should have the least suspicion of acidity do not use it for making this form of cheese, but put it into cottage cheese, or smearcase. Later, I will tell you how that is made, so if you fail to hold the milk sweet the first time there will not be any waste, only a different product from that intended. If the night's milk is sweet, then add the morning's milk and bring the pan into the kitchen. Add the coloring matter, a teaspoonful to every twenty gallons of milk, will make it a light yellow, while a teaspoonful to every fifteen gallons of milk makes the cheese a deep orange. Usually the common Eastern cheese we buy is about half way between these two amounts in color.

Cooking.

Put an asbestos mat on the stove and on it the pan of milk. Stir gently from time to time until the thermometer shows a temperature of ninety degrees; not a bit above this nor below eighty-six. Ninety is to be preferred. Stand the pan on the kitchen table and add the rennet. The rennet tablets are dissolved in a cup of cold water. The small rennet tablets are used, one for every five gallons of milk. The large-sized tablets are one to every twenty-five gal-

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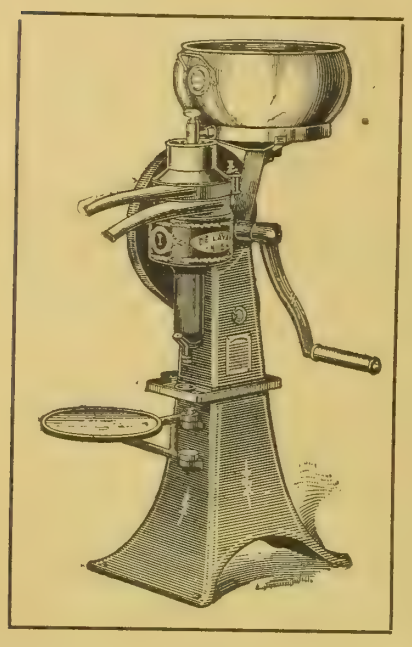

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lons of milk. Take the thermometer and test the milk. If it is between eighty-six and ninety put in the rennet. If it is not, make it right before adding the rennet. For this is a case where you have no right to do as you please, except to please to do right. Stir thoroughly, but gently, for a minute. Cover the pan with a piece of cheese cloth for twenty minutes.

Curd.

When I desire to be a certain length of time doing anything, I set the alarm on the clock and then I can take the clock with me and do some other little work. The clock calls me to the milk without waste of time in constantly watching its face. One accomplishes so much more when they guard the minutes. At the end of twenty minutes, try the curd by putting your finger gently on it and pushing sideways. If it breaks away from the mass of clabbered milk with a clean, clear cut across, it is ready for the next step. If any floating particles show in the whey when the curd breaks, leave it stand covered until the break is clean. I find the rennet varies considerably, some forming a smoothly, breaking curd in fifteen minutes and again other tablets taking thirty minutes. The directions that come printed with the tablets should be carefully read and followed. Each manufacturer has only a desire to have his goods give full satisfaction, and will give the directions accordingly.

(Continued next week.)

A NEW FROZEN DAIRY PRODUCT.

A new frozen dairy product has just been brought out by the dairy section of the experiment station at Ames. This product, which has been named "lacto," is made of loppered whole or skim milk, with the addition of eggs, sugar, lemons and flavoring materials. Lacto has a more pleasant flavor than sherbets and ices, and contains considerably more nutriment. It contains as much protein as ice cream, less fat and more acid.

In an experiment in which 179 persons sampled lacto, 128 pronounced it very good, 37 good, 6 fair, and 8 poor. Comparing it with common vanilla ice cream, 111 reported that they preferred lacto, 9 considered it equal to ice cream, and 59 preferred the ice cream. Comparing lacto to sherbet, 123 preferred lacto, 30 preferred sherbet, and 26 considered lacto equal to sherbet.

Scientists have found that there are large numbers of putrefactive bacteria in the intestines, which are very injurious and may even shorten life. Metchnikoff, the famous Russian scientist, claims that old age is the result of a slow poisoning caused by these bacteria. He recommends the drinking of sour milk, so as to replace the harmful putrefactive bacteria by lactic acid bacteria, which are harmless. The trouble with this remedy is that few people like sour milk. To provide these lactic acid bacteria in a more palatable form was one of the reasons for introducing lacto. The lactic acid bacteria are not killed by freezing, and if lacto is eaten frequently enough there is every reason to believe that these bacteria will replace the more harmful ones in the intestines. This will result in improving the health and prolonging life.

The milk to be used in the manufacture of lacto is prepared in a similar manner to the starter which is used for cream ripening. A commercial lactic acid culture is used. This is added to a pint of skimmed milk which has been pasteurized at a temperature of 85 degrees C (185F) for 20 minutes, and after pasteurization cooled to from 20 to 22 degrees C (68-71F). The lactic acid culture is thoroughly mixed with the milk and left at 20 degrees C (68 F) until the milk has coagulated. Then another bottle of skimmed milk is pasteurized and cooled in the same manner, but instead of the commercial culture, a part of the coagulated milk is added to insure the souring of the milk inside of eighteen hours. This operation is repeated until the final batch of soured milk obtained has lost the undesirable flavor due to the substance in which the commercial culture was preserved. After this point has been reached, which requires from four to six days, the last sample of soured milk obtained is added to a larger amount of pasteurized skimmed milk. This is then treated the same as the former lots. In this way an amount of milk sufficient to work with is obtained.

Lacto can be made in the household on a small scale without buying a commercial starter. Take a bottle of good clean fresh milk which has not been heated, and set it away at a temperature of from 68 to 70 degrees F until it coagulates. If it coagulates as a smooth solid curd without pinholes, if the aroma is clean and pleasant, and the flavor nice and creamy, it can be used as a starter for a larger amount of whole or skimmed milk.

The milk when ready to be used for lacto has a mild clean acid flavor. The curd must be thoroughly broken up. This is accomplished by pouring it from one pail to another until it is as smooth and velvety as rich cream. From this "lacto milk" the various lactos are prepared.

One of the most popular kinds of lacto is cherry lacto. This is prepared from the following formula, which is sufficient for 5 gallons of the finished product:

3 gallons lacto milk
9 pounds sugar
12 eggs
1 qt. cherry juice, or concentrated cherry syrup
1½ pints lemon juice

The sugar is first dissolved in the lacto milk. The eggs are then prepared. The whites and yolks are kept in separate containers and each lot is beaten with an egg beater. Both the yolks and whites are then added to the milk. The mixture is thoroughly stirred and strained through a fine wire gauze. The fruit juices are added last. If there is any indication of the juices precipitating the casein, they should be left out until the mixture has begun to freeze. The freezer is run until it turns with difficulty, when the paddle is removed. The brine is removed and the freezer repacked with ice and salt and left for an hour before the contents are served.

Additional details regarding lacto, and other recipes for its manufacture, are given in Bulletin 118 of the Iowa Experiment Station, which may be obtained free by writing to the Director at Ames, Iowa.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

PASTURE FOR THE SOUTH.

We received not long since an inquiry regarding Bermuda grass, Lespedeza and Johnson grass as crops for pasture in the South. We wrote the Louisiana Experiment Station in regard to these grasses, and have received the following reply from the Dean and Director, W. R. Dodson:

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combination of white clover and Bermuda is better for cattle and hogs than Bermuda grass alone. I do not know of any conditions that would deter me from the use of Bermuda grass where the pasture is to be permanent or even to be used for several years and then used in a system of rotation. Bermuda grass sod can be turned under in the fall and planted to a very early spring crop that is cultivated, like corn, and then planted in cowpeas, and the Bermuda grass will be almost completely exterminated.

"Lespedeza and Bermuda grass make a very good combination for pasture. There is some difference of opinion as to whether or not the pasture is improved by Lespedeza. It is my personal judgment that it is. There are a few soils in which the Lespedeza will crowd out the Bermuda, but this is not the general rule.

"There are no sections in Louisiana in which Kentucky blue grass can be profitably grown, so far as my knowledge goes.

"I have never recommended Johnson grass as a crop to be planted. Where people have it already on their lands, I think it is sometimes advisable to use it for hay. Otherwise I would shun it absolutely."—Hoard's Dairyman.

QUANTITY AND QUALITY OF MILK INHERITED SEPARATELY.

It is the common opinion that cows which give a great deal of milk give milk rather low in fat content, and the reverse, that cows which give but little milk, yield milk containing a high percentage of fat. The probable foundation for this opinion is the fact that the Holsteins, which are noted for the large quantity of milk, give milk of rather low fat content, while the Jerseys, which are noted for the quality of their milk, are not especially strong on the quantity. From this it might be inferred that quality and quantity of cows' milk are opposing characteristics which are rarely joined in the same animal.

Statistics obtained from the records of several thousand Ayrshire cattle in Scotland indicate that the quantity and the quality of milk are inherited separately. That is, that a cow giving a large quantity of milk is just about as liable to give at the same time rich milk as a cow giving a smaller quantity. Of the cows giving less than 500 gallons a year, the largest percentage of them were giving milk testing around 3.8 per cent, while the largest percentage of those giving over 700 gallons a year tested in the neighborhood of 3.7 per cent. This would indicate that in the Ayrshire breed at least, a cow which is giving the large quantity of milk is just about as likely to be giving milk of high fat content as a cow giving a smaller quantity.—Wallace's Farmer.

Plenty of exercise is important for the pregnant sow; it should be insisted upon, and provided in the way the breeder finds best adapted to his situation. A large pasture is not always available, but the breeder may secure results by arranging the house at one end of the hog lot and the feeding floor at the other end, or by giving the sows water in such a way that to procure it they will be compelled to walk some distance a number of times each day.—From Coburn's "Swine in America."

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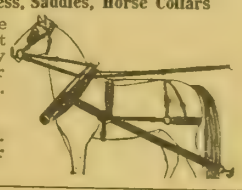

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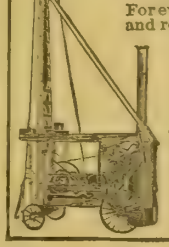

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,911 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

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CITRUS SPECIAL.

Next week's issue of the Cultivator will be devoted almost entirely to consideration of topics of special interest to citrus growers. It has been the custom for several years to devote the last issue in the month of February to the greatest one factor in California's fruit industry, which yearly brings to this state over $30,000,000. Fresh deciduous fruits bring practically $8,000,000, dried fruits, including prunes, $15,000,000, olives and olive oil nearly $1,000,000, and canned fruits nearly $10,000,000. By this it will be seen what the citrus industry of this state means to its welfare. While every issue of this paper contains something of interest to this great industry, it is worthy of having one issue almost entirely devoted to it.

Features will be articles by G. Harold Powell, who has recently come from Washington to take charge of the Citrus Protective League, Citrus in Butte County, Citrus in Tulare County, Citrus in Arizona, Pruning, Fertilizing and other points of special interest.

An interesting question has been brought out by a letter sent in by Mr. Nathan W. Blanchard of Santa Paula, a simple one in itself, but possessing large interest. Mr. Blanchard's question is as follows:

"I submit to you a question which is an interesting one in itself, and which I would be very glad to have light upon if I can get it, namely: Will the character of oranges grown from wood produced by budding into lemon stock, which is itself a growth from budding into orange stock, be influenced by the lemon wood, say from two to three feet from the lemon stock between its own bud and the orange bud?

"Some years ago many lemon trees were budded over into oranges. These lemon trees were presumably grown on orange roots, so that some of your readers are able, doubtless, to answer the above question.

"The early orange growers will remember that oranges grown on Chinese stock or roots were very coarse and could easily be recognized."

This has been sent to a number of citrus growers, and some answers have already been received. Any grower who has not received a mail request, who may have observed the behavior of buds under similar conditions, will confer a favor upon many readers if he will take this as an invitation to give us his experience.

EXTRAVAGANCE.

We don't know that the California farmer has occasion for resentment, but surely the Kansas and other Middle West farmers, whose bankers have refused to loan money for the purchase of automobiles, have, and, so far as we can learn, they have freely expressed their resentment. Most of them will admit that there has in some cases been cause for the bankers' attitude, but it is unjust for the entire class to be subjected to petty oversight because a few have become extravagant and have mortgaged their lands and gone beyond their depth. Of course, every money interest must look to its security, but to treat the farmer like a spoiled child has no justification.

There was imported into the United States last year $47,000,000 worth of diamonds, and this enormous amount, to which it has increased annually from $14,000,000 in 1900, is locked up in these gems, and with no return excepting to the vanity of the owners. Now, if the country can wear diamonds to the extent of such an enormous purchase, surely the purchase of automobiles may be permitted without dictation.

The wisdom of automobile or diamond purchase must, of course, depend on circumstances. Most grievous blunders have been committed along both lines, but that the being a farmer is justification for placing the decision in the hands of a banker—in the mind of the farmer—is the humiliating feature.

A BIG LITTLE INDUSTRY.

With a half billion dollars a year to the credit of poultry products in the United States, this industry, which is despised by many because of its smallness, reaches a magnitude which should command respect. In the year 1899 the total value of barley, rye, buckwheat, flax, broom corn, rice, kaffir corn, grapes, all small fruits, all orchard products, sugar cane and sugar beets, raised in the United States was less than the earnings of poultry. Another great product of the country is wool, yet its value is less than one-third that of poultry and eggs. The egg output alone is of higher value than all the aggregated gold and silver produced in the country.

The time was when this great industry was only the merest side issue with most farming operations. It is still on many ranches, the fowls gathering their own subsistence as best they can. Now in many sections poultry raising has become a distinct industry in which great capital is invested, and it is given the closest attention and care.

There are a half hundred periodicals devoted exclusively to the business, and no farm paper and but few of the dailies but gives some space to it. In addition, the state experiment stations, agricultural colleges, the United States Department of Agriculture, and many other agencies are joining in spreading information as to conducting this business. There are some sections which are given over almost exclusively to it, but on the other hand it may be said that there is no industry which is so widespread as this. California is importing millions of dollars worth of poultry products, yet the conditions here are almost ideal for the encouragement of the industry. It must be admitted that we have not the advantage of cheap feeds which may be secured in the Middle West, but all other conditions are perfect, especially the one of advantageous market. No section of the United States offers such prices as California has on the average for many years. Kansas puts up the boast over us that its output of poultry products is greater than that of California and Wisconsin combined, yet Kansas is the fifth in yield of eggs of the states of the Union.

Preservation of wild life is the effort of the League of American Sportsmen. It is now calling attention to the slaughter of birds through the use of the automatic shotgun. The circular calling attention to the havoc played by these automatic guns is made more forceful by the use of illustrations showing hundreds of wild geese killed as the result of one hour's work with two automatic guns. The league will endeavor to secure in every state the passage of a bill which "shall make it unlawful to use in hunting birds or animals of any kind any shotgun holding more than two cartridges at one time or that may be fired more than twice without reloading."

NEW CLUB IDEA.

The Oklahoma Agricultural College has organized a new idea in farmers clubs, which may be suggestive to some of California's farmers' organizations. It is:

"Every agricultural community should have an Acre Club. Get a number of interested farmers together and have each one cultivate one acre for the coming season so as to produce as nearly a perfect crop as possible. Each man should select a different crop, and keep an account of the preparation of the soil, the manner of planting and cultivation, date of planting and of harvesting. He should also itemize the total cost of producing the crop, and compute its value at the time of harvesting. Then, some time during the summer, there should be picnics made up of the farmers and the families who belong to these clubs, one at the home of each member. After the dinner the men should get together and talk over their experiences with their acres; they should compare notes and offer such suggestions or criticisms as seem most feasible."

OUR CREED.

We maintain that farming is, and should be, one of the most dignified professions in the world, and that the American farmer is the hope of this nation. We believe that the farmer is of more importance than the farm, and should be first improved; that the skillful hand and cultured mind are his greatest assets; that the boys and girls are his most valuable crop. We would kindle among our readers an ambition for more intelligent farming, and would make not only better farms but better homes, better men and women, boys and girls.—Minnesota Dept. of Agri. News.

We note the program of the Illinois State Horticultural Society which is holding its meeting at Champaign, Illinois. In addition to the usual discussions as to horticultural topics, there is an extensive exhibit of horticultural products. The strongest feature is the flower and plant show, the former under the direction of the Illinois State Florists Association, the plants being exhibited by members of another society. By the way, the program gives a wider interpretation of the word "horticulture" than is usual in California. California horticultural conventions have given attention almost exclusively to the commercial side of horticulture, or at least to commercial horticulture; in Illinois more attention in program and exhibits is given to the artistic. Of addresses on the program some are: Floral Decoration, Park Legislation, Development of the Public Park in the Small Town, Greenhouse Management in Home Gardens, Usefulness of Native Trees in Public Grounds, Street Trees. In addition, time is given in the program to Pruning Grape Vines, Commercial Strawberry Culture, Illustrated Pruning, Home Vegetable Garden, and other like topics.

We have referred before to the Oregon Horticultural Society exhibits, and believe the exhibit feature and the widening out of the program to take in topics of a more artistic nature is wise. It may be said that the farmers clubs and smaller organizations can handle these topics—which is perhaps true—but we believe that with our state attracting tourists from all over the world the creation of beauty is a valuable asset.

Montana ranchers report heavy losses from sheep dying in the snow.

Agricultural News Notes of the Pacific Coast

Northern California

Dealers are offering hop growers of Santa Rosa contracts for 1911 crop at 16 cents.

The apple growers association of Sebastopol, Sonoma county, proposes to incorporate.

The Western Fruit Jobbers Association is holding its sessions in Sacramento this week.

Nurserymen all report stock of olive trees exhausted owing to great demand this season.

Congress has appropriated $20,000 for an Indian Industrial School at Guinda, Yolo county.

The acreage of wheat and barley in the Sacramento valley is materially greater this year than last.

Apple growers near Petrolia, Humboldt county, realized $2.25 per box from last season's output.

Dairymen and farmers of Ferndale are planning for a bigger and better agricultural fair next September.

The total number of acres burned over in this state during 1910 is 482,563. In 1909 the total was 357,269.

The January rainfall in the Sacramento Valley was the greatest recorded. In some sections it totalled 10.64 inches.

Land owners between Hamilton and Grimes are planning for extensive planting of sugar beets for the factory at Hamilton.

The California Development Board has maintained extensive exhibits at the Land Show in Omaha during the last few weeks.

San Francisco in particular and all the state in general are rejoicing over the assurance of San Francisco being chosen for the fair location.

Pear and grape growers of Concord, Contra Costa county, will make an especial fight on thrips and hope to bring their crops up to normal.

A new rule has been put into operation on the Produce Exchange Board of San Francisco eliminating sales of butter which will not pass inspection.

Sections near Willits, Mendocino county, are proving themselves adapted to apple culture and extensive plantings are being made this season.

Frank Snow of Petaluma states that the poultry town shiped during the year 1910, 7,288,215 dozen eggs. This was a slight increase over the year 1909.

Sutter county is feeling the impetus in the almond industry caused by the organization of the California Almond Growers Exchange and is planting very extensively.

Sutter county vineyardists announce next season's output of wine grapes will be materially shortened. This is due to the grafting over of many vineyards to Thompson Seedless.

The Enabling Act to provide coin for the Panama-Pacific exposition has been introduced in the legislature and it is announced that the $5,000,000 from the bond issue will soon be available.

The Petaluma egg exchange at its recent annual elected directors for the coming year: A. LeNoir, Frank Riddell, W. Harris, Theodore King, L. A. Bittman, Harry Pinger, W. Thomas, J. Carmody and William Bassett.

Central California

A dairyman at Tulare reports having received in his cream checks for 1910, $1352.75 from fourteen cows.

With deciduous nursery stock slightly cheaper than usual incentive is given for more extensive planting.

The annual demonstration train service just closed has called out the biggest attendance ever given in this valley.

The raisin men feel very hopeful that the new co-operative marketing concern being formed at Fresno will prove a success.

Demonstration in the inoculation of Berkshire hogs with hog cholera serum was made at Hanford at time of visit of the demonstration train.

Hatfield, the "rain maker," is given "credit" for the great precipitation of the state. He is now planning to go to London and obliterate its fogs.

Quite an extensive experiment made last year on various islands of the San Joaquin river delta gives hopes of the successful culture of hemp in this state. Over 200 acres will be planted this season.

The Port Watsonville beach, Santa Cruz county, is said to possess the finest clam beds in the world, but owing to the great drain upon them during the last few months, it is feared they may be soon exhausted.

The Strobridge bill, which has been signed by the governor, has abolished the office of county statistician. The office was created largely to aid the state board of agriculture in the securing of state statistics.

The irrigators of Fresno, Madera, Merced, Stanislaus and San Joaquin counties met recently in the city of Madera and advanced the cause of the great irrigation district which will cover nearly 2,000,000 acres of the West Side.

The Santa Cruz County Poultry Association was addressed at its last monthly meeting by the manager of the National Egg Company of San Francisco. It is hoped a large egg packing plant will be constructed in that city soon.

The 5,500-acre state redwood park in Santa Clara and Santa Cruz counties has been removed from the management of the state forester by a bill duly signed by the governor, and is now placed under control of a special commission of five to serve without salary.

The Modesto and Turlock irrigation people are pleased at the passage of Senator Griffin's irrigation bill, which provides for a commission composed of the attorney general, the state engineer and the state controller, this commission to have power on application of the board of directors of any proposed district to report on feasibility of any irrigation plan.

The fruit growers association of Lockeford, San Joaquin county, has elected officers for the coming year, as follows: Henry Inglis, president; S. S. Strobridge, vice-president; Peter Deitderich, W. S. Montgomery, H. J. Bruml, F. Figgee and Charles Knudsen. Henry Inglis, Peter Deitderich and F. Figgee were elected to succeed S. A. Wheelock, T. R. Burkett and W. S. Allen of the old board.

Southern California

Sugar beet planters have already begun seeding beets in many sections.

The Anaheim Water Company reports the most successful season in its history.

Los Angeles is planning for a Land and Products Show to be held during the entire month of March.

Spotting of oranges has continued and succeeded in depressing the market materially in all parts of the East.

A state citrus growers convention is to be held in San Bernardino during the week of the National Orange Show.

Cotton growers of the Coachella Valley are talking of introducing a cotton picking machine in time for next season's picking.

Perris, Riverside county, is still working for the establishment of a sugar factory and hopes are daily growing brighter.

San Bernardino is making great preparations for her National Orange Show which is to take place the week beginning March 6th.

Several experiments in avocado growing at Whittier are proving very successful and quite extensive plantings are promised this season.

The San Luis Rey creamery near Oceanside, San Diego county, paid 41 cents per pound for butter fat during the last four months of 1910.

The Redlands Y. M. C. A. has established a school of horticulture, occasional lectures being given by some of the best specialists in fruit growing in the state.

The work of enlarging the great Sweetwater Dam at San Diego is nearly completed. The storage capacity of the dam when completed will be 11,572,000,000 gallons.

The Palo Verde Mutual Water Company is making more liberal rules as to delivery of water and encouraging more general settlement of the land of that rich section.

Work on the Anaheim sugar factory is proceeding rapidly, even some of the machinery being already in place. The coming season will find complete readiness for beets.

The Escondido Valley in San Diego county has an attack of the "chicken fever" and is now claiming that it will soon be one of the principal poultry sections of the state.

One Imperial valley cotton grower is to try the experiment of growing cotton in a field with barley, leaving the barley as a protection from sun and hot winds while plants are young.

Citrus growers are keeping their eyes upon the situation in congress and upon the misstatements which are apearing in eastern magazines regarding the so-called excessive tariff on lemons.

The orange picking stopped by the continued rains of the first of the month was nicely resumed when the storm of last Saturday stopped work again. Prices in the East are fairly satisfactory.

Desert claims in the Chucawalla Valley, Riverside county, are rapidly being improved and many thousand acres have been cleared ready for water which it is hoped may be secured from the Colorado river near Parker.

The Coast

Hydrophobia has become epidemic at Wallowa, Oregon, and sheep, cattle, dogs and coyotes all are affected.

One potato grower at Twin Falls, Idaho, produced a crop of 645 bushels on one acre and won a $500 prize.

Tacoma, Washington, market shows a shortage of practically all kinds of fruit, even apples being exhausted.

Over 100,000 acres of land will be put under irrigation in Southern Idaho by a project now under way at Weiser.

The grange at Bellingham, Washington, is appealing for more attention for agriculture in the schools of the state.

Oregon farmers are holding their wheat rather than sell at present quotations. Dealers in Portland report supply nearly exhausted.

Missoula, Montana, has a new country life club. Its first work is in discussing landscaping and otherwise beautifying the farm home.

A heavy fall of snow has covered the wheat fields of the Inland Empire in Western Washington. Some sections record over fifteen inches.

Ex-President Roosevelt will take part in the dedication exercises of the great Roosevelt dam in Salt River Valley, Arizona, March 10.

Owners of 6,000 acres of land near Weston, Oregon, have raised a fund for preliminary surveys looking to the formation of an irrigation district.

Producers of Alaska will make exhibits at the American Land and Irrigation Exposition to be held at Madison Square Garden next November.

The people of Yuma, Arizona, will make extensive exhibits of agricultural products at the coming land show to be held in Los Angeles March 18 to April 2.

The legislature of Washington has changed its good roads law so that state road funds are now under the direction of county supervisors in connection with the state engineer.

The fourteenth annual session of the Montana Agricultural Society was held in Missoula last week. The next session will be at Great Falls. The new president is C. C. Willows, of Plains.

The Salt Lake demonstration train which touched various points in Nevada and Utah was given a royal reception, some of the towns greeting the train with closed stores and brass band reception.

Land owners near Weiser, Idaho, recently held an election, voting almost unanimously for the formation of an irrigation district, and voting for bonds for $150,000. Waters will be taken from Crane creek.

At the last meeting of the Idaho State Horticultural Association the proposition was made to form a fruit growers marketing and distributing agency. A committee was appointed, to report at a later special meeting.

The state convention of fruit growers at Boise, Idaho, passed a resolution establishing a standard for all apples of the state, grading into two classes, fancy and choice. Demonstrations of methods of packing and requirements of different grades were given at the convention.

1911 SEED CATALOG

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Baby Buckeyes
50-Egg Incubator for $7.00

Purchaser can operate it for forty days, and if it does not meet with his entire approval, it may be returned to us and the price paid will be promptly refunded. They go like hot cakes. If you cannot come in, send for a Buckeye Catalog. When the chicks are hatched, don't forget the old reliable

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Nothing better for the little ones

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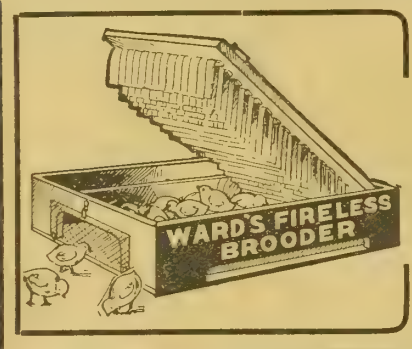

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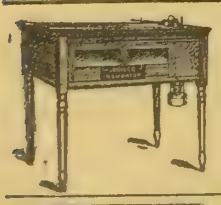
THE PHILO SYSTEM
Philo System Book and Poultry Review (one year) $1.00
READ WHAT OTHERS SAY:

117 Miles Ave., Oakland, Cal., Nov. 12, 1910
Cycle Hatcher Co., Oakland, Cal.
Gentlemen: A year ago we started with the Philo System, and raised as fine a lot of White Orpington pullets as anyone would wish to see. The two machines we purchased of you last season have given excellent satisfaction. We shall probably need more this year, and shall use the Cycle machines in preference to a larger incubator. Yours truly, S. N. Haine

Send for "Poultry Profits." Mailed on request.

CYCLE HATCHER CO., OAKLAND, CAL.
Warehouse at Los Angeles, Cal. Address all correspondence to Oakland.



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Let us send you our Catalog. It's free.

JUBILEE INCUBATOR CO., Sunnyvale, SantaClara Co., Cal.

White Leghorns

A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Descriptive booklet of our stock and farm and recipe for mixing best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels.
On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

MODEL POULTRY FARM Irvington, Alameda County, California

When writing advertisers, mention Cultivator.

Practical Poultry Culture

SUCCESS IN THE POULTRY BUSINESS.

It's no wonder that a few fail in the poultry business. In every kind of business we find that some are not successful, so in the poultry business it is not the fault of the business itself, but of the individual.

Most every one that prospers in the poultry business (and those that go into it, who are progressive and stay by it, do prosper) will tell you that they like poultry and take great interest and pride in their fowls and read poultry papers and are doing a better business all the time.

The first reason for failures is that some start into the business too heavy and not understanding the business have more than they can manage. It is better to begin small and grow big, as you learn more about the business. When I began I started with a flock of thirty, but I made one bad mistake; I did not start with pure bred stock. I realized my mistake at once and began right by getting pure breds and keep no other kind and increase my flock and the facilities for easy work, too, each year.

At the same time I bought some pure bred eggs one of my neighbors started into the poultry business. He bought a trio of show birds, paying an enormous price for them, when for the money he spent he could have gotten three dozen good, pure bred fowls of the same kind, which would have been, perhaps, better for breeding purposes. He had a few mongrels and instead of keeping his pure bred hens laying when they wanted to set, he let them set and each bring up a litter of chickens that summer. That fall when he did not yet have any more chickens than he needed he carried off his trio to a show. He did win some prizes, but his cock and one hen contracted roup and died, and his entire little flock had a bad spell of roup. He built some fancy and expensive houses and brooders, too, when plain ones would have done. He has never sold a fowl or egg. Poultry business has been a failure with him. Is it any wonder? While he has failed, consider the many, many people who have started in with a little pure bred flock and prospered.

Second. Many fail because they do not read the poultry papers. I have heard many poultry raisers say, "Oh, them editors don't know anything about poultry." They don't know that most poultry editors have been poultry raisers at some time in their life. I can say that I have learned as much about the poultry business by reading the poultry papers as I have from experience, for the fact of the matter is, I practically knew nothing about the business only in a haphazard way until I began reading poultry papers. Am taking four good ones all the time and would not be without them. About 99 per cent of all successful poultry men read and study poultry papers and good poultry literature.

Third. Some fail because they do not know how to advertise.

If you have only a small flock it's not necessary to carry a whole page advertisement, like the large breeders, for you can sell all you have from a smaller advertisement. While on the other hand, no matter how good or large your supply, others will not know it unless you tell them by means of poultry papers and show exhibitions.

Another thing about advertising is to be real honest and not claim your stock is one whit better than it really is. Better to lose a few sales than have any dissatisfied customers.

Fourth. Some are too easily dissatisfied. They do not study their breed and how to make it better, and when they see some one else with a different kind doing better they sell off and buy some other kind. I have a relative who has been in the chicken business for eight years and has had about sixteen different kinds of fowls. Within the past two months he has been selling off good, high-scoring Black Langshans at the ridiculous price of $4 a dozen and buying Dark Brahmas at top-notch prices. He sold off Light Brahmas, Leghorns, etc., in years past in just the same way. About February, 1911, he will not be getting eggs when everyone else is and he will have the blues. He ought to learn that it takes years to build up a good winter laying strain and that it takes constant care, too. No doubt before spring opens up he will be changing to some other kind. He will tell you he is a great poultry fancier and has tried poultry business until he is almost discouraged, for there's no money in the business. There isn't for him, either.

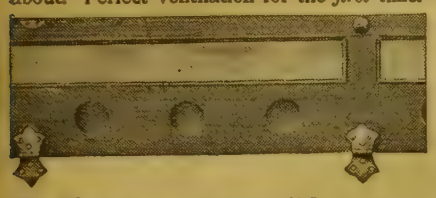
Fifth, some start with too many varieties. For the farmer or anyone not devoting all their time to the business, one kind of fowl is enough. If you raise one kind and aim to make it better, and to have your customers pleased, you will have plenty to do to raise enough birds of your kind to supply the demand.

Sixth. Some are too anxious to make sales, and rather than lose a sale will sell inferior stock. If you have not what your customer wants, send his money back and say so. You will make more in the long run. No matter how good the stock you have, there will be many young fowls that are not show birds and some that are not good enough even to sell for breeding purposes. These culls should be weeded out. Either sell them to the groceryman or butcher or eat them at home. My family are very fond of fried chicken. We eat fried chicken every other day the year round, selecting birds that we see are not going to have the best of color, plumage, shape, etc. Thus we get rid of the culls and find them very cheap meat, too. Never market a soiled egg either, put all such in a separate basket and use them in your own kitchen. In fact, make it a point to have your customers well pleased.

Seventh. Some fail because of lack of attention to the little things. A sick chicken, allowed to run about, a few varmints permitted to harbor, may bring disastrous results. Longfellow says, "Serve yourself if you would be well served," or in the poultry business if you look after the details of the work and the little things, you will know that the work is well done. The raising of one's feed, though only a small matter, is very profitable too. The ground in the colonies being turned over and sown in wheat or clover is a small matter but will prove very profitable, is not expensive and is better than all the poultry tonics in the world. Having

More Inventions by Lee

Here's his new Incubator door all are talking about. Perfect ventilation for the *first* time.



Mandy Lee Incubators

supply life-giving oxygen freely to the eggs and just as naturally draw off the poisonous gases. The most important step ever taken in incubator ventilation—neither above nor below, but *right at the eggs*—the correct principle, for the new Mandy Lee is making better hatches of *stronger* chicks than any other incubator in the world.

We Measure Everything

Heat—moisture—ventilation. You *guess* at nothing. If the eggs are good and you follow simple directions your work with a Mandy Lee is as nearly an absolute certainty as anything can be. There is no more reason why you should buy an incubator that regulates nothing but heat than for a farmer to continue to harvest his crops by methods and machinery used 100 years ago. Your success with poultry depends on your ability to select equipment that is *right*—that's what you *always* get from us.

No guessing with a Mandy Lee

Send *to-day* for new catalog. Learn of these new improvements and of our new *out-door*, *lamp-heated* and *regulated brooder*, just what is needed.

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"Chicks well hatched are half raised"

CHICKS

Strong, healthy chicks that are well hatched.

PRICE PER HUNDRED:

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S. C. White Leghorns	$12.00 and 10.50	$10.50 and 8.50
Brown Leghorns	12.00	10.50
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In quantities of 300 and over, 50 cents per hundred less.

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WINTERS' WHITE INDIAN RUNNERS

The World's Greatest Egg Producers—First, California State Fair, 1909. First, display pen; first, breeding pen; first, drake; first, duck and second, duck, at the Los Angeles Show, 1910. Eggs for hatching. White and Barred Rocks and White Minorcas. Eggs for sale in season. C. O. Winters, 5807 Washington Ave., Los Angeles, Cal. Phone, Sunset East 1197.

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Winners from Seattle down 33 out of possible 35 prizes in 3 shows this season. **Bred as layers first.** Stock, any age. For sale at reasonable prices-Eggs $8 and $12, per 100. Settings $2 up. Send for **New free folder** and prices.

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the coops, hen houses, fences, etc., all arranged so as to be the most convenient and make the work easy and save time, seems to be a small matter to most people. One great thinker and writer has said, "Do not squander time, for that is the stuff that life is made of." And in making hen houses, coops, etc., so as to be convenient, right here is where the papers help again, for many useful things about making useful and convenient hen houses, the best floors, etc., are discussed.

In conclusion, then, I say that when anyone fails in the poultry business, it's all on account of the individual and not the business.

There never was a time when the market prices for poultry and eggs were so good. There never was a time when there was such a demand for good pure-bred stock of all varieties, or kinds. There never was a time when poultry papers, journals and poultry literature could be had at such a small cost, or when they were as good either, for every editor is ambitious and wants to make his paper the most helpful in the world and wants to get as large a subscription roll as possible, in order to advertise well for his customers.—Harvey I. Burdick in monthly prize article in Am. Poultry Journal.

HEALTH OF TURKEYS.

When we consider the good prices at which turkeys sell it is surprising how few farmers there are who try to grow them, says Mrs. B. F. Wilcoxon, in the Fruit-Grower. It is only on the occasional farm where turkeys are raised, where the managers take good care of them and know their peculiarities, and these make the business a profitable one. Many do not keep turkeys because of their inclination to wander away from home, which is one of their wild characteristics that has not been thoroughly bred out of them. This is a matter that is not wholly within the control of the turkey growers. If they are managed properly there will not be such a tendency to wander away. If they are fed properly and at regular intervals about the barn and premises they will not be likely to wander away except at nesting time and when insect life is most abundant. On many farms no roosting-place is provided for turkeys, and they are compelled to shift for themselves, and the inclination is to seek proper roosting places, which may lead them away from the buildings where they belong. Turkeys do not do well when confined, therefore roosting places indoors will not answer. It is better to supply them some place out of doors, either in a grove or on the sheltered side of some building that is more open. If open sheds are provided where nothing can disturb them they will go there the worst days during the winter when sleet and snow make them seek shelter. A turkey seems to enjoy the branches of a tree. Turkeys seem to require indulgence in their wild habits, and when they have been turned too widely from that environment they are prone to disease. For this reason it is a matter of economy to compel turkeys to live as near to nature as possible, or to the same requirements as the orignal wild turkey, in order to get the best result.

Turkeys keep in better health when they are permitted to wander about the premises and obtain a good deal of their food themselves. As scon as they are housed and are permitted to feed and drink with other fowls, roup or some other fatal disease claims a number of them. One of the great drawbacks to growing turkeys in domesticity is that of practicing inbreeding, and yet in their wild state there is nothing to prevent it. The wild turkey we all know seldom has disease. In domestic life, where inbreeding is practiced, disease claims many young turkeys. In view of this condition it is therefore safest to procure breeding stock unrelated. I am inclined to believe that the damage they do to grain and other crops in their rambles is slightly overestimated by those who do not own turkeys, and believe the amount of good they do in picking up bugs, worms, beetles, etc., is somewhat underestimated.

Turkeys are possibly the choicest fowls that can be taken to market, and invariably bring the highest prices. Success will depend very much upon the favorableness of the season for hatching and rearing. The turkey, of all fowls, is possibly the one that requires the most care and attention during the first few weeks following incubation. Then the birds are very delicate and very susceptible to all variations of temperature. Rainy or foggy weather is fatal to them, and it is not to be wondered at, therefore, that the percentage of mortality is so very high with young turkeys. I use a great many calomel tablets in raising young turkeys. If you are losing turkeys hold a post mortem and examine the organs very carefully. In nine cases out of ten you will find the liver to be covered with yellow spots. These tablets will, if properly used, bring relief.

A great many people make the mistake of feeding too heavily. The little poults need to be fed often and a little at the time. Your poults require care similar to little chicks, only more of it. Guard against chill and dampness. Be shy of overfeeding the first week. Supply grit and water as for chicks. Feed bread crumbs for the first week or two, gradually working cottage-cheese into the bill of fare. Let them have the run of a good grass lot in pleasant weather, where they can get plenty of bugs and grasshoppers. As they get older let the mother run with them in the grass through the day. As turkeys are seed-eating fowls I now rely on the mixed seeds sold on the market. These contain grit also. I often mix black pepper in their soft feed. By midsummer they will have learned where the best bugs and weed seeds are to be found and care very little for the food that you have to offer them. But try to induce them to roost at home by giving them a liberal feed at night. No other class of poultry will forage so well through the summer and autumn. No other will so rapidly transform insects and weed seeds into the best flesh.

Turpentine is deservedly a popular remedy for worms in turkeys. Give about a teaspoonful to a fowl, followed by a dose of a teaspoonful of a solution of Epsom salts.

In mating turkeys, one gobbler to ten hens is sufficient. Turkey eggs while being saved for incubation should be kept at an even temperature of fifty or sixty degrees. If temperature is not extreme either way it is not of so great importance as the frequent turning of the eggs. Turn them at least one a day—twice a day is better—and keep them covered from the light and dust. If good care is taken of the eggs they will keep for three weeks and hatch well. The turkey is our Thanksgiving and holiday bird, therefore sell before or directly after these seasons if you expect to obtain the best price for them.

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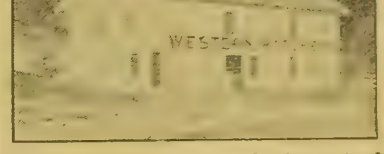

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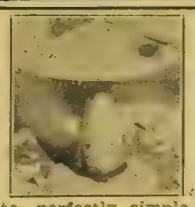

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The 1911 catalog by Robert H. Essex, poultry and [illegible] will start you right. Improved incubators and brooders. Read "Why Some Succeed Where Others Fail."

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S. C. White Leghorn Eggs

Eggs for hatching from stock bred for beauty and duty. All our birds are especially bred for heavy egg production as well as fancy qualities. Every egg is especially selected for hatching. Prices very reasonable. Place your orders now for future delivery.

GEO. A. SMITH,
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SUCCESSFUL TURKEY-RAISING.

For the average farmer the Bronze is perhaps the best breed, possessing as they do hardiness with large size. Breeding stock should be the best specimens of the preceding year; the characteristics of these will be transmitted to the flock of this season, writes Mrs. A. C. McPherson, in Successful Farming. It will be of benefit to introduce new blood after a season or two, but still many of our successful breeders retain males for years, with no apparent diminution of vigor in progeny.

When the hen turkey begins wandering around and peering into clumps of bushes, holes, etc., searching for nesting places, it will save time, trouble and eggs if she is placed in some outbuilding and kept there until she lays, nesting places being provided of course. Generally, if the nests are hidden or secluded enough to suit their fastidious fancy they will return to the nests of their own accord and continue to do so until the laying season is over. If the weather is cold it is best to remove the eggs at evening lest they should chill. But one or two should be replaced in the morning. They will generally lay from twenty to twenty-five eggs before showing a desire to set. If not desirable to allow them to do so they can be confined and fed liberally, and all desire to brood will pass away in a short time. When one has but few turkey hens this will prove the best way and will secure more eggs for incubators later in the season, or at the end of the second clutch of eggs the hen turkey may be allowed to sit.

We have been successful in discarding the turkey hens and employing chicken hens for brooding purposes instead; hens possessing an abundance of fluffy feathers and of quiet habits being preferred. The turkey hen is wild and strolling by nature, and requires extra care if she is expected to rear a reasonable per cent of her brood.

Generally twenty-seven days are required for incubation, but we have had broods come off on the twenty-fifth day when the weather was warm and favorable, although they have been known to be delayed until thirty-one days, so it is best not to be hasty in destroying the unhatched eggs until certain that all are hatched that will ever be. It is a good plan to examine the unhatched eggs and note their appearance. We can learn a great deal in this way, and if the eggs were bought the breeder will want to know about the hatch, if good, why, etc. Many breeders replace infertile eggs at half price. This is an item, particularly when paying the present prices which reliable dealers demand. Place as many eggs in the nest as the hen can cover well, and no more.

Free the hen from vermin by dusting with insect destroyer (pyrethrum), holding the hen by the feet so as to insure the powder being well-settled among the feathers. This matter of vermin is an important one, for upon it hangs very much of the success of rearing the poults. Should vermin be upon the mother hen they attack the poults and soon cause them to droop and die. Lard and kerosene mixed may be applied to the mother hen but not to the young poults. Pyrethrum should be dusted on them whenever there are signs of the enemy. These signs will be drooping wings and a dejected air generally. An examination of the wings will disclose such a case—vermin teeming among the wing-feathers, drawing the life-blood from the innocent victims. Keep the hens quiet during the hatching and do not allow them to be disturbed. If the hens remain quiet it is better not to remove the newly hatched poults, but if they become restless remove the poults and put them in a warm place. There is more uniformity in the appearance of the turkey poults than the young of any other fowl, and if they are of one breed or kind the poults are as much alike as peas in a pod.

After all are hatched let the hen off for a while for exercise. Then place her and her brood in a coop that is clean and free from vermin, place on short grass and remove to a fresh spot daily. The poults require no food until a day old, as nature has provided for them, but water and sand should be placed within reach. The food should not be of a sloppy kind, as that leads to bowel trouble. Curds or Dutch cheese is liked by them and they thrive on it. Stale bread, moistened and squeezed dry, is good. Onion tops and dandelion leaves minced fine should be fed each day while in confinement. Corn bread is the best food when two weeks old, and later cracked corn or wheat should be provided. If wire runs are used much of the trouble connected with their raising will be avoided, and they should be restricted to the coops and runs until about two weeks old; then they may be allowed out a few hours if the day is fine, but should not become fatigued. The hen should not be allowed to wander around until the poults are on the point of exhaustion. The young turkey is delicate and the poulterer should have a knowledge of their wants and requirements in order to bring them safely through their minority, or the first few weeks of their lives. After that it is comparatively smooth sailing, for as soon as the red appears they suddenly become hardy and are able to care for themselves and take to the grain fields or woodlands as naturally as a duck to water. At this interesting stage of their lives it is to the owner's profit to see that all flocks are rounded up at night; and in order to induce regularity, grain should be fed in the evening on their return. The fatality among young turkeys in nine cases out of ten is caused by want of due care during the earliest stage of existence. Low or wet grounds, in fact any dampness, induces rheumatism of joints, etc. Given dry, clean quarters, suitable feed and freedom from vermin, the turkey is as easily reared as any other poultry.

Turkeys are excellent gleaners and what would otherwise go to waste in distant grain fields is utilized.

From the first plaintive "Peep! peep!" of the poult until the "Gobble! gobble!" of the mature turkey is a comparatively short period, and each stage is watched with interest by the careful owner or breeder.

"Dry-picking is always to be preferred when preparing turkeys for market. When in fine condition, nicely picked, and sent to market without having been packed in ice, a turkey is at its best, and consequently commands the highest price. As soon as the fowl is stuck, while the blood is still flowing, pluck the feathers dry from its body, taking care in doing this not to break the skin or tear the flesh. Nothing detracts so much from dressed poultry as torn places upon the carcass or shank; picking must be clean and nicely done. When the fowl is plucked hang it head down in a cool place until all animal heat is gone from the body. Do not remove the head, feet, or entrails, but have the whole carcass, including head and feet, perfectly clean."

When rabbits are plentiful it will pay to buy them for the chickens. Skin them and hang them up in the poultry house and the hens will soon pick off all the meat. If you can shoot the rabbits yourself, all the better. You will be destroying a nuisance on your farm and supplying a delicacy to your chickens.

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and many other interesting pictures taken from life in and around Southern California. This book is the largest and most expensive ever printed by any concern whatsoever on baby chicks, hatching, etc., etc. Tells the prices of every breed of chicken, turkey, goose, etc., that we offer for sale. Tells how we ship thousands and thousands of baby chicks safely year after year, and gives full details on the raising of baby chicks, hens, etc. Articles on every part of the chicken business are given, and it won't cost you but ONE CENT—just a post card—saying you want it.

Laying hens, PULLETS, COCKS, COCKERELS, BABY CHICKS, HATCHING EGGS, COLONY HOUSES, INCUBATORS, BROODERS, etc. Investigate—that is all we ask. Send today. We mail at once. Send the names of anyone near you that is interested in poultry. We will be glad to mail the books.

Articles under each of the following heads: "Color of Baby Chicks," "Thoroughbreds," "Poultry Pays," "Does It Pay to Buy Baby Chicks?" "Fireless Brooders," "We Ship Chicks in Fireless Brooders," "When to Go Into the Poultry Business," "There Is Money in Eggs and Poultry," "Will the High Prices Last?" "Baby Chicks Ship Safe," "A Chick in the Hand," "Who Can Enter the Poultry Business," "Poultry Business Open to All," "Poultry Raising by Disabled People," "Broilers for Market," "Your Opportunity," "How to Start," "Where to Start," "Poultry for Market or Eggs," "Little Capital Required," "Vitality in Poultry," "Poultry Successes," "Keep Chicks Warm,," "Opportunities in the Chicken Business," "Get Started Right," "As a Side Line," "Order Early," "How Shall I Start?" "About Prices," "Stock and Eggs," "Egg Farming on the Colony Plan," "How to Care for Baby Chicks" (2 pages), "Good Layers," "Our Own Flock of White Orpingtons," "The Best Breed," "Combining Poultry and Small Fruit," "Eggs From Pure Stock," "Poultry and Specialty Vegetable Growing," "Pure Bred Stock," "Thoroughbred Males," "Poultry Shows." These are the headings of the articles we write for you free. If the book is worth one cent just say you want it on a post card. No book of its kind has ever been printed. It's the largest of its kind ever printed anywhere by anyone. Get a copy. Visitors welcome always.

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If nature hatches the egg, you should save the chick. And you can do it with Coulson's Special Chick Food—the greatest life-saver known in the chicken industry.

This food is the result of years of study to get just the right ingredients in a proper mixture to save the largest possible number out of every 100 chicks.

Coulson's Special Chick Food is an investment, not an expense. It pays big dividends by starting chicks on the road to profit for you. Costs about one cent a chick for four weeks' feeding.

Coulson's Growing Chick Food must be used after the first six weeks, to keep up the steady growth of the chicks up to three months, at which time they are old enough to use Coulson's Egg Food—the standard feed for laying hens.

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Timely Ranch Suggestions

ALFALFA LEAF WEEVIL.

Alfalfa growers of Arizona are vitally interested and somewhat alarmed at the havoc wrought in the Utah alfalfa fields. The pest is not yet in Arizona, and their hope is to prevent its entrance. In this effort California should join. The hope is that by memorializing conrgess aid may be secured of the Department of Agriculture.

After referring to the damage from the pest the memorial prepared says:

"In this emergency Arizona is without means of protection, having no adequate law nor available appropriation to meet the situation. Furthermore the steps that should be taken to hinder the spread of the alfalfa weevil are to a large extent protective to all alfalfa growing sections in the United States outside of the portion of Utah which is already infested. It is believed by your memorialists that it is a matter of national importance that every reasonable effort be made to protect against the spread of these insects.

"In consideration of the facts and circumstances which have been stated, we respectfully urge that in addition to appropriating the sum of $10,000 for investigating the alfalfa leaf weevil, as requested by the chief of the bureau of entomology, there be appropriated the sum of $25,000 for the purpose of devising means for checking the spread of this pest, and for practical work in accomplishing this end by locating and exterminating incipient isolated colonies by co-operating with common carriers and by other means."

Amongst the reasons given for the need of the appropriation are:

"The total amount of land now devoted to the growing of alfalfa in Arizona is approximately 120,000 acres, of which 65,000 acres are in one body under the Salt River Irrigation Project of the United States Reclamation Service. At the rate of $150 per acre, this crop represents an investment to Arizona ranchers of $18,000,000. The value of the alfalfa crop in Arizona amounts to more than $6,000,000 per annum. The alfalfa crop is the backbone of our agricultural system. No crop could take its place without a tremendous loss to all business interests, and the failure for any cause of the alfalfa industry would be a great calamity.

"The industry is now greatly endangered by the presence of a most destructive insect pest in an adjoining state. The alfalfa leaf weevil is stated in the report of the chief of the bureau of entomology, U. S. Department of Agriculture, to constitute a great menace to alfalfa culture, and an appropriation of $10,000 for an investigation of the pest has been requested. The importance of the pest is set forth in detail in a recent bulletin of the Utah Agricultural Experiment Station, No. 110. In this bulletin the means of spread of this alfalfa pest are discussed and the prediction made that it will probably be a question of but a short time before the insect will be generally distributed over the alfalfa growing regions of the United States. Railroad trains are recognized as the most important agency in the spread of the pest.

"The alfalfa growing sections of Arizona and doubtless many such sections outside of this territory are so isolated that a small expenditure in efforts to check the spread of the weevil from the region at present infested would mean a saving of many millions of dollars. Arizona is especially menaced by the importation of livestock and household goods in carlots by prospective settlers from Utah. In cars containing such goods, alfalfa hay and other material likely to harbor the adult weevils is frequently shipped, and disastrous consequences are most certain to result in the near future unless steps are taken to supervise properly shipments of this kind."

PRODUCTION OF PORTLAND CEMENT.

The production of Portland cement made a new high record in the year 1910. From statistics and estimates received by the United States Geological Survey from about 20 per cent of the companies manufacturing Portland cement, representing nearly half of the entire output of the country, it is estimated by E. F. Burchard, of the Survey, that the quantity of Portland cement manufactured in the United States in 1910 was between 73,500,000 and 75,000,000 barrels, as compared with 63,508,471 barrels produced in 1909—an increase of 10,000,000 to 12,500,000 barrels, or 15 to 20 per cent. The figures at hand are derived from all parts of the United States, and are therefore considered to be representative of the country at large rather than of any single section or district.

Although the average values for 1910 appear, from returns received thus far, to have been slightly higher than in 1909, prices were far from satisfactory, especially to the large manufacturers in the Lehigh Valley district and in certain of the Eastern states. The year 1911 opens with prices cut 5 to 10 cents a barrel lower than those prevailing in 1910. The construction of several new plants has been pushed during the year, and several plants that were under construction in 1909 became producers in 1910, so that the kiln capacity remains far in advance of the demand.

POURING VS. IMMERSION.

A correspondent in Coleman's Rural gives the following method of eradicating tick on sheep:

"I notice in a recent issue that you advise to dip sheep for lice, ticks, etc., while they have their long coats on. I have found what I believe to be a much better way, and only requires a small amount of dip. Turn the sheep on its back and pour about a quart of dip along the under side of the animal, from chin back to the end of body, put a little on the legs, hold the sheep for a few moments while the dip runs around the body, which it will do, as it is the wrong way of the wool. If you pour the dip on the sheep's back it will run off and do no good. I tried this method on seventy-five head a few days since and cannot find a tick on the 1909 crop of lambs. Some of the large ewes need a little more than a quart of the dip. I mixed the dip with warm water and two of us did the work in about two and one-half hours, and do not believe we lost more than a quart of the material that ran off after we let go of the sheep. If sheep men in general would try this plan I believe their dipping tanks would become useless property."

"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gang-plow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

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Our Santa Teresa de La Concordia subdivision, near Hermosillo, the capital city of Sonora, is delta soil, and is watered by the flood water irrigation system, corn, bean, garbanzo, and cotton land, $5.00 and $10.00 per acre, easy terms, 160-acre tracts. Fine river bottom silt soil, in the State of Sinaloa, with gravity or shallow well water for irrigation. Prices in small tracts, $12.00 up an acre, according to location and improvements.

Arrange to join one of our excursions which we are sending down at frequent intervals. Write us for free illustrated booklets and bulletin of prices.

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Pasteurizing.

Have read much of pasteurized cream as promising and would be glad if you would give a few lines of advice as to cost and difference in selling price. Is it probable that compulsory pasteurizing will come ultimately?—Subscriber, Ripon.

Unless our subscriber has a very large dairy it would not pay to pasteurize. The requirements are a steam boiler, pasteurizer and cooler. The pasteurizer and cooler will cost $150 to $200. So far there is no difference in price of milk in city markets, pasteurized or unpasteurized. Large dairies have established pasteurizers more for their own protection, especially as this process insures keeping of the milk. Some physicians have claimed that pasteurized milk is not so digestible as perfectly fresh, clean milk. We believe the certified milk dairies do not pasteurize.

According to the ordinance regulating production and sale of milk in the city of Los Angeles, "Pasteurized milk is milk that has been heated above 145 degrees Fahrenheit, and maintained at or above such temperature for not less than 20 minutes, and immediately cooled to 70 degrees Fahrenheit, or lower, and maintained at or below 70 degrees Fahrenheit at all times prior to delivery thereof to a consumer or consumers." Pasteurized cream is the same as the above excepting that it requires not less than 20 per cent of fat and not less than 9.8 per cent of milk solids.

Compensation for Condemned Animals.

I note the Cultivator has raised the question of the state paying for animals condemned because of tuberculosis or other infectious diseases. I wish to state that this can be done and has been successfully in at least one eastern state. The state from which I came paid for all animals condemned by veterinarian. The fund for this purpose was raised by taxing dogs $5.00 a head. The limit paid for condemned stock was $25 for cow or steer and from $10 to $100 for horse. The state furnished a collar with tag riveted on for dogs and collector was allowed five per cent of his collections. All dogs without collar and tags were killed.—Subscriber.

We did not know that eastern states devoted this dog tax fund to compensation for different farm animals. Some states we know do use such fund for compensation for sheep killed by dogs. In such case the sheep men present claims for animals killed in county where injury was done and full value for the sheep is allowed.

Stomach Staggers.

Have been feeding young calves on milk and oil cake. They seemed to thrive for a time, but recently one or two began to get thin. Discovered lice on them and washed them in strong tobacco tea. As soon as fed they begin to stagger and get weak, sometimes bloat. They seem to have stomach trouble. Is this from lice or is it some disease in the herd? Have raised calves before on oil cake and they did well.—Subscriber, Lompoc.

These calves seem to have stomach staggers caused by overfeeding on rich food. If whole milk is used, oil meal is not needed. If skimmilk is used a tablespoonful of oil meal to each quart is sufficient. Only feed until calf's sides are level full, not until they stand out. A dairy calf is rarely fat and is not intended to be so. This deceives many who do not realize that a calf can carry a large amount of internal fat and yet appear thin compared to the more rotund beef calf.—M. E. S.

Morning Glory.

Can you give me spray which will kill morning glory by spraying once a week during the growing season? Have several patches in vineyard which seem to be spreading.—Subscriber, Lodi.

Would refer subscriber to the issue of the Cultivator of June 16th in which is an article, "Various Chemical Methods of Killing Weeds," by Mr. Malvern W. Iles. Mr. Iles states that distillate sprayed over the growth to be killed, especially if done in the heat of the day, is very effective. He also refers to the use of a strong solution of sulphate of copper and sulphate of iron. Strong brine, if hot, is also good, but with this one must be careful that the soil is not poisoned for the vines. The best cure is thorough cultivation. In vineyard, however, this is almost impossible during the summer season.

Washing of Soil.

What is it about my soil that makes it wash so easily? Is it lacking in humus? If so, how may this condition be remedied?—Subscriber, Covina.

Humus or vegetable mold is a binder of soils and the more of it the better. California climatic conditions are very hard on soils in burning out the humus rapidly, thus necessitating greater care in preserving this essential ingredient. Of course, a very light sandy loam is hard to keep from washing, but care in planting of cover crops on such soils, which will grow during the storm season, thus binding by the growing roots, will also enrich it and add humus when plowed under after the rainy season is passed.

Minorcas.

I notice that of the Minorcas most people prefer the black to the white. Is there any reason for this other than individual fancy? Do the White Minorcas equal the black in every way? The weather is very warm here in summer, often 100 degrees to 103 and 104 degrees, and higher has been reached infrequently. In such a climate would a white fowl do better than a black one on account of black attracting heat or does it make any difference where fowls have plenty of shade? All other things being equal will a Minorca make one and one-half pounds to two pounds as quickly as a Leghorn, and are they considered their equal as to tenderness of meat? Do the Minorcas compare with the Leghorns as layers, and being a larger bird, does it take appreciably more to feed a large number than it would the same number of Leghorns. I notice that here in California the majority of poultrymen keep Leghorns. Is there a good commercial dollar and cent reason for this, and if so, please "show me."

I am thinking of going into the poultry business in a small way in conjunction with my other farm work and as "well begun is half done," I want to be reasonably sure that I am on the right track before I venture. —L. A. K., Gridley.

We do not know cause for the general preference for Black Minorcas other than that they are considered hardier. The Blacks have been in existence for more than a hundred years, originating in Spain; the Whites are sports and do not seem to have the characteristic vigor of the

Blacks. As to standing heat, we do not think there would be material difference, or if a preference is to be expressed, ours would be with the Blacks on that score. We recognize the contention of the inquirer that black absorbs and white reflects heat, but notwithstanding that it is a fact that black hogs will thrive in the hot interior valleys, while the white ones blister and burn until their breeding has been almost entirely discontinued in the interior valleys of California. Every fair-skinned human being shows the same susceptibility to heat, while the darkey revels in it. On the other hand if fryers are to be produced, the white would perhaps be preferred as they dress cleaner, their flesh is whiter and their shanks have a more attractive look.

We think Minorcas would lay on flesh as broilers as rapidly as the Leghorns; as layers they would probably average nearly with the Leghorns, though many consider the Leghorns the very best. As to showing the inquirer why California poultrymen prefer the White Leghorn, we cannot give space necessary to make such proof. We may mention, however, that the White Leghorn lays liberally of white eggs, and white eggs command a slight premium in the San Francisco market, though the Los Angeles market makes no distinction. Of course, the white egg is a feature of the Minorca as well as the Leghorn. Minorca eggs are the larger, and if the effort to compel selling by the pound should succeed, the Minorca might prove as profitable as the Leghorn.

Lippia.

Please tell me if lippia is desirable for lawn purposes, or has it the same tendency to spread as Bermuda and Johnson grass?—Subscriber, Turlock.

Lippia is one of the most satisfactory lawn coverings for hillside or for sections where supply of water is limited. Of course there is no grass that gives results like blue grass under proper conditions. There is no danger of lippia becoming a pest. It spreads very rapidly, but it does not have the persistency of Bermuda and it is comparatively easy to eradicate.

Grafting Wax.

Please give formula for grafting wax.—Subscriber, Orange.

Into a kettle place one part by weight of tallow, two parts of beeswax, four parts of rosin. When completely melted, pour into a tub or pail of cold water, then work it with the hands (which should be greased) until it develops a grain and becomes the color of taffy candy.

Standard of Perfection.

Where can I secure copy of Standard of Perfection?—Subscriber, Santa Rosa.

The Cultivator office can secure the new Standard for you at $1.50, or you can secure it from almost any poultry supply house.

Worms in Chickens.

What is best to give chickens for worms?—Subscriber, Colusa.

Perhaps one of the best and safest remedies is Humphrey's Specific, the same as used for humans. It is said to work perfectly given in same dose as for child.

Paint for Wagons.

What is the best cheap paint for farm wagons and implements?—Subscriber, Whittier.

Probably the best durable paint for wagons and implements is red lead and oil. With oil at present prices it can hardly be called cheap, yet quality and all considered it is probably the cheapest. There is one objection to this paint, however, in that the red of the lead is not very permanent. In the sunshine it soon fades to a reddish "brindle." When one takes into account the time required to thoroughly clean a wagon for painting and the quantity of paint required, the best grade of mixed paint is not really expensive. Such paint would have our preference unless an expert mixer can handle the preparation.

Spraying Cherries and Prunes.

I have recently located here on a fruit ranch and will appreciate information as to spraying of cherries and prunes; also formulas for solutions. Do grapes need sulphuring in this location, and when?—Subscriber, Los Gatos.

We would refer our subscriber to the Cultivator of November 3rd. The sulphuring of grapes would be necessary to secure a fair setting. Make application of high-grade sulphur around vines at time of blossoming, or spray before vines start, as suggested in November 3rd issue.

Stock at Large.

If A has stock running at large and B has unfenced crops which are injured by A's stock, is not A liable?—Subscriber, Los Angeles.

Under the present law A is not liable. This is contrary to reason and to the usual belief. It is now thought that the present legislature will amend this law so that stock owners must fence their stock.

Pumpkin Seed for Chickens.

Will pumpkin seed added to the chicken feed occasionally, be beneficial?—Subscriber, Watsonville.

We would not feed extensively of pumpkin seeds, but know that raisers of dairy cows consider them beneficial in limited quantities. The claim has been put up that they are injurious and should be taken out of the pumpkins fed, but this has been proved unfounded.

Bourbon Red Turkeys.

Can you tell me the name of a breed of turkeys with red plumage, and where can eggs be had?—Subscriber, Los Olivos.

We presume our subscriber refers to the Bourbon Red, but we do not know of any stock in this state. There have been several inquiries of late regarding these turkeys, and if any of our readers have eggs for sale, they would probably get good results from use of the advertising columns of the Cultivator.

Temperature for Olives.

What is the lowest temperature the Mission olive will stand? Is it a self-pollenizer? If not, what is the best associate and what percentage of the pollenizing trees should be used?—W. T. F., Orland.

The temperature at which any tree or fruit is injured depends so much upon other conditions that it is hard to answer. It is stated that the olive tree has survived a temperature of 14 degrees Fahrenheit in this state, but while this may be true of a fully grown tree, it is also true that a temperature slightly below freezing in the fall at the time when the fruit is ripening, will cause it to shrivel and make it of a low grade or even worthless. Therefore, if fruit is removed before the frost comes and the trees have attained a reasonable size, they will carry through the cold season and possibly show a full crop next spring even if low temperature is encountered during the stormy season.

The shyness of bearing of which the Mission has been accused has been

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FREE Our New Seed Book for 1911—of new and rare creations of Flowers, and Vegetables. Also all the leading standard sorts. 56 years in business is our best guarantee that our seeds are always fresh and always reliable.

NOTE--Tennyson Tomato seed sold out. Plants ready March 15, 1911.

H. M. SANBORN, 517 14th St., Oakland, Cal.

Walnut Grafting Wood

For highly productive resistant trees.

J. B. NEFF, : : : Anaheim, Cal.

A few turkeys, well cared for, are more profitable than a large number when you have had little experience in raising turkeys. Turkeys are not difficult to raise when one knows how to raise them. The beginner is apt to meet difficulties.

ascribed to lack of proper pruning, lack of sunshine when trees are closely set, and lack of pollinating. For the latter reason many have interset an occasional tree of other varieties. When that is done it should be of a variety blossoming at same time as the Mission as nearly as possible.

Duck Questions.

In brooding ducklings must they have a light at night? Will they do better with heated or fireless brooders? Should breeders have a light? Will milk displace meat in the mash, or should both be given? Should birds intended for breeders be fed differently from those in fattening pen? —J. B. G., Merced.

The question of fireless brooders is one in which there is great difference of opinion; some of widest experience prefer them; others have failed with them, and insist that, especially with younger chickens and ducklings, heat is necessary. We do not think there would be any necessity for light in brooder, and but few duck raisers use them in breeding pens. Where there is no light ducks sometimes become frightened and stampede, rushing from side to side of the pen until some are trampled to death. In placing a light in the pen it is always necessary to be very careful, for the swinging of the light, causing shadows to move quickly, seems to drive them wild. Milk will not entirely take the place of meat, although it is a fair substitute. For eggs, the following ration has been recommended for feeding every morning and evening: 5 parts corn chop, 5 bran, 2 middlings, 1½ beef scraps, 3 boiled vegetables, 3 cut green stuff, 5 per cent sand. Wet to crumbly state. For fattening feed the following morning, noon and night, being careful to leave none of the uneaten feed where birds can get it between times, or they will glut their appetites: 2 parts corn meal, 2 middlings, 1 bran, 1 green stuff, 10 per cent scrap, 5 per cent sand. Wet with water to dry, crumbly state.

Measuring Flow of Well.

Please tell me how to figure number of miner's inches my well flows. I made a weir with 18-inch outlet, and the water stands 4¼ inches deep back from the outlet three feet.—Subscriber, Oxnard.

We would refer the inquirer to page 531 of the issue of May 6, 1909, which will give drawings and tables that will enable him to determine the amount of water his well is flowing. It is impossible to say from the facts given in the question. By saying the "water stands 4¼ inches deep" does the subscriber mean that from a point exactly on the level with the top of his weir the water stands 4¼ inches deep? If that is the case, then the table will enable him to determnie the flow with accuracy.

Worms In Gizzard.

In dressing chickens I have found fine, hairlike worms from a half to three-fourths inch long in gizzard. What are they, and what is treatment? —M. W. W., Stockton.

Probably turpentine is the best remedy for this trouble. A teaspoonful in one quart of water thoroughly stirred and used to mix with the soft feed, also same amount with the drinking water, will prove beneficial. Above all, spade the ground or keep droppings out of the runs. The infection may come from unclean or spoiled food or from droppings of pigeons or other birds to which the poultry may have access.

A system of irrigation just completed in Lassen county will irrigate 4000 acres of Honey Lake Valley land.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Warts.

A two-year-old heifer has a wart as large as a hens' egg over her eye and a number of smaller warts on the side of the face. A younger heifer is getting warts all over her head. The heifers run on low land and drink well water.—Subscriber, Hanford.

The cause of warts is a question not yet settled. Use rubber elastics to remove the large warts if their form will permit. Mix sulphur and castor oil to make a paste and apply to the warts.

Bladder Trouble.

A horse, ordinarily in good condition, begins to manifest bladder trouble about two weeks after he is started to regular work in the spring. He attempts to urinate four or five times in an hour and when he finally succeeds several tablespoonfuls of mucus is passed. He is fed oat hay and rolled barley but eats anything with a good appetite. Soon after he starts to work he becomes weak and thin.—Subscriber, Sacramento.

The symptoms indicate inflammation of the lining of the bladder. Have your druggist prepare 16 powders, each containing powdered buchu, one ounce, belladonna one drachm, potassium acetate half ounce, and potassium iodide half drachm, and give one powder twice daily in the feed.

Red Mange.

A dog has what I think is mange. The skin of the body appears to be thick and red and the disease has been spreading during the past seven months. Is this mange? Kindly advise some powerful medicine which will give the poor animal immediate relief.—Subscriber, Pasadena.

A microscopical examination would be required to determine if this is mange or eczema, but in all probability it is follicular mange, the form of mange most difficult to cure. Relief will be accomplished slowly, at best, and after vigorously applying strong remedies. Mix chloroform one ounce, creolin two ounces, and denatured alcohol five ounces. Shake and apply once every third day.

Pustules on the Udder.

A cow has little boils on the udder and they seem to affect the milk flow. They have been coming and going for four months.—Subscriber, Waukena.

Place two teaspoons of pure carbolic acid in a four ounce bottle and add camphor gum till some camphor remains undissolved. Apply liquid thus formed to the inflamed spots and also rub it into the pustules after all matter has been pressed out.

Mange or Itch in Horses.

Tell me the cause of my horses itching over the neck and shoulders. They try to move the barn rubbing themselves and they try to scratch with the hind feet when I curry. There are no lice on them. Blotches may be felt under the hair, but I can find only a little dandruff on examination.—Subscriber, Porterville.

The fact that more than one horse is afflicted and the symptoms given leave little doubt that the sarcoptic mange parasite is the cause of the itching. This disease is sometimes transmitted to man. Scrub the parts thoroughly with soap and water, dry and apply every third day, liquid sulphur and raw linseed oil, equal parts, shaken together.—F. G. M.

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway. Los Angeles.

Drawing a Will.

A man in California, dying, leaves a wife and children, but no will; how will the courts distribute his property, what will be the wife's portion if all is community property? What if the property left is in Minnesota?

What is the shortest and simplest form of will where a man desires to leave his undivided one-half of his property to his wife during her lifetime, that is, the income, the same to be equally divided among the children after her death. Need the children be mentioned by name? Can it be provided that the wife be executrix without bonds and without interventions of any court?—H. E., Garvanza.

If all of the property is community property, the wife takes one-half of the property left in California; if all of the property is separate property, the wife takes one-third and the balance is divided equally among the children. I have not examined the Minnesota law and have not the time to make an examination for the purpose of this answer.

The shortest and simplest form of will is one written, dated and signed by the testator. Every portion of it must be in the hand-writing of the testator, and in this particular instance could be about as follows:

"I.....give, devise and bequeath to my wife....., an undivided one-half interest in and to all of my property of every kind and description wheresoever situated, during her lifetime, to have, use and enjoy the income therefrom during her natural life, and I hereby give, devise and requeath all of the said property remaining at her death among my children, equally" (naming them).

The children need not be mentioned by name, but unless you anticipate additions to your family, it would be wiser to do so, as then the parties who take will be identified. You can provide that the wife shall be executrix without bonds, but it is impossible that she act without the intervention of any court. The law requires all estates to be probated. If you do not wish your estate to pass through the probate court, you can give it away before you die, but you must give it away without any strings upon it, and not merely for the purpose of evading the law.

If you contemplate making a will, it would be far better for you to consult some lawyer in whom you have confidence than for you to endeavor to draw it yourself, even with the help of these instructions. It is seldom that a layman makes a good job of this kind.—E. L. P.

Stock Killed by Train.

Is a railroad liable for stock killed by their trains on unfenced track within a forest reesrvation on which the owner of said stock holds a government permit to graze?—J. E. Y., Lang.

The statute provides a penalty for killing or maiming cattle or domestic animals on a line of a railroad which passes through or along the property of the owner thereof, without regard to the manner in which the train may be operated, (and provided the injury is not due to any neglect or fault of the owner of said animals) unless the company fence its line of road. If the railroad company pays the owner the price of making or maintaining a fence, then the company is relieved from all claim for such damage, and on the other hand, the owners of such animals are responsible for any damage or loss which may accrue to the company from such animals being on the railroad track resulting from want of such fence when the company has paid for the same as provided in the statute. The fact that the land is government land, and that the owner of the stock is a mere licensee of the government, might make some difference in the right to recover. My offhand opinion is that if the owner of the stock can show the right to occupy or pasture government land, under permit from the government, that the same rule would apply as though he owned the land through which the road runs.—E. L. P.

Filing on Water.

Water rises in forest reserve and flows on private property where the owner's stock has had use of it for many years, but the surplus has been allowed to waste on surrounding land without any effort to use in irrigation. Can a filing be made on this water by parties not owning this land on which the water has wasted, but owning below where this waste would have great value? If the owner of land where the water is now wasted is entitled to the right of stock watering, but to no irrigation supply, can the surplus (over and above stock requirements) be filed on if troughs and automatic floats protect stock supply?—E. L., City.

A filing may be made by any one for beneficial use upon land to which the watershed is tributary. The surplus, over and above what has already been appropriated, is all that can be filed upon, and, of course, the one filing later would not be permitted to interfere with the method of taking and use of the prior appropriator. It matters little what method is adopted by the later comer, so long as he does not interfere with the rights of the other party or parties.—E. L. P.

Eucalyptus on Line.

Is there any law to compel a person to remove eucalyptus trees planted right up to the division line?—I. W. F., Los Angeles.

There is no law compelling a person to remove trees, unless they are infected. If the trees are planted so close to the division line that their branches or roots extending over onto a neighbor's land cause him inconvenience, he may cut off the branches or roots, but he can't compel owners of the trees to do so.—E. L. P.

Statute of Limitations.

What is Statute of Limitations on farm labor? How long after services were completed will debt outlaw?—Subscriber, Ramona.

The debt outlaws in two years where the obligation arises upon a contract not founded on an instrument in writing, unless the action is upon a mutual open and current account, or upon an open book account. Upon a mutual, etc., account, that is, an account in which each party has charges against the other, or upon an open book account, the statute of limitations is four years.—E. L. P.

Recording Mortgage.

A makes deed of trust to B to secure a loan. Must A pay recording fees for same, when no stipulation had been made to that effect.—Subscriber, Arroyo Grande.

No, it is not customary for A to pay the recording fees when he makes trust deed or mortgage to B, but it is frequently agreed that A will pay such fees.—E. L. P.

California Cultivator Clubbing Price List

FOR THE SEASON 1910-'11

Prices are Good to Oct. 1, 1911

This magazine price list is prepared annually for the convenience and benefit of Cultivator subscribers. The prices given allow our readers the benefit of the lowest figures possible, in return for which, all we require is that to all orders a year's subscription to the Cultivator (class 18) be added at 90c (regular price $1.00 per year).

This year the pricing of various combinations of magazines is a simple matter; all are listed according to class number and this class number multiplied by 5 gives the cost price.

EXAMPLE:

Class No.		Regular Price
20	American Magazine	$1.50
16	Delineator	1.00
37	World's Work	3.00
18	Cultivator	1.00

91X5=$4.55. Club price for all. Amount saved on this club, $1.95.

We desire to especially call attention to this complete list of the most popular magazines. We can, however, supply any periodical published, at the lowest price, and any not listed here will be quoted on request. Let us make you a price on any combination you may desire.

Periodicals in any combination may be ordered to the same or different addresses. Foreign or Canadian subscriptions are extra on account of added postage and prices must be gotten by correspondence. Subscriptions may be either "new" or "renewals," but it is important that this information be given in each case.

Books—Send us a postal for our list of agricultural books which we supply subscribers and which we recommend as most suited to California conditions.

Don't overlook this special:

The California Cultivator (weekly)---
The Rural Californian (monthly)---- } Both one year for $1.50

Our Money-Saving Combinations:

The price of the Cultivator and any single magazine may be obtained by adding 90c to the class price of the magazine desired.

Make up your orders from the following, noting that the class numbers multiplied by 5 gives the cost price. Also bear in mind that **all orders must include a year's subscription to the Cultivator (class 18) at 90c.**

MISCELLANEOUS

Class No.		Reg. Price
19	American Sheep Breeder	$1.00
47	Automobile	3.00
8	Boys' World	.50
23	Breeders' Gazette	1.75
27	Cassell's Little Folks	1.50
77	Century Magazine	4.00
65	Country Life in America	4.00
12	Designer	.75
8	Girls' Companion	.50
70	Harper's Weekly	4.00
70	Harper's Magazine	4.00
8	Ladies' World	$0.50
17	Human Life	1.00
9	McCall's Magazine	.50
12	Modern Priscilla	.75
15	National Monthly	1.00
70	North American Review	4.00
47	Outing Magazine	3.00
8	Reliable Poultry Journal	.50
40	Scientific American	3.00
60	Scribner's Magazine	3.00
57	St. Nicholas	3.00
15	Woman Beautiful	1.00
37	World's Work	3.00

CLASS 16.		
Amer. Agriculturist	$1.00	Any two $1.60
Black Cat	1.00	
Cooking Club Mag.	1.00	Any three $2.40
Delineator	1.00	
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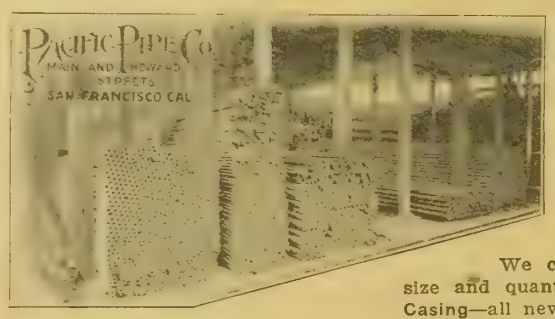

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Irrigation and Forestry

JARRAH.

In the issue of The Cultivator of October 13th was a communication from Mr. J. Blackburne of Maryborough, Victoria, upon Eucalyptus marginata, more commonly called the Jarrah. This communication was brought out from Mr. Blackburne because of statements made in The Cultivator that these trees had not done well in this state. These statements still stand and Mr. Blackburne made no contradiction of them, only he wished it known that in certain sections of Australia the Jarrah is a magnificent tree. There was so much of interest in that article that we reprint much of it below and call attention of our readers to illustration on cover page of this issue which shows photograph taken in an Australian forest.

* * *

"As I noticed recently statements in The Cultivator asserting that this unrivalled species does not flourish very well in California, it has occurred to me that there must be a reason for this non-success. It may be that the planting has been done in unsuitable soils and localities.

"Before dealing with this aspect of the question it may be as well to consider the tree in its native habitat in Western Australia. According to the great authority on eucalyptus, the late Baron von Mueller, it is found from 'King George's Sound to Cape Leeuwin and the Moore River, forming the principal forests in Southwestern Australia and occupying a region not far removed from the coast. The Jarrah in its humid native region seems more indifferent to soil and situations than most other eucalyptus, but it avoids hot and dry tracts of country. I saw it descend (in a stunted form) on sandy ridges and calcareous declivities close to the sea shores, and traced it, as a shrub, to the rocky summits of the Sterling's Range (nearly 3000 feet high). But its development for extensive timber forests takes place on the ranges of older rocks well within the influence of the sea air, as shown on the forest map issued by the Hon. Malcolm Fraser, Minister of the Lands Department of Western Australia. Throughout nearly the whole region of its range the Jarrah is largely mixed with Calophylla (the Southwest Australian Red Gum or Bloodwood tree). Marginata is not a tree of rapid growth and therefore not one of early regeneration either. The choicest timber is obtained from the slopes of the granite and iron-stone ranges which are within the influence of the prevailing moist southwestern summer winds.' Baron von Mueller also expressed an opinion that the development of the Jarrah would be more rapid in moderately elevated mountains than in flat country.

"Mr. Blair, superintendent of the Yan Yangs forest plantations at Lara, Victoria, planted some Jarrah there seventeen years ago. He informs me that some of the trees are doing remarkably well. He thinks they should be put in about ten feet apart and thinned out subsequently to twenty feet, as they are a bold, strong growing species and appear to require plenty of room. The trees at Lara have attained a height of from 30 to 35 feet, with a stem girth at two feet from the ground of two feet nine inches. The soil they grow in is poor, and the rainfall rather light, but the plantations are near the sea, only a few miles inland.

"It may be presumption on my part to assume that the Jarrah has not been planted under favorable natural conditions in California. Perhaps it has, and has failed to succeed as a forest tree, but I still think until I am assured to the contrary, that plantations in rangy country with a good natural rainfall, not too far inland, on deep granite or ironstone soils, ought to give satisfaction. All our best timbers here, like the Ironbark (E. Sideroxylon), Grey Box (E. Hemiphloia), and the Jarrah (E. Marginata) are slow-growing trees, producing for that reason unrivaled hardwoods, and it cannot be expected that the Jarrah, even in a country like California, will grow with the celerity of the Bluegum or Sugargum."

* * *

In a later letter, answering questions which we sent him, Mr. Blackburne writes:

"You ask me amongst other things if Australia is doing any commercial planting of trees in a large way. We in Victoria are not doing much yet beyond a few hundred acres of pines, acacias, and eucalyptus, and the other states have not, with the exception of South Australia and New Zealand, made much headway with planting. Our native forests are not exhausted yet and when the original is cut down seedlings come up like a crop of wheat and only require thinning and regulating to form a good forest again.

"In establishing young eucalyptus forests I have had considerable experience and always prefer to sow the seed broadcast instead of planting the young trees. When the seedlings come up (we sow in July) and attain a height of a few inches, say about March the following year, they are thinned out to a distance of seven or eight feet apart and allowed to stand for a few years until thinned again for commercial purposes. We do not water or irrigate under this system, but depend upon the natural rainfall (22 inches). We principally sow Bluegum and Sugargum. Eucalyptus raised in our nurseries for free distribution are sown in seed beds in the open and potted off into three-inch pots."

* * *

Von Mueller's "Select Extra-Tropical Plants" says: "The Jarrah or Mahogany-tree of Southwestern Australia is famed for its indestructible wood, which is neither attacked by

chelura, nor teredo, nor termites, and therefore much sought for jetties and other structures exposed to sea-water, also for any underground work, telegraph poles, and largely exported for railroad sleepers. Vessels built of this timber have been enabled to do away with copper-plating. For jetties the piles are used round, and they do not split when rammed even into limestone or other hard foundations, provided the timber is of the best hard kind."

Notwithstanding all these magnificent qualities of the timber it must be admitted that this tree has never succeeded in California and doubtless will not because of soil and climatic conditions.

GRAZING EXAMINERS FOR NATIONAL FORESTS.

A new government position is disclosed by the announcement by the U. S. civil service commission of an examination which will be held February 23 and 24 to find three grazing examiners for the forest service. The positions will pay a salary of $1200 a year at entrance.

The announcement specifies that the applicants must be men, at least twenty years old, and possessed of at least one season's experience in handling range stock, together with at least one year of technical training in specified botanical studies.

The establishment of this position is in line with the objects which the department of agriculture has always had in view in its management of grazing on the national forests. It is not merely seeking to prevent cattle and sheep from doing damage to forest growth and watershed conditions, as they graze on the herbage which is yearly produced in the open forests, parks, and high mountain meadows within the national forests. Range-fed stock are a matter of decided importance to the American people in these days of rising prices for food products and diminishing supplies, in proportion to population, of livestock; and therefore Secretary Wilson intends that every acre of national forest range shall be made to produce as much forage as it is capable of doing, consistently with the carrying out of the other purposes for which the national forests are maintained.

Ever since the forest service took over the management of the national forests, it has been studying the range problem along with its regulation of grazing. In the beginning it was confronted with the fact that a very large part of the range had been badly abused and depleted through the competition of rival owners before any restrictions had been put upon them, and by overcrowding and bad methods of handling stock. Its supporting power had in consequence been greatly reduced, and was steadily declining. To enable overgrazed areas to recuperate, and to prevent the extension of overgrazed conditions to new areas, the amount of stock to be allowed on the forests was everywhere carefully prescribed. The results were then observed, and if it appeared that there was still over-use of the range, the numbers permitted were cut down still further. On the other hand, where recuperation has taken place the allowance of stock has been correspondingly increased.

The proposal to appoint specialists who are both thoroughly trained botanists and men of practical experience in range matters indicates recognition of the fact that to attain the highest

(Continued on Page 219.)

Deep Well Pumping For Irrigation.

The past season has demonstrated more than ever the practicability and superiority of the Pomona Deep Well Pumps. It is fully proven that it is possible to lift large quantities of water from very deep wells with a surprisingly small amount of power. It has usually been considered that a plunger pump is only good for a 35-inch stream on a lift of say 200 feet, but the Pomona Manufacturing Company have demonstrated that it is no longer necessary to use a centrifugal pump, with its wasteful usage of power, to get a large quantity of water out of the ground, as this company is manufacturing extra large size cylinders including 12, 13, 14 and 16 inches in diameter, and capable of lifting from 50 to 100 miner's inches of water. Not only that, but they are prepared to go down after it to depths of 300 and 400 feet if necessary.

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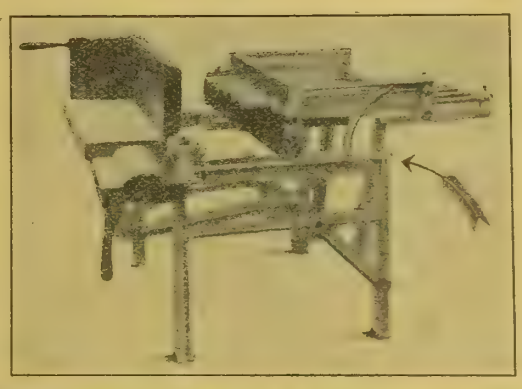

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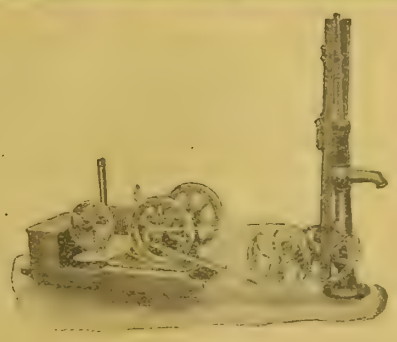

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Information where there is good state land in California now. Where? How to obtain. Send dime. Total cost $2.00 an acre. Joseph Clark, 830 M St., Sacramento, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

Parker & Sternberg live in the San Fernando Valley and sell bargains in Ranches, Houses and Acreage. Office 310 Brand, Glendale, Cal. Write or call.

For Sale—160 acres Imperial County, two miles from Palo Verde; $16 per acre, cash. Address Joseph Zalkovsky, Palo Verde, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

TURKEYS.

White Holland Tom Turkeys, brothers to my first prize winner, Los Angeles Show, January 5, 1911. Eggs and poults later. Also French Houdan and Rhode Island Red eggs and cockerels. French Houdan eggs $1.50 per setting, $9.00 per hundred. Red eggs 75c per setting, $5.00 per hundred. Mrs. Hocking, Guasti, Cal.

Mammoth White Holland Turkey Eggs for hatching, $5.00 per 13 eggs. Extra large and thrifty stock, not related. Toms weighed 26 lbs. at 7 months. Light Brahma eggs $3.00 per 15; Barred Rock eggs $2.00 per 15. A. H. Blakely, Ontario, Cal.

For Sale—Few fine Mammoth Bronze Turkey Toms, standard weight. No eggs or hens at present. Mrs. A. C. Wisegarver, San Fernando, Cal.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

White Orpington and White Wyandotte Eggs for hatching. A fine lot of breeding cockerels at $5.00 each. No culls, I market all those. I will send you the best bird possible for the money. Write for list of winnings. A. W. Huskins, 713 Waterloo St., Dept. C, Los Angeles, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Mites and Lice have no use for Siebert's Sanitary Roost and Dropping Board, but you, Mr. Poultryman, have. A time-tried and successful article. Anybody can make it, and $1.50 buys the materials. Labor and time of cleaning immensely reduced and your worries, like the vermin, killed. If put into a new house you need never have a mite, in an old one it will promptly get rid of the pests. Complete drawings and instructions for making mailed for only 45c (no stamps). John S. Siebert, Box 835, San Diego, Cal.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Indian Runner, Muscovy and Buff Orpington Ducks.—Stock and Eggs. Rabbits and Guinea Pigs. Book on rabbits. Price list free. Caldwell & Co., R. D. 3, Los Angeles, Cal.

Minorcas, White and Black—Get my mating list before ordering eggs. Quality and prices both attractive. L. C. Buhl, Pomona, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Crystal and Pearl White Orpingtons—Eggs from mature birds direct from Kellerstrass and Byers farms. Settings $5.00 per 15, fertility guaranteed. Also some very choice cockerels. Address B. Striner, Glendale, or phone Sunset Glendale 4363.

R. I. Red Eggs for hatching from scientifically tested layers. The Luedkes, Anaheim, R. D. 1.

White Rock eggs for hatching. Best laying strain, $1.00 per setting. A. G. Morley, R. D. 4, East Bakersfield, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

Eggs for Hatching—Duckwing Leghorn, Buff Orpington and Black Minorcas. H. R. Leek, Escalona Ranch, Santa Cruz, Cal.

Orland Hatchery—Just hatched White Leghorn Chix. Booking orders for later delivery. P. L. Simpson, Box 13, Orland, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

CHICKENS FOR SALE.

Cook Strain White Orpingtons—"The Real Thing," where Kellerstrass and all other breeders had to go to get the pure blooded Orpingtons. The Standard Poultry Yards has them direct from Cook Brothers, Scotch Plains, N. J. Note report of late San Diego Show: "C. A. Loud, all awards White Orpingtons." Eggs and baby chicks for sale. Also Northrup heavy weight S. C. Black Minorcas. Send for folder. C. A. Loud & Bro., San Diego, Cal.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

For Sale—3 Barred Plymouth Rock cockerels, fine Eastern exhibition stock. Price $3 to $8 each. 6 fine Columbian Wyandotte cockerels, 20 yearling hens, very low for quality. Eggs from exhibition quality Columbian Wyandottes, Buff Orpingtons and White Cornish, $2.00 per 13, $4.00 per 26. Address J. W. Whitney, Upland, Cal.

White Leghorn Chicks $10 per 100 from 2 year old birds on free range. Hatching eggs $5 per 100. 90 per cent fertility. I hatch this breed exclusively and can furnish the best. Rancho Poultry Farm, Inglewood, Cal.

Very Fine Strain Barred Rocks, R. I. Reds S. C. Black and White Minorcas, White Leghorn chicks and eggs. A few splendid cockerels. Prices reduced Feb. 1st. All pure bloods. Also, I have a few cases No. 1, home-canned peaches for table use to sell. R. B. Sherman, Newcastle, Cal.

For Sale—Pure bred White Cochin Bantams, very fine, excellent layers. $1.50 per pair. Cockerels 75c, F. O. B. Fillmore. Address Ona King, Fillmore, Ventura Co., Cal.

Rock Haven—60 pens White Plymouth Rocks, 20 pens S. C. Rhode Island Reds. Our hobby is high capacity egg producers. Eggs the year round. Baby chicks every month in the year. Send for our booklet. Jos. E. Davis, Box 148, R. F. D. 11, Los Angeles, Cal.

For Sale—A fine selection of Buff Orpington cockerels. This is thoroughbred stock and you will make no mistake in selecting one of these birds. Prices $3.50 each. Mrs. J. R. Snead, Dixon, Solano, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Buff Orpington and Buff Leghorns for Sale —Eggs $1.00 per 15 or $5.00 for 100. Order early. Satisfaction guaranteed. Mrs. F. E. Turner, Visalia, Cal.

For Sale—Pure bred Barred Rock cockerels, 10 mo. old, $2.00 and $3.00 each. Mrs. Nellie Hart, Holtville, Imperial Co., Cal.

Barred Rocks exclusively. Eggs from best matings $1.50 and $3.00 for 15, incubator lots $3.00 to $6.00 per 100. Prices right. G. L. Hawley, Madera, Cal.

R. I. Reds (Tompkins Strain)—Eggs and chicks. Rancho Casa Loma, R. D. 14, Box 56, Los Gatos, Cal.

Barred Rock Pullets and Buff Orpington cockerels for sale. Eggs for hatching. Popular prices. M. A. Young, Los Gatos, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

White Orpingtons—High grade stock. Heavy layers. Eggs $5.00 per 15; $25.00 per 100. Day-old chicks 75c each. H. E. Dickinson, R. D. 1, Napa, Cal.

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

Baby Chicks and Eggs for Hatching—Orders now taken for January and later delivery of R. I. Reds (Tompkins Strain), White Minorcas and S. C. Black Minorcas (Northrup Strain). C. U. Chamberlin, Los Gatos, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100, $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

S. C. Rhode Island Reds—Laying hens for sale. Eggs $1.50 per 15, $6.00 per 100. L. Haynes, Madera, Cal.

Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

NURSERY STOCK.

S. E. Courtney of the Capital Nursery, Hanford, Kings County, Cal., is now shipping first-class peach trees to his many customers in all parts of the state at the following low prices:

All varieties of Clings and Free Stones.

		Price.
Firsts	5 to 7 ft., freight prepaid	12c
Seconds	3 to 5 ft., freight prepaid	9c
Thirds	2 to 3 ft., freight prepaid	6c
Apricots	4 to 6 ft., freight prepaid	18c
Apricots	3 to 4 ft., freight prepaid	15c
Apricots	2 to 3 ft., freight prepaid	10c

Orange seed bed stock, Sour, per 1000 $12.00

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one year old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

For Sale—Acacia Baileyana. A fine lot of this splendid variety. $25.00 to $35.00 per 100. Also Acacia Floribunda, A. Latifolia, A. Salicina, A. Pycnantha, and A. Verticillata. We are overstocked with these and will make very low prices to reduce. The above are well grown and thrifty. Armstrong Nurseries, Ontario, Cal. Box 117.

NURSERY STOCK.

For Sale—Sour, Sweet and Trifoliata citrus seed bed stocks. T. Jikihara, P. O. Box 215, Upland, Cal.

For Sale—Alexander, Muir, Crawford's Early and Foster Peach, Royal and Blenheim Apricot on peach root. First-class trees true to name. Abell's Nursery, Arroyo Grande, Cal.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

Grapes and Peaches especially suited for Imperial Valley conditions and free of disease. The Dattier de Beirut, Persian No. 26, Payka nee Rhazooke and Chawooshee, true to name. Sell this at $35 per thousand for cuttings and 50c each for roots. Honey type of peaches in 2 varieties late and early at 50c each. Address to F. Heiny, Box 326, Brawley, Imperial Co., Cal.

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J A. Powell. R. D. 1. Box 1. Ripon, Cal.

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

Grafted Walnuts, all kinds. Grafted Giant paper shell pecans, Walnut scions and grafting wax. Elberta peach, Grand Duke plum in quantity. General Nursery stock, all kinds. Tribble Bros., Elk Grove, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

MACHINERY.

ATTENTION, FARMERS!

120 Horsepower Pumping, Lighting and Power Plant, composed of two 60-horse gasoline or distillate engines, with Westinghouse generators, switchboard, circuit-breakers, storage batteries, etc.

In addition we can furnish four 20-H. P. D. C., one 10-H. P. D. C. and two 7½-H. P. D. C. Western Electric motors. All of these are in first-class condition, having been overhauled at our works.

Just the power for pumping several wells at a short distance from each other. We will sell one unit of 60 H. P.

This plant cost new $10,000, but we will sell complete for $4,000. The generators alone cost $2000. We can supply any extras as we have all the patterns of the parts. Will make prices on motors in proportion to the above.

Also one R. & V. 6-H. P. vertical gas engine, new, and one new 18-inch single-acting Addison pump head and cylinders. Price $360.00, which is 25 per cent discount on lowest purchasing price.

Do not miss this chance.

Axelson Machine Co., Wyse and Ann Sts., Los Angeles, Cal.

For Sale—Windmills, pumps, engines, piping, brass cylinders, guaranteed first class, wagons, buggies, harness, plow scrapers. Power feed cutters, 10 tons 12 lb. T rail dump cars, 20 H. P. self-contained hoist brand new. Sundries too numerous to mention.

5 H. P. Pumping Plant

Special sale 5 H. P. engine jack, 5-inch pump, belting, engine house, 6000 tank and 24 ft. stand $235. This is not junk, but running now. Cost double new. 2 H. P. pumping plant, engine, jack, pump 2000 tank nearly brand new very cheap. Also 10,000 gallon tank, 34 ft. stand, fancy cover, $90, only used one year. Also 5-ton brand new mower, hay rake, parts such as knives, guards, sickle guards, connection rods, 100 complete sets rake teeth. We will sell these fittings at 50 per cent off 1st price or wholesale in lots to suit. Checks accepted. Call, write office of Demmitt Co., 120 North Main St., Los Angeles, Cal.

For Sale—32 H. P. Fairbanks-Morse distillate engine. Need money by the 20th so will sell cheap for cash. Engine is in first-class order. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—9 H. P. portable distillate engine, heavy running gear. Will guarantee and make right price. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—A practically new No. 2 Sharples Separator. Snap. C. P. Dandy, 421 Wilcox Bldg., Los Angeles.

SEEDS

For Sale—Oregon evergreen sweet corn seed 7c per lb. White seeded Chilean watermelon seed 40c per lb. L. C. Lea, Buena Park, Cal., or 125-126 Los Angeles Public Market, 6th St

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICKS FOWL FARM, Moorpark, Cal

Business

GOOD NEWS FOR HORSEMEN.

It might be of interest to you and the general public, especially horsemen, that as a veterinary surgeon of 25 years' experience, I can safely recommend Gombault's Caustic Balsam to perform greater cures than advertised in your circulars. I use it in my every-day practice and could not get along without it. On coming to this territory two years ago, none of the druggists kept it, consequently I had them order a dozen bottles, and since that time I have never been without it. Many a track horse has gone to ruin by strained tendons when one bottle of Gombault's Caustic Balsam would have brought him out as nimble as a colt.—Wm. Buchner, V. S., El Reno, O. T.

It is with pleasure we call the attention of our many subscribers to the attractive ad of the Boesch Lamp Co. in this issue of the Cultivator. The vehicle headlight advertised by this firm, a cut of which is shown, is their own design and manufacture.

We have carefully inspected the factory in which these headlights are manufactured and feel justified in saying that it is the most approved and up-to-date plant of its kind it has been our pleasure to witness.

The great machines and many busy mechanics are constantly turning out headlights, lamps and lanterns of every description. The very best material is employed and each mechanic is skilled in his particular line.

Their vehicle headlight, when once used on the farm, around the barn and the dairy or as a driving lamp, would be considered almost indispensable. Besides being a very powerful light, its neatness and general appearance is a work of art, furthermore, it is home industry and is deserving of your patronage. We commend it to the readers of the Cultivator.

BABY CHICKS.

The Pioneer Hatchery's new 64-page book is free to all Cultivator readers who send their names and addresses. This is the largest book of its kind ever printed—64 full pages of useful poultry information. Just send your name to the Pioneer Hatchery, 112 East Eighth, Los Angeles.

A HEALTHY INCREASE.

650% increase in any business is certainly going some, but E. E. McClanahan, the Success Incubator man, reports sales for this January six and one-half times as large as last January. Full description of these famous incubators can be had by sending your name to E. E. McClanahan, 112 East 8th, Los Angeles.

The C. C. Morse Co. of 48 Jackson St., San Francisco, is sending to Cultivator inquirers a novel card folder with return postals, which is well worth the asking. It describes several novelties which the firm is specializing on and makes combination offers most attractive.

EGYPTIAN COTTON IN THE UNITED STATES.

Although the United States is the greatest cotton-producing country in the world, a large quantity of this staple is imported from Egypt every year. The variety of cotton most extensively grown in Egypt is known as the Mit Afifi; it has a soft, rather crinkly fiber of a characteristic light brown color that renders it especially useful for certain classes of cotton goods in which the natural color of the fiber is retained.

The best Egyptian cottons bring a price second only to that paid for the highest grades of Sea Island, being used solely in the manufacture of the finest goods. They are especially suitable for mercerizing, taking this process better than the native American cottons, and are largely used for mixing with silk and for the manufacture of cloths in which a high finish and luster are required. In 1909 the import of cotton from Egypt amounted to 72,617,893 pounds, valued at $12,101,000.

In view of the considerable value of this import, the U. S. Department of Agriculture is endeavoring to develop Egyptian cotton culture in the United States in order to supply the American market with a home-grown product. As a result of experiments that have been carried on for the past seven years in acclimatizing and breeding Egyptian cotton in the Southwest, several distinct types have originated from the stock of imported seed of the Mit Afifi variety with which the work was begun. Two of these are as distinct in the characters of the plants, bolls, and fiber as some of the newer varieties which have originated in Egypt from the Mit Afifi. A third promising type is an improved acclimatized strain of Mit Afifi rather than a new variety.

A description of the leading characteristics of these promising varieties and strains and the methods followed in the plant-breeding work, as well as a brief account of the general progress of the acclimatization experiments with Egyptian cotton during the year 1909, is given in Bulletin 200 of the Bureau of Plant Industry, entitled "Breeding New Types of Egyptian Cotton," recently issued by the U. S. Department of Agriculture.

Spinners who have examined samples of the acclimatized Egyptian fiber grown last year in the Southwest pronounce it to be in every way as well adapted to their requirements as is the imported cotton of corresponding grades.

A new disease of the skin known as "straw itch" has been reported. The cause is a minute parasite which preys upon larvae of insects infesting grain, especially wheat. Outbreaks of the disease have been noted in New Jersey, Maryland, Pennsylvania, Illinois and Indiana.

This little parasite remains on the straw and may attack persons who handle the grain or straw. When the straw is used for filling mattresses, those sleeping upon such beds are liable to contract the disease. Symptoms: Within twelve to sixteen hours after exposure the first and invariable symptom, itching, appears. The eruption appears at the same time as the itching and consists of wheals surmounted by vesicles. The contents of the vesicles soon becomes purulent. In severe cases there may be chills, nausea and vomiting. The eruption is most abundant on the trunk, slight on the extremities and practically absent from the face and hands.

The parasite is short lived, and if exposure is not repeated the disease soon subsides. In many instances, however, the cause not being known, the exposure is repeated many times. The treatment consists in removing the cause of infection, and for the attack the application of some mildly alkaline wash, some simple ointment, and in some cases a weak sulphur ointment.—Farm Journal.

PAN BROILING.

It is sometimes inconvenient to broil over the coals, and nearly the same effect may be obtained by cooking in a dry, hissing hot frying pan. Heat the pan to a blue heat and with a perfectly smooth pan no greasing is necessary. Sear the meat quickly on one side, then turn with a broad knife—without cutting the meat—and brown the other side before any juice escapes into the pan. Cook from 4 to 8 minutes, turning often enough to prevent burning, and add a sprinkling of salt before the last turning.

GRAZING EXAMINERS FOR NATIONAL FORESTS.

(Continued from Page 217.)

point of range productivity the best scientific knowledge must be applied to the study of the problems of forage production and utilization. As stock graze on the range, the effect on the different kinds of vegetation differs both with its palatability or unpalatability and with its capacity to produce seed, its time of seeding, its resistance to trampling, its manner of growth, and many other elements.

What is aimed at now is nothing less than to find out all the things on which depend the production of the largest amount of beef, mutton, wool, and hides on a given area. This involves learning how both to restrict and to time the grazing so as not to interfere with the reproduction of the most valuable elements in the forage crop, how to prevent unnecessary loss to feed through trampling and in other ways, how to exterminate poisonous plants from the range, how to prevent the loss of forage which results from the multiplication of prairie dogs and gophers, whether it is practicable to introduce new forage plants by direct seeding, and many other matters. It is to look into such matters that the grazing examiners are to be appointed.

Besides seeking to bring about the recuperation of depleted ranges, the reduction of waste, and the development of all range to what may be termed an artificial state of productiveness through control of reproduction, accompanied, it is hoped, by the introduction of new forage plants, the studies planned will aim also at increasing the area of range available. There is much natural grazing land in the national forests which can not be put to use, either because the country is too rough for stock to be driven in, because shipping facilities are lacking, or because of a lack of water. The construction of properly located roads and driveways and the development of water through the building of reservoirs or the driving of artesian wells are a part of the general scheme of permanent improvements planned for the national forests. To furnish the basis for comprehensive development of the grazing resource the range will be studied in detail, classified according to the type of vegetation found, and mapped by "forties." The observations made will include notes for each forty acres upon the surface, soil, character and density of vegetation, evidence of overgrazing or underuse, presence of poisonous plants, damage by range-destroying animals, water facilities, and accessibility. With such data in hand it will be possible to bring about much more intelligent and intensive use of the national forest range.

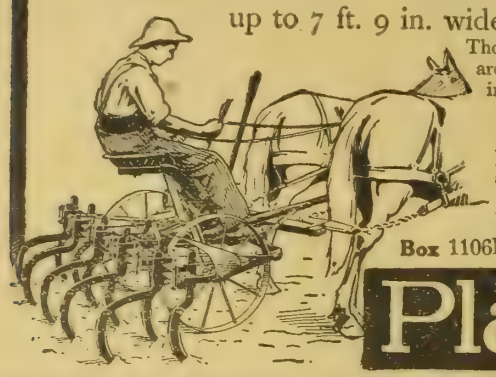
CABBAGE SALAD.

Cut in halves a small solid cabbage and place in cold salt water with the inside down, for half an hour. Drain and shave fine. Make a cream dressing by mixing two teaspoons sugar and one each of salt and mustard, using also a little pepper. To this add three-fourths cup cream, one lightly beaten egg and a half cup of vinegar. Cook over hot water until the mixture begins to thicken and add a teaspoon of butter. Beat well and allow it to become thoroughly cold before adding to the cabbage.

The flood waters from the recent storm damaged the Peoples Ditch weir in the Kings river. It will be repaired before the irrigation season.

Orchardists' Time and Labor-saver

The Planet Jr No 41 Orchard and Universal Cultivator is the greatest implement ever invented for orchard, vineyard and hopyard. It does exactly what orchardists want it to do. Saves time, labor and money. The frame is heavy and substantial, high-carbon steel, and carries cultivator teeth, sweeps, hoes, furrowers, also disc-harrow attachment. Made in three sizes, cutting up to 7 ft. 9 in. wide at one passage.



Thousands of Planet Jr Cultivators are saving time and lightening labor in California and other fruit-growing districts.

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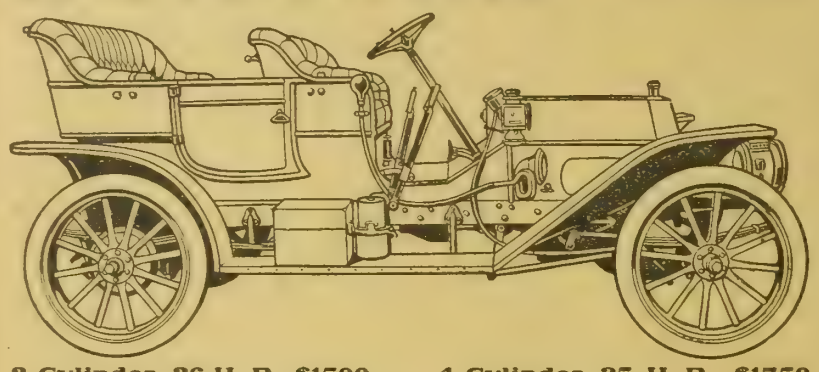

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General Household Notes

AULD LANG SYNE.

Should auld acquaintance be forgot,
and never brought to mind?
Should auld acquaintance be forgot,
and days of auld lang syne?
For days of auld lang syne, my dear;
for auld lang syne,
We'll take a cup o' kindness yet,
for auld lang syne.
We twa hae run about the braes, and
pu't the gowans fine;
But we've wandered mony a weary
foot, sin auld lang syne.

We twa hae paidl't i' the burn, frae
mornin' sun till dine,
But seas between us braid hae roar'd
sin auld lang syne.
And here's a hand, my trusty frere,
and gie's a hand o' thine,
And we'll take a right guid willie-
waught for auld lang syne.
And surely ye'll be your pint-stoup,
and surely I'll be mine;
And we'll take a cup o' kindness yet
for auld lang syne.

—Robert Burns.

JOSH BILLINGS ON "PHARMING."

Pharmin' (now daze) is pretty much all theory, and tharefore it aint astonishing, that a man kan live in a city, and be a good chancery lawyer, and also kno all about pharming. A pharm (now daze), ov one hundred akers, will produse more bukwheat, and pumpkins, run on theory, than it would 60 years ago, run with manure and hard knoks.

Even now it aint unkommon, tew see three, or four, hired men, on a farm, with three, or four, span ov oxen, all standing still, while the boss goes into the library, and reads himself up for the day's ploughing. If i was running a pharm (now daze) i suppose i would rather hav 36 bushels, ov some nu breed of potatoze, raized on theory, than tew hav 84 bushels got in the mean, benighted, and underhand way, ov our late lamented grand parents. Pharmin' after all, iz a good deal like the tavern bizzness, ennyboddy thinks they kan keep a hotel (now daze), and they kan, but this iz the way that poor hotels cum tew be so plenty, and this iz likewise what makes pharmin' such eazy, and proffitable bizzness. Just take the theory out ov pharmin, and thare aint nothing left, but hard work, and all fired lite krops. When I see so much pholks, rushing into theory pharmin,' az thare iz (now daze), and so menny ov them rushing out agin, i think ov that piece ov skriptur which remarks, "menny are called, but few are chosen."

I onst took a pharm, on shares miself, and run her on sum theorys, and the thing figured up this way; i dun all the work, phurnised all the seed, and manure, had the ague 9 months, out ov 12, for mi share ov the proffits, and the other phellow, paid the taxes on the pharm, for hiz share. By mutual konsent, i quit the pharm, at the end ov the year.

What i know about pharmin, aint worth bragging about, and i feel it my duty to state, for the benefit ov my kreditors, that if they ever expekt me tew pay 6 pense in the pound they mustn't start me in theoretikal pharmin employ.

If a man really iz anvious tew make munny on a pharm, the less theory he lays in the better, and he must do pretty mutch all the work hiss elf, and support hiz family on what he kant sell, and go ragged enouff all the time tew hunt bees.

I kno ov menny farmers, who are so afflikted with superstishun, that they wont plant a single bean, only in the last quarter of the moon, and i kno of others so pregnant with science that they wont set a gate post, until they hav had the ground analized, by some professor tew see if the earth haz got the right kind of ingredience for post holes.

The fakt ov it iz, that theorys, ov all kind, work well, except in praktiss; they are too often designed tew do the work ov praktiss.

Thare aint no theory in brakeing a mule, only tew go at him with a klub in yure hand, and sum blod in yure eye, and brake him, just as yu would split a log. What i kno about pharming aint wuth mutch enny how, but I undertook tew brake a kicking heifer once. I read a treatiss on the subjekt, and phollowed the direkshuns cluss, and got knokt endwaze, in about 5 minnits. I then sot down, and thought the thing over. I made up mi mind that the phellow who wrote the treatiss waz more in the treatiss bizzness than he was in the kicking heifer trade. I cum tew the konklushun that what he knu about milking kiking heifers, he had larnt by leaning over a barn yard fence, and writing the thing up. I got up from my refleshuns strengthened, and went for that heifer. I will draw a veil over the language i used, and the things i did, but i went in to win. That heifer never bekum a cow. This iz one way tew brake a kicking heifer, and after a man haz studdyed all the books in kreashun on the subjek, and tried them on, he will fall bock onto mi plan, and make up hiz mind, az i did, that a kicking heifer iz wuth more for beef than she iz for theoretick milk.

I hav worked on a pharm just long enuff tew kno that thare iz no prayers so good for poor land az manure, and no theory kan beat twelve hours each day (sundaze excepted) of honest labour applied tew the sile.

I never knu a pharm that waz worked pretty mutch by theory, but what waz for sale, or to let, in a fu years, and I never knu a pharm that waz worked by manure, and muscle, on the good old ignorant way ov our ansestors, but what waz handed down, from father to sun, and alwus noted for razing brawny armed boys, and buxom lasses, and fust rate potatoze.
—Josh Billings.

THE SECRET OF HOSPITALITY.

When a girl I visited for a week occasionally with Aunt Mary and her daughters. During one of my visits a letter came from a relative, an elderly man of some note. He was coming North for the summer, and wished to spend a few days with this niece and her family, whom he had not seen for years. I assisted in the preparations for the guest, and it seemed to me that the family was under a great strain, great attention was given to every detail and elaborate preparations made for meals. When the guest arrived, everything that could be polished had been polished, everything cleaned that could be cleaned. The house was immaculate, the meals perfect, the crystal and china sparkling. But the family seemed so worn and anxious, and it was a real relief when the strain was over.

Young as I was, the thought came to me: "Why, if mother did so much extra work for each of the many

Pioneer ROOFING

—best by every test

The Popularity of **Pioneer Roofing** is due to its **wearing** qualities. We want to go on record right here and now with the positive assertion that a "Pioneer Roof" will outlast **two** ordinary roofs. The first cost is little if any more than you would have to pay for roofing of inferior quality. And once a "Pioneer Roof" is on, there is no further cost. It requires no paint or repairs.

Pioneer Roofing is made in several weights; suitable for residences, hotels, outhouses, business blocks; anywhere that a sunproof, rainproof roof is required. Comes in handy rolls. Easy to lay. No special tools needed. Everything necessary will be found in the center of each roll, for which there is no extra charge.

Free Booklet and Samples

The mauufacturers of Pioneer Roofing have published a 32-page booklet, which is effectively illustrated. The booklet is both interesting and instructive. It tells how to lay roofing—and what weight or thickness of roofing is best suited to the various kinds of buildings. The booklet and samples of roofing will be mailed free upon request.

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Oiled Canvas, Rubber and Leather.

Tents, Tarpaulins, Wagon Tops, Roll Canvas, Picking Bags, Stack Covers, Etc.

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and most all other insects in the orchard, garden and field are readily killed by spraying with

ACME NICOTINE LIQUID

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Pint, $1.10; half gallon, $4.25; gallon, $8.00. SOLD DIRECT TO THE CONSUMER.

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The Largest Association in California
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Send for 20th Annual Statement and Booklet

The California Cultivator leads in advertising and circulation.

guests we have, we should require several servants." Then another thought followed: "Perhaps we have mother's calmness to thank for our many guests." When I returned home mother told me that Uncle Wilbur had visited her.

"Then you must be very tired, mother."

"No, child, his visit was a treat and a rest. I tried to lessen my work while he was here and thoroughly enjoyed the time. He read me the notes for his new book, and seemed so glad that I had the time to listen."

"Aunt Mary did not know that he was writing a book."

"No, the dear old soul said that he thought that Mary was not well, seemed over-burdened in some way, and he did not want to take any of her time."

Later I found that he thought my home a haven, the very spot he had longed for, in which quietly to complete his work. What had mother done? She had not altered her household routine in the least, only to leave some few things undone, that she might have more spare time. Uncle Wilbur had found a household glad to have him as a guest, had found no pretense of a different standard of living.

That is the sweetest kind of hospitality. We love our friends and long occasionally to peep in on them, and, without causing any flutter, chat and bide a while. We love them for what we know they are, not for what they have, not for what they may try to be, out of all good, but mistaken feeling. Do you know the fine feeling when you know that your coming has caused no rush nor anxiety, when simply a place is arranged for you and you live for a while with your dear ones and have a glimpse of life as they live it to carry away in your heart?—Rural New Yorker.

HOW CHILDREN SPEND THEIR MONEY.

By Miss Candis Nelson, A. M., State Normal School, North Dakota.

There are few children but what have some money to spend, sometimes they earn it for themselves, sometimes it is a gift from the parents. It is a wise thing, when at all possible, for children to have a regular allowance even though very small, and then be taught how to spend it and how to lay by some for the proverbial rainy day. Where children can earn their own spending money, ordinarily they are wiser in its use. Under our present system of allowing children to do as they please with their money, they plan to spend it mostly for candy and gum. The desire for sweets often leads them into questionable methods of saving, for example, an investigation made a few years ago in one of our western cities revealed the fact that candy and gum dealers did a better business on Monday morning than any day of the week. The supposition was that the children conceived their needs to be greater than those of the heathen and so instead of putting all their money in the collection they saved a little for Monday's purchases. Cheap shows have also, rather suddenly, become a great source of extravagance for children.

It is not a difficult thing to arouse an interest in children in putting aside for another day, money so often unnecessarily and foolishly spent. The ordinary toy bank is a good thing to encourage economy. Care must be taken that children do not develop selfish or miserly habits. Train them to recognize their responsibility to their neighbor. To set aside a certain per cent of their savings for a sunshine fund is commendable. With this they may send a postal card or a flower to the sick, they may buy a needed spoon or cooking utensil for their mother; they may put it in the church collection, or give it to some organized charity; in fact, they may spend it in many helpful ways, even though it should be only a penny or two. Saving in order to purchase an article really useful and educational, ought to be encouraged. Such articles dear to boys, are bicycles, tools, electrical toys, magic lanterns, cameras and printing presses.

Schools often undertake the work of training children to do systematic saving. The work is carried on by means of school savings banks. In Europe they have found much favor, where it is claimed, they not only train to habits of thrift and self-dependence, but reduce crime, intemperance and pauperism. They were introduced into the United States about 1885 by a French educator. In 1893 the United States had 325 school saving banks with $350,634.32 on deposit; in 1905 there were 4541 banks that had collected, since the system was introduced, $2,872,012.

The plan is to have the children bring, either daily or once a week, the amount they can save and this is turned over to some safe bank and books are returned to the children to be examined by the parents. The teacher usually keeps a book with the name of the depositor and the amount of the deposit; sometimes the child is given a card with the amount deposited punched, and sometimes he keeps account by means of stamps. In some cities, particularly in Europe, the school banks are connected with the postal saving banks. Whatever the method for handling, the principle remains the same, that is, to educate our children to be producers, contributors and thrifty citizens.

THE FOOT-PATH TO PEACE.

To be glad of life because it gives you the chance to love and to work and to play and to look up at the stars. To be satisfied with your possessions but not contented with yourself until you have made the best of them. To despise nothing in the world except falsehood and meanness, and to fear nothing except cowardice. To be governed by your admirations rather than by your disgusts. To covet nothing that is your neighbor's except his kindness of heart and gentleness of manners. To think seldom of your enemies, often of your friends, and everyday of Christ; and to spend as much time as you can, with body and with spirit in God's out-of-doors. These are little guide-posts of the foot-path of duty.—Henry van Dyke.

DUTY.

This truth comes to us more and more the longer we live that on what field or in what uniform or with what aims we do our duty matters very little; or even what our duty is, great or small, splendid or obscure. Only to find our duty certainly and somewhere, or somehow, to do it faithfully, makes us good, strong, happy and useful men, and tunes our lives into some feeble echo of the life of God. —Phillips Brooks.

THE TRACKS.

Lives of famous men remind us
We may make our lives sublime,
And, departing, leave behind us
Gasoline on sands of time.
—Harper's Bazar.

Paint Is Cheaper Than New Buildings

You know how quickly a building that never saw paint goes to rack and ruin. The boards rot around the nails, they crack and warp.

Only constant repair keeps the building standing.

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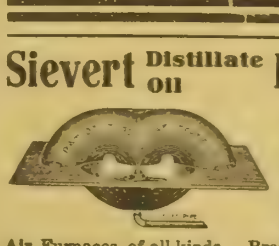

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All Kinds of Oil Storage Tanks.

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 15, 1911.

Butter.

Local market is firmer because of reported advance at Elgin. Quotations same as last week. Daily receipts about 50,000 pounds.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	33½
Firsts	30
Ladles	22
Cooking	20

Cheese.

Local	17½@18
Northern, fresh	17½@18
Oregon Daisy	17½@18
Domestic Swiss	20
Imported Swiss	32

Eggs and Poultry.

Tuesday saw a material strengthening of the egg market and a three-cent advance.

Paying price f. o. b. Los Angeles is:

Local ranch candled	34
Case count buying price	30
Northern	28@32
Eastern storage	24@25
Eastern case count	19

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	17
Roosters	10@15
Broilers	25
Fryers	21
Roasters	19
Turkeys	23@25
Ducks	21
Geese	20
Squabs, per doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8½
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	2.15@2.85
Salinas	2.50
Watsonville	2.35
Nevadas	2.00@2.10
Oregon, Early Rose	2.25
Northern Early Rose	2.00
Lompoc	2.50
Idaho Rurals	2.00@2.10
White Rose, local	2.25
Sweets, yellow, cental	3.50@3.75
Sweets, white	2.50
Colorados	2.10@2.25

Onions.

Wholesale quotations:

Oregons	2.75@3.00
Australian browns	2.75
Nevadas	2.75@3.00
Utah	2.50
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.00@1.25
Asparagus, lb	40
Beets, sack	90
Brussels sprouts	10
Bell peppers, lb	15
Green chilis	10@15
Cucumbers, doz	1.00@2.25
Cabbage, sack	75@85
Celery, crate	2.25@2.50
Cauliflower, crate	1.25@1.50
Carrots, sack	90
Egg plant, lb	15
Horseradish	12½
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@1.25
Oyster plant, doz	40
Peas, lb	8@10
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Pumpkins, lb	1@2
Radishes, doz. bunches	20@25
Rhubarb, Crim. Winter, box	1.00@1.25
Spinach, doz	20@25
Hubbard squash, lb	2@2½
Tomatoes, crate	1.50
Tomatoes, Mexican	1.50@1.75
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.75@2.25
Grapefruit, seedless	2.75@3.00
Lemons	1.50@2.50
Tangerines	1.35
Limes, per 100	1.25@1.50

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.25@1.50
Spitzenbergs	1.75@2.50
Jonathans	2.25@2.35
Greenings	1.10@1.25
Pearmains	1.10@1.50
Newtown Pippins	1.20@1.35
Pineapples	6½@8
Mangoes, doz	1.75
Pears, lb	5@6
Bartletts, lb	8@10
Winter Nelis	2.50@2.75
Strawberries	15

Dried Fruits.

Wholesale prices are:

Apricots	12@13
Evap. Apples, fancy, lb	11½@12½
Figs, box	1.65@2.00
Peaches	7@8½
Nectarines	10
Pears	11@12½
Prunes	8½@12
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.25@6.50
Black eyes	7.00
Pinks	6.50
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Lentils	7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	15@16
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb; new	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10½
Extracted light amber	9
Comb water white	17
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	12.00@13.00
Wheat hay	13.00@14.00
Tame oat	14.00@16.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, ctl	1.80@1.85
Corn	1.60
Popcorn	3.75@4.00
Egyptian corn	1.75
White oats	1.80
Rye seed	2.00
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.15
Cracked corn	1.65
Cracked wheat	1.95
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed meal	1.70
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Feb. 14, 1911.

Butter.

The butter market is firm and shows a cent advance during the week.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	32
California firsts	27½
Seconds	26½

Cheese.

California flats, new	14@16
Cal. Y. America, fy, new	15½@17½
Oregon fancy	13½

Eggs and Poultry.

Eggs have taken a sharp decline, and are so far under the Los Angeles market that heavy shipments are promised, which will doubtless strengthen the market.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	27½
Store	27
Hens, doz	5.00@9.00
Fryers, doz	6.00@6.50
Ducks	6.00@10.00
Broilers	3.00@4.50
Roosters, doz	5.00@9.00
Turkeys	18@20
Geese	2.00@2.50
Pigeons	1.50@2.50
Squabs	3.00@4.00

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	5@6½
Hogs	6@8½
Milk lambs, unshorn	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4½@5

Potatoes.

Wholesale market quotations:

River White, cwt	1.60@1.90
Salinas Burbanks, cwt	2.10@2.30
Oregon Burbanks, cwt	1.90@2.10
Lompocs	2.25
Early Rose	1.65@1.85
Sweets, ctl	3.00@3.25

Onions.

Onions, California, sack	2.25@2.40

Vegetables.

Wholesale quotations:

Asparagus, forced	20@25
Asparagus, natural	40@50
Artichokes	10@75
Beans, string	10@15
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	75@1.25
Celery, crate	50@2.00
Bell peppers	10@12½
Chili peppers, lb	4@12½
Egg plant, lb	10@15
Mushrooms	10@35
Okra, box	40@60
Peas, lb	3@10
Summer squash, box	1.50@2.00
Rhubarb, box	1.25@1.50
Tomatoes	75@1.00
Turnips	65
Garlic, lb	4@6

Citrus Fruits.

Navels, new	1.50@2.00
Grapefruit, seedless	1.50@3.00
Grapefruit, seedlings	1.50@2.00
Lemons	1.50@3.00
Limes, Mexican	5.50@6.00
Tangerines	50@1.25

Fresh Fruits.

Alligator Pears, doz	1.00@1.50
Mangoes	50
Apples, box	75@1.00
Apples, Belleflowers	1.15@1.25
Newtowns	1.15@1.40
Spitzenberg	1.75@2.50
Bananas, Hawaiian	1.25@2.50
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.00

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.: Apples, 10@11c; apricots, 10¾@13c; do, Moorparks, 14c; peaches, 6@7½c; with a premium of ⅛@¼c on Muirs; prunes, bulk basis, Santa Claras, 6¾@7¼c, with ¼c premium on 60s to 90s; outsides, 6@6¼c; figs, 6¼@7½c for white and 5@5½c for black; pears, 9¾@13c.

RAISINS—1910 crop: London layers, in 20-lb. boxes—6-crown clusters, $2.50; do, 5-crown, $1.75@2; 4-crown, $1.30@1.40; 3-crown layers, $1@1.10; 3-crown, 95c@$1. Seeded, per pkg.—Fancy, No. 16, 5¾@6c; choice No. 16, 5½c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5c; do, 3-crown, 4⅜@4½c; do, 2-crown, 3⅞@4c. Dried grapes, 3c. Seedless—Muscatels, 4c; Sultanas, 4¾@5c; Thompson's, 5⅜@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13¼
Almonds, '10 Nonp	15
Almonds, '10 I X L	14
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.10@6.15
Pink	5.50@5.65
Black eyes	5.50@5.60
Small white	3.25@3.50
Large white	3.25@3.50
Kidneys	6.25
Garbanzos	3.00
Bayo	4.90
Horse beans	2.50
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	20@22
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Scott, Magner & Miller say:

Arrivals of hay during the week ending today have amounted to 2,350 tons, which is slightly less than the amount recently received.

While we have had nice weather all week, which permitted the comfortable handling of hay from the cars and boats, yet the expected improvement in the local demand did not develop.

It is generally thought that a lower range of values will become established, and therefore no buying is being done except to fill immediate and most pressing necessities. There is a demand for lightweight fancy hay for retailing purposes. This class of hay will command exceptional attention on account of there not being much of this variety available.

The demand for export and coastwise shipments has been a little lighter this week, although there has been quite a little go forward on small-sized orders.

There is no change on alfalfa hay, and the market is ruling fairly steady on this article.

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.50@11.50
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.50@11.50
Other tame oat	8.00@10.00
Wild oat	7.50@9.50
Stock hay	5.00@6.50
Alfalfa, ton	9.00@11.00
Straw	40@50

Grain.

Wheat, No. 1	1.45@1.52½
Barley, fancy	1.16¼
Barley, good to choice	1.12½@1.15
Barley, poor to fair	1.07½@1.11¼
Oats, white	1.50
Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00@18.00
Bran, ton	29.00@30.00

Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Ground barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	32.50@35.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@26.00
Shorts	29.00@31.00

Citrus Fruit Market

LOS ANGELES, Feb. 15, 1911.

The decay which has been so serious a factor is not quite so general as for a few days, but it is still a factor with which every packing house has to deal. Every possible precaution is being taken. Many maintain that it is from the black smut which occurs in the navel end of the fruit. It is an entirely new problem, never having occurred to any such extent. The auction markets show a better range of prices, and all over the country the shortage in shipments during the long rainy spell is proving a material benefit. With the improving of the decay situation and the cleanup from this shortage, materially better prices should obtain for some time.

The lemon situation is fully as strong as it has been, and with shipments as they have been going forward, every offering is taken at a good price. Some fruit is being stored for warm weather shipment.

Shipments.

Shipments of oranges to date since November 1, 1910: 8,803 cars, lemons 1,275, total 10,078. To same date last season: oranges 5,238, lemons 1,147, total 6,385.

NEW YORK, Tuesday, Feb. 14.—Twenty seven cars navels, one navel encia and two cars lemons sold. Market higher on navels, strong on lemons. The weather is cloudy.

NAVELS—	Avge.
Titus Ranch, fy, S Marino G P A	2.30
El Toreador, Sd, S Marino G P A	2.00
Elephant, Or, Elephant Orchard	2.90
Elephant Seconds, Elephant Orch	2.20
Blue Banner, xf, Sutherland F	2.80
Green Banner, Sutherland F	2.40
Valle Vista, Sd, Sutherland F	2.10
East Highlands, A xf, E Highland	2.75
Redlands Best, xf, M O Dis	2.50
Marguerite, xc, Earl F Co	2.20
Euclid, Or, Growers F Co	2.80
Uplander Growers	2.45
Ideal, High Prot F A	2.35
Delicious, Prot F A	2.20
Stock Label	1.90
Corona Cross, Imp, National O	2.60
Corona Cross, National O	2.25
Half Moon, xf, Red G O A	2.25
Gold Buckle, R H, E Highland	2.75
Lochinvar, R H, E Highland	2.40
Pinnacle, O K Ex	2.35
Majesty, O K Ex	2.20
Victoria, Imp, A H Ex	2.80
Lincoln, Imp, A H Ex	2.45
Navajo, Imp, A H Ex	2.20
Gold Buckle, R H, E Highland	2.75

BOSTON, Tuesday, Feb. 14.—Nine cars sold. Snowing. Market doing better on oranges, unchanged on lemons.

NAVELS—	Avge.
Pointer, A C G, Charter Oak	2.00
Gold Buckle, R H, E Highland	2.80
Honor Bright, A F, Highgrove	2.15
Eagle, A F, Highgrove	2.10
Swan, R H, Redlands	2.65
Majesty, O K Ex	2.25
Rossmoyne, xc, S T, Rossmoyne	2.20
Pointer, A C G, Azusa	2.10
Lochinvar, R H, E Highland	2.35
Sweetheart, A F, Highgrove	2.20
Yankee Doodle, A F, Highland	1.80
Pinnacle, O K Ex	2.40
Rossmoyne, xc, S T, Rossmoyne	2.20
Lincoln	2.25

LEMONS—Pride of Corona, Q C, Corona, $3.90; Corona Beauty, $3.60. TANGERINE HALVES—Bear, O K Ex, $1.50; Pinnacle, $1.30.

CHICAGO, Tuesday, Feb. 14.—Lemons remain steady, and held because supply is small. Trade is quiet. Boxes, California fancy 300s, $3.75; 360s, $3.50; off sizes, $3.00; extra fancy, $3.75@4.00.

Oranges were easier for California navels. Supply has become good. A good many cars on track, some say 100 cars. Demand moderate, not as large as desired. Boxes, navels, California fancy, 96s, $2.50; 126s, $2.50; smaller sizes outside in rather a small way, $1.75@2.25.

CLEVELAND, Monday, Feb. 13.—Seven cars navels and one car lemons sold. The market is very strong.

NAVELS—	Avge.
Parrot, S A Ex	2.15
Iris, D M, Duarte	2.30
Ben Hur, S B, Redlands	2.00
Red Shield, A C G, Azusa	2.30
Lochinvar, R H, E Highland	2.55
Alhambra, S T, E Alhambra	2.10
George Washington, S S, Tustin	1.35
Jasmine, D M, Duarte	2.00
Newsboy, R H, Redlands	1.70
Green Crown, A C G, Azusa	2.15
Belt, R H, E Highland	2.20

LEMONS—Pet, S A Ex, $3.80; Arab, $3.70; Pup, $3.40.

CINCINNATI, Monday, Feb. 13.—Cold. Market steady on oranges and lemons. Five cars oranges and one car lemons sold, also four cars Floridas.

NAVELS—	Avge.
Parrot, S A Ex	1.95
Red C, Covina Ex	1.50
Golden Flower, xf, Red G O A	2.30
Green Crown, A C G, Azusa	1.75
Cougar, Covina Ex	1.40
Orange Blossom, xc, Red M O	2.00

LEMONS—Princess, Q C, Corona, $3.20; Lily, $2.90; Florida Brights, $1.50@2.25; Russets, $1.50@2.50. Raining here.

ST. LOUIS, Monday, Feb. 13.—Favorable. Market steady on navels, easier on lemons. Seven cars navels and three cars lemons sold.

NAVELS—	Avge.
Hunter, A C G, Glendora	1.85
Mother Colony, S T, Anaheim	1.85
Lochinvar, R H, E Highland	2.55
Sunlight, R H, Redlands	2.45
Wildflower, ch, Randolph F Co	1.95
Albion, ch, T Strain	1.85
Alhambra, S T, E Alhambra	2.15
Carnival, S T, Anaheim	1.80
Belt, R H, E Highland	2.15
Golden Circle, R H, Redlands	2.25
Lighthouse, S T, Randolph	1.90
LEMONS—	Avge.
Sunset	2.70
Al Azar, A C G, Azusa	2.85
Green Crown, A C G, Azusa	2.35
Justrite, Q C, Corona	2.85
Stock Label, A C G, Azusa	2.40
Red Shield, A C G, Azusa	3.00
O I C, Q C, Corona	2.65
Minerva, Q C, Corona	2.35

BOSTON, Monday, Feb. 13.—Fourteen cars sold. Cool, cloudy. Market doing better on oranges, easier on lemons.

NAVELS—	Avge.
Alta Cresta, A H Pach	2.65
Robusta, A H Pach	2.35
Robusta, marked X	2.25
John Alden, S B, Highland	2.25
John Alden, S B, Highland	2.00
Gold Buckle, R H, E Highland	2.70
Kenilworth, A H, Riverside	2.30
Pinnacle, O K Ex	2.45
Princess, O C, Corona	2.15
Orchard, Or, National O Co	2.95
Rose, xf, Red O G A	2.35
Elephant, seconds, Elephant Orch	2.35
Alta Cresta, marked V R	2.75
Robusta, marked W R	2.25
Hobo, marked W R	1.70
Priscilla, C B, Highland	2.60
Jack Rabbit, S B, Highland	1.60
Lochinvar, R H, E Highland	2.25
Peasant, A H, Riverside	1.75
Laurel, Q C, Corona	2.50
Lochinvar, R H, E Highland	2.35
Elephant, Or, Elephant Orch	2.60
Standard, Sd, National O	2.35
LEMONS—	Avge.
Highland	2.80
Gold Buckle, R H, E Highland	3.80
Pet, S A Ex	3.70
Laurel, Q C, Corona	4.20
Arab, S A Ex	3.45
Quail, O K Ex	3.60

Bear tangerines, halves, $1.45.

PHILADELPHIA, Monday, Feb. 13.—Ten cars navels, one car lemons and thirty cars Florida oranges sold. Floridas, $1.00@3.50, average $2.05. Grapefruit, $1.25@3.25, average $2.15. Tangerines, $1.00@1.85, average $1.45. Market unchanged on good stock.

NAVELS—	Avge.
Sunny Heights, R H, Redlands	2.15
Teal, Covina Ex	1.80
Sweetheart, A F, Highland	2.15
Yankee Doodle, A F, Highland	1.75
Campfire, S T, Nord	1.40
Arroyo, S T, Pasadena	1.90
Quail, O K Ex	2.25
Pointer, A C G Ex	2.15
Slover Mountain, Growers F Co	2.20
Santa Anita	1.75
Butterfly, Covina Ex	1.85
Pointer, A C H, Charter Oak	2.10
Eagle, A F, Highland	1.95
Quality, S T, Nord	1.45
Echo, S T, Pasadena	2.00
Tournament, S T, Pasadena	1.85
Stag, A C G Ex	2.65
Pointer, Imp, A C G Ex	2.30
Standard	2.00

LEMONS—Euclid Growers F Co, $3.70; Flower, $3.40.

PITTSBURG, Monday, Feb. 13.—Thirteen cars sold. Market steady on oranges, strong on lemons. Cool, cloudy.

NAVELS—	Avge.
Butterfly, Covina Ex	1.60
Whittier, S T, Whittier	1.75
Planet, S S, Orange	1.75
Iris, D M, Monrovia	2.50
Jasmine, D M, Monrovia	1.95
Belt, R H, E Highland	1.80
Violet, D M, Duarte	2.00
Iris, D M, Monrovia	2.40
Jasmine, D M, Monrovia	2.10
Golden Gate, xc, Red G O A	2.10
Del Oro, ch, Sparr F Co	1.90
Carnival, S T, Anaheim	1.75
Teal, Covina Ex	1.35
Mother Colony, S T, Anaheim	1.95
Pointer, A C G, Azusa	1.35
Violet, D M, Monrovia	1.75
Lochinvar, R H, E Highland	2.35
Iris, D M, Duarte	2.15
Jasmine, D M, Duarte	1.70
Violet, D M, Monrovia	1.90
Golden Flower, xf, Red G O	2.30
Lotengo, fy, Sparr F Co	2.15
Mother Colony, S T, Anaheim	1.95
LEMONS—	Avge.
Lotengo, fy, Sparr F Co	3.60
Goldfinch, S S, El Modena	3.45
Whittier, S T, Whittier	3.65
El Modena, S S, El Modena	3.05

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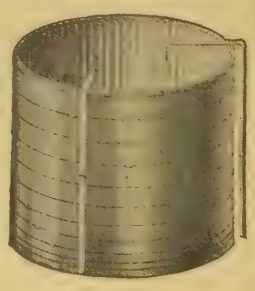

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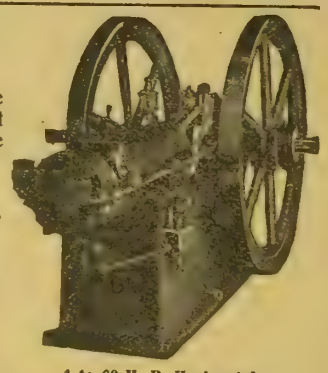

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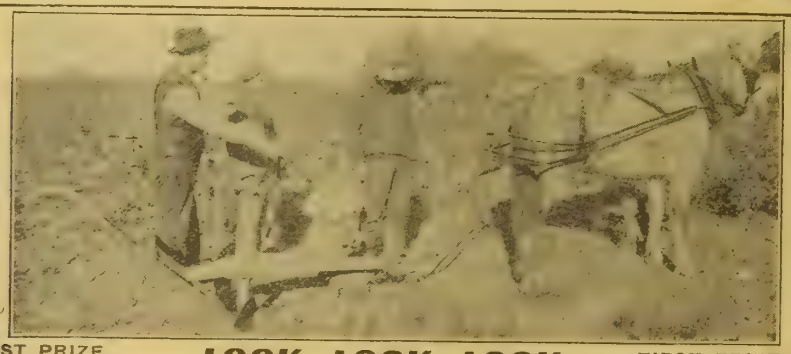

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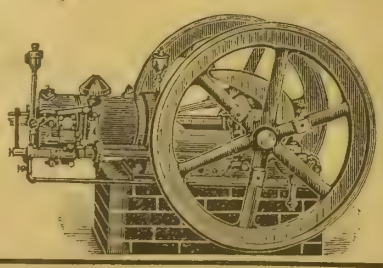

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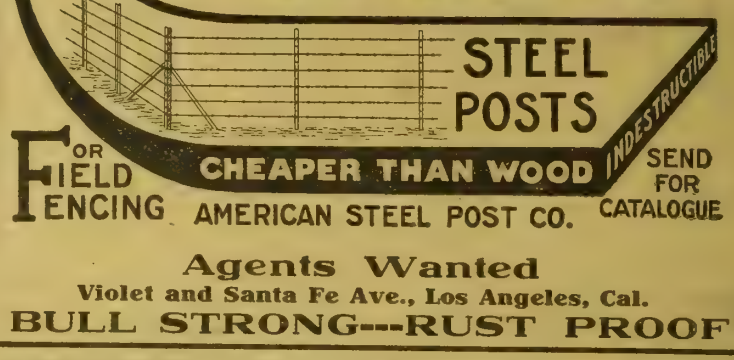

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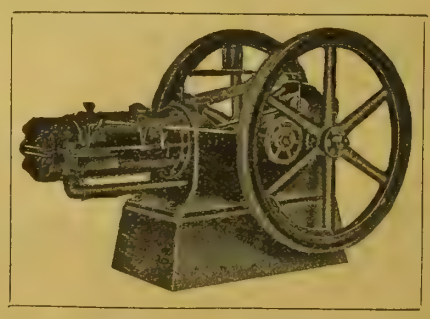

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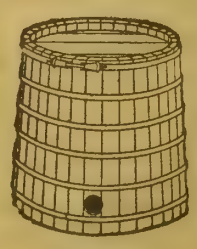

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California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES FEBRUARY 23, 1911 SAN FRANCISCO

Influence of Lemon Stock on Quality of Oranges

There is something uncanny and mysterious in the complete change in the nature of a plant by grafting. To many the process itself is most mysterious, yet it is less so than the growth of a cutting taken from a plant and buried in the ground. The two ends of the stock or scion, whichever it may be called, as near as can be seen are identical; one end sends out roots seeking for nourishment and the other leaves and stems.

Grafting, and by grafting we also mean bud grafting, or budding as it is usually termed, is the "process and operation of inserting a part of one plant into another with intention that the part shall grow on the foster root." Grafting is one of the oldest arts of plant craft, and at one time was held as a professional class secret. Virgil writes:

"But thou shalt lend
Grafts of rude arbute unto the walnut tree,
Shalt bid the unfruitful plane sound apples bear,
Chestnuts the beach, the ash blow white with pear,
And, under the elm, the sow on acorns fare."

Some people make the process more wonderful than it really is and believe that almost any plant may be grafted upon another. The process must be undertaken, to succeed, with plants more or less closely related, though there have been cases where plants apparently very unlike have united their tissues and grown to perfection, but, as noted, plants of close botanical relationship, at least of the same genus, must be united. The pear has been known to do fairly well upon many of the thorns, even better than upon apple stock. A more homely example is in the grafting of the bean upon the chrysanthemum. As a rule, the character of the wood and fruit of the scion is identical with the parent, there being practically no apparent influence of the stock, but in the matter of thrift and size there is a well known influence which has been used to the advantage of horticulture. The dwarf pear has been produced through grafting upon quince stock, and the apple has been dwarfed by grafting upon the Paradise apple. This dwarfing has also increased the proportionate fruitfulness. The dwarfing may, and usually must, be assisted by pruning in order to accomplish best results. It has been found that a scion from a vigorous and strong growing tree, as a rule imparts some of this habit to the root stock, and sometimes, in addition, if the tree is planted below the union, roots form on the scion and give a double root system. Another instance of dwarfing is in the grafting of the cherry upon the Mahaleb cherry. Other advantages of grafting on different stocks are seen in certain plums, and where soil conditions require a root of a different nature from that of the desired tree. For this purpose the Myrobolan has been used to a great extent. Another change secured by grafting or budding to permit the growth of certain fruits under adverse climatic conditions is secured by choosing a stock which either retards or forces growth, that is, the mechanical effect of the union of stock and scion is such as to impede the passage of sap and cause the scion to mature or ripen early. Without doubt grafting does change the bearing capacity of many plants.

This discussion was suggested by a question which came to this office, as to the effect of grafting upon the flavor of fruit. The problem was raised by Nathan W. Blanchard of Santa Paula. He writes:

Nathan W. Blanchard, Santa Paula.

"I submit to you a question which is an interesting one in itself, and which I would be very glad to have light upon, namely: Will the character of oranges grown from wood produced by budding into lemon stock, which is itself a growth from budding into orange stock, be influenced by the lemon wood, say from two or three feet from the lemon stock between its own bud and the orange bud? Some years ago many lemon trees were budded over into oranges. These lemon trees were presumably grown on orange roots, so that some growers will doubtless be able to answer the above question. The early orange growers will remember that oranges grown on Chinese stock or roots were very coarse and could easily be recognized."

* * *

W. H. Bailey in "The Nursery Book" says: "Grafting may influence the flavor of fruit. There can be no question that apples often derive acidity from the stock when worked upon the wild crab or upon the Siberian crab. It is said that the Angouleme and some other pears are improved in flavor when grown upon the quince. Downing asserts that some varieties are considerably improved in flavor by working upon quince. Similar results may occur in the dwarfing of apples.

"A favorite illustration in support of the reciprocal influences of stock and scion is the fact of transfer of color or variegation by grafting. Darwin called attention to this phenomenon, and used the term 'graft-hybrid' to designate similar mongrel offspring of certain unions. But this class of phenomena seems to follow inoculation rather than grafting per se. The transferable nature of variegation is well known in certain species, but it is entirely inexplicable in the present state of our knowledge; it seems certain, however, that it does not merit attention in a discussion of grafting. So long ago as 1727 variegation was designed by Bradley a 'distemper,' which 'may be communicated to every plant of the same tribe by inoculating only a single bud.' In our own day, Morren has called it the 'contagion of variegation.'"

Now, it will be noted that Mr. Blanchard's problem, which is a common one in many parts of California, is not exactly that of the root stock. His stock to start with was presumably sweet orange root. On this was grafted, or budded as we express it, a lemon. This lemon was in turn budded after reaching maturity to the Navel orange. What is the influence of this intervening lemon wood? It is an interesting problem because there are hundreds, in fact, thousands of acres in California which are subject to this influence. It is well known that on Navel trees there is almost every imaginable form and quality of fruit from the typical luscious, perfect orange to the rough oversized prickly no-good product. Is this because of root stock influence or bud variation? It is believed and doubtless correctly, that it is bud variation. But is that always and the only cause? It is an interesting question, therefore, on receipt of Mr. Blanchard's letter, we submitted his question to a number of growers in California. All have not answered; many have replied that they had no knowledge of any influence; others whose answers possess great interest we give below:

J. Eliot Coit, Pathological Laboratory

I will simply say that as far as my experience goes I know of no concrete cases where such a procedure has turned out to the grower's disadvantage. This, of course, is not saying that oranges are never influenced by lemon wood. In my own orchard, however, I would have no hesitancy in budding them over.

Chas. H. Rodgers, Watsonville.

Will say that I have had no experience with citrus trees. However, from my observation and experience with deciduous trees, I believe that the stock does not exert any influence on the character of the fruit of the ingrafted scion. If this be true of the deciduous tree I see no reason why the rule should not hold good in case of citrus trees.

J. H. Norton, Citrus Ex. Sta., Riverside.

As to Mr. Blanchard's query I know of nothing to say on the question that could be relied upon. I will be able as soon as the Valencias are picked to give you an article on the influence of the root on the fruit, for we have the Navel, Valencia and the Eureka lemon on each of the following stocks, sour, sweet, pomelo and trifoliate.

Chas. A. Chambers, Fresno, Nursery.

Referring to your inquiry under date of the 10th inst., relative to budding citrus stock and its effect on different roots, beg to say from my experience in grafting old trees over, both oranges into lemons and lemons into oranges, I am of the opinion that the bud inserted will reproduce the parent of the bud, regardless of the root on which the bud is worked. This is true of the pear, nectarine, apricot, peach and other deciduous stock. It is also true of grape vines. We have grafted over Zinfandel grapes to Malaga and Thompson Seedless and no taint of the Zinfandel exists. Our experience with citrus trees has been the same whether a bud is inserted into pomelo, lemon, sour or sweet orange stock, the bud always represented the parent tree from which the bud was taken. A tree no matter how many times it is budded, in our opinion will not vary. We are, however, of the opinion that pollination is the cause of variance in fruit. We think that orange blossoms are fertilized with pollen from lemon trees in many instances affecting the flavor of the fruit. The natural texture is not affected. We have seen peach orchards where the blossoms were fertilized by bees or other insects with pollen from nectarine trees which were growing in the same orchard and the peach trees bore distinct nectarines scattered among the peach tree branches. Last year I sent Prof. Wickson a limb from a Muir peach tree which bore both nectarines and peaches on the same limb. Two nectarines were at the top of the limb and two at the bottom, with Muir peaches between on the same limb, not laterals.

Leonard Coates, Morgan Hill.

I would say that I do not think there would be any appreciable difference in oranges budded as suggested by your correspondent. The only influence which stock has on scion, so far as I have observed, is to either accelerate or retard the ripening, or budding out in the spring. I do not think the quality of the fruit is changed, and where this may be thought to be so, it is probably due to some other cause such as soil properties, which may be the outcome of some particular fertilizer which is used.

W. H. Schureman, Indian Hill Citrus Association, North Pomona.

As to "the character of oranges grown from wood produced by budding into lemon stock, which is itself a growth from budding into orange stock." The writer does not believe for a moment that such lemon wood has any influence one way or the other. We have a great many hundred (I might say thousands) of orange trees so grown; and we can not detect any difference now, or when

(Continued on Page 228.)

We regret that the pressure of advertising has crowded out much of the citrus material intended for this issue. A magnificent large half-tone engraving of Butte County orchards, made especially for this number, is held over for a future issue. With it, a description of the growing of citrus nursery stock and other items and illustrations will make later Cultivators of value to citrus people.

Speaking of the advertiser, by the way, the advertising department is much gratified with the increasing popularity of the Cultivator. Over eighty columns of ads makes this the banner issue. Even as it is several columns of ads are left over.

New Type Vertical Pump

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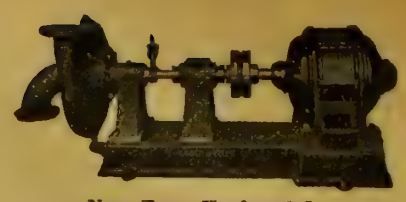
To Assume That a Company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20,000 feet	1¼-inch Standard, at	5c per foot
30,000 feet	1½-inch Standard, at	6c per foot
50,000 feet	2-inch Standard, at	8½c per foot
10,000 feet	2½-inch Standard, at	15c per foot
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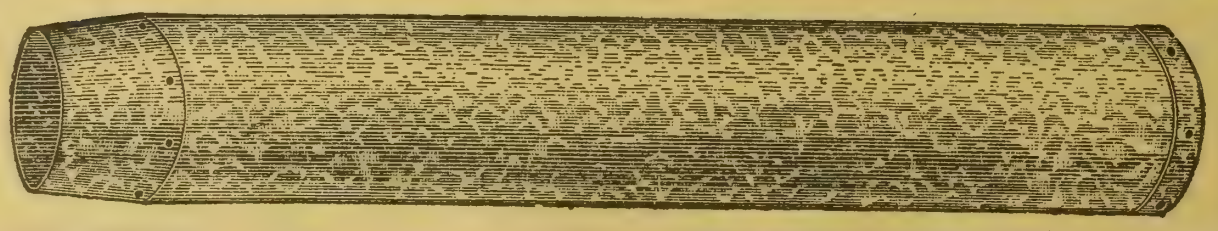

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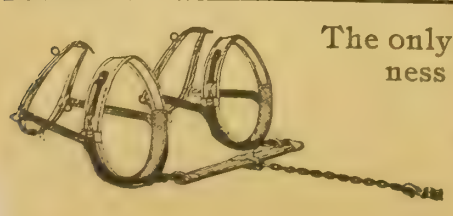

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California Cultivator

Vol. XXXVI. No. 8. LOS ANGELES: THURSDAY, FEBRUARY 23, 1911 One Dollar the Year

Systematic Orange Pruning Profitable to Fruit Growers

Prof. Charles R. Paine of Redlands Tells How "All Green Inside Means Money to Me." Investigations and Experiments are Leading to Better Information Regarding Orange Tree Pruning. Longer Life Secured by Systematic Pruning.

In answer to your inquiries concerning the pruning methods I am advocating to make decadent and old orange trees renew their youth, and to delay younger ones on their way to old age, I reply that interest is manifested, on the part of some, by intention to visit the groves where the work has been done; oftener, by visits of many growers, even from long distances, some of whom are frank to admit, after inspection, that they expected to see destructive work in the top opening, and the exploitation of a hobby.

When entering the place from the south, the view of one small grove in sorry plight, resulting from a loss of six inches of surface soil from a sudden August downpour, several years ago, is disappointing indeed to one looking for something good. That, too, is recovering from its desperate condition, for the thinness of the outer branchlets gives opportunity for light energy to stimulate the larger parts of the branches to yield up their store of food to make green leaves again.

On coming to the groves where the saw and shears have opened the grave of the dead interior of the trees, all visitors, without exception, whatever their previous notion, express appreciation of the results obtained, seeing plainly that, by this pruning method, normal laws of growth are given opportunity to operate. When they stand among trees planted twenty-eight years ago, some of which have a forlorn look outwardly, and see within a renewal of vigor, they realize that, as long as the soil can be made to yield suitable nourishment the old tree can be made fit to transmute it into fresh foliage and fruit of pristine quality.

Expressions such as these were common: "All green inside;" "this means money to me;" "I have been eighteen years in the orange-growing business and never thought of anything like this." The last utterance was from the superintendent of a two hundred acre orchard and he has already applied the method to groves under his charge. Others are planning to do so when the crop is off.

The economy of the labor of pruning has been especially remarked upon, for it is the work of little time to remove the obstructing branches in the top.

Dean Wickson of our State University, from a knowledge of the laws of plant growth derived from his chosen life-work, remarks with striking appreciation of the process, with which he has acquaintance by description only: "It is particularly true in principle, and if intelligently introduced into practice, would bring all our old trees into a condition of superior thrift, and promote the production of better fruit. The idea of allowing these old trees to become dark and unproductive in the center is irrational and reflects no credit on our pomological energy and intelligence."

I note, too, that our present State Commissioner of Horticulture, Mr. Jeffrey, a man of keen observation and strong common sense, advocates in his department of "Farming in California" in the Los Angeles Sunday Times of February 5 the growing of oranges only on the regularly developed typical fruiting branches, and not on water sprouts, which at first are attached merely to the surface, for "these monopolize the growing life of the tree at the expense of its natural inclination to fruitage of an even type and regular quality." Mr. Jeffrey observes also that "orange splitting is seldom severe in what we recognize as typical fruit," making the exception that "the phenomenon appears in the weakest portion of the tree—the part of the plant always the first to fail in case of irregularities of growth;" and that there exists a "necessity for proper pruning, and that all ideas upon pruning the orange are now under revision."

We all know, however, that good results have been obtained both in tree and fruit without pruning at all; this can be only in such cases as when new growth at terminals is abundant and active in successive seasons; even then, death, instead of what might be active life, prevails, save where there is outward exposure, and the ultimate stage of the tree is sooner reached.

It is unfortunate that the industry must suffer with the grower, for with a dying interior and terminals carrying small and yellowed leaves, the fruit both in quantity and especially in quality, shares in the poverty of its situation.

It is plain, then, that in pruning, the older growth which has served its best use, must be taken away, because while remaining it becomes a hindrance; and that the aim should be to develop in its stead, throughout the tree, only the well-known typical fruiting wood, the kind with broad leaves of a healthy green, which kind alone can manufacture the food containing all the elements that are combined in the best orange. It is not desirable to foster the long, rank growth, for it shades and impoverishes the limb it grows from, and its product is coarse, like that of the young tree, nor is it worth while to retain the end growths of trees poor from any cause, whether from crowded branches, from age, from washed or infertile or poorly tended soils, or from conditions irregularly moist and dry; these must give way to their betters, growing behind them.

There must be not only years of research and scientific experimentation, but never-ending efforts in these directions, to satisfy the minds of enterprising growers, and the demands of critical buyers.

While I would be classed with these seekers after the true, in our business of orange culture, I feel assured that already it is an advance along this line to have effected a method of producing, according to natural law, on the limbs of the old tree, from its still sturdy trunk to its exhausted terminals, and in the interior of younger trees, new and abundant shoots of the best type for fruiting.

It is also true that these new leaves and fruit are using for support idle food supplies, hitherto not a factor in the life activities of the tree.

Observations of the Year's Work in the Citrus Orchards

Love For the Most Attractive Fruit of Horticultural Industry is Expressed by J. H. Reed. Some Events of the Year are Powell's Coming, Advancement in Frost Protection, Mr. Shammel's Work and Efforts Toward Soil Investigations.

An article is asked for the citrus issue of The Cultivator. I find myself inclined to respond because of the love for what, to my mind is, all things considered, the most attractive industry that has to do with production from the soil. I think we should get much more out of our orange groves than the dollars they return. Allow me a brief reminiscence. Years ago I reached Milan, Italy, by way of the Simplon Pass, after dark. In the morning I found my windows opened onto a garden of orange trees. I thought the shapely trees with the yellow fruit snuggled in the green foliage the most beautiful sight I had ever seen of plant life, and the picture has remained vividly in my mind from that morning. And to this day I do not pass our orchards, especially at the present stage of fruitage, without a feeling of great delight.

When I came to California the orange orchards captured me at once, and for more than a score of years have claimed my best thought and effort. Hence every endeavor to advance the interests of the industry appeals to me.

Ours is a progressive industry. Much has been done towards its best development, but it awaits further intelligent, persistent investigation and experiment.

Most Important.

Of the incidents affecting the industry during the past year I think the coming of Mr. Powell to take the management of the Citrus Protective League, which the most of us are identified with, is quite the most important. His familiarity with the needs of the industry from the propagation of trees to the marketing of the fruit: his long and intimate relations with the federal department of agriculture, to which we must sometimes appeal for help to solve our most difficult problems; his wide acquaintance with leading men connected with transportation, as well as with the most prominent managers in the great fruit distributing centers; his study of the citrus industry on the ground, in the Mediterranean countries, with which we must compete; his proven high executive ability and pleasing personality, all render him peculiarly fitted for the great task assigned him, and should command for him the hearty support of growers and handlers, individually and combined.

Frost Prevention.

The prevention of damage by frost to fruit and tree which cost us so many millions, is no longer a question of practicability. The problem is definitely reduced to finding the most efficient and economical means. Much has been done in this direction, more than is appreciated by those who have not in mind the beginning of the investigations. It's but a few years since the Riverside Horticultural Club, so far as I know the first to go beyond discussing the matter, commenced its practical experiments. Some cold nights we had a half dozen or more different experiments in operation at the same time, including coal in wire baskets, oil in pots, smudging fires, vapor from water heated in wide, shallow pans, running water, heated water run in furrows. Some of these were elaborate and expensive experiments. In one instance the experiment of covering an area of several acres of trees with a lattice of lath was tried. But at that time few growers or any others for that matter, had any confidence in the effort to raise orchard temperatures sufficiently to prevent damage, and we were much ridiculed. "The idea of warming up all outdoors; it is simply ludicrous."

To our "hind sight" many of these devices seem crude and foolish, but they led the way to something practicable. The coal in wire baskets proved most efficient and was extensively used for a time. Later combined dry heat with smudge from special fuel in special receptacles has largely taken the place of other devices.

While we have escaped damaging low temperatures thus far this season, had they come they would have found a much more general preparation for protection than ever before, and I confidently expect it will be but a short time before the citrus industry in exposed districts, through perfected devices and co-operation, will be as fully and regularly prepared to save its fruit and trees from frost damage as are the apple orchardists of Colorado or the vineyardists of France and Spain to save their products from like harm.

Improved Strains.

Among the important incidents of the year are the encouraging results in the work of establishing fixed strains of the best oranges and lemons, being carried on so efficiently and enthusiastically by Mr. Shammel under the auspices of the Washington department of agriculture. That the object sought will be secured is being demonstrated beyond a doubt. When the planting and expensive care of citrus orchards can be carried on with the assurance of securing a uniform product of high-grade in place of the present large proportion of low grade and cull fruits, in my opinion the most important problem of the industry will be solved.

Standardizing our oranges is good, but it is quite more desirable that we secure a larger proportion of fruit that will grade high when the standards are fixed.

Soil Fertility Investigations.

There is one matter, one of the most important matters connected with our industry, as to which we cannot report much real progress—the efficient, economical fertilization of our orchards. Did results correspond with discussions, lectures and the voluminous publications on the subject, they would be great.

That much valuable information has been secured by scientific investigations of the state department and individuals, and by further discussions of the subject by recognized authorities, no one questions. But that the majority of us are yet guessing when we come to practice, I think there is as little question.

We had with us last summer perhaps two of the best soil specialists in a general way, the country affords. Since the conventions at Pomona and later at Los Angeles, at which these high authorities lectured, and where the subject was discussed at length by some of our most successful growers, I have made some effort to find orchardists who have materially changed their practice in fertilizing because of these discussions or the vast amount of published advice, but without success.

I am more fully convinced than ever that this most important problem will not be solved, permanently or satisfactorily, till the state department or the federal department, or both jointly,

(Continued on Page 255.)

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(Continued from Cover Page.)

the buds first commenced to bear; and some of these buds have now been bearing six to eight years.

O. T. Bryant, Fillmore.

The question you ask has interested me a long time, and I am glad you are investigating. I may say we have over 100 oranges (Navel) here which were originally lemons. I cannot myself see the slightest difference in their product from that of any neighboring orchard.

Frank L. Palmer, The Seth Richards Orange Grove, North Pomona.

I understand Mr. Blanchard's question to be whether the character of oranges grown upon wood produced by budding over bearing lemon trees will be influenced by the lemon wood, the root being orange root. I have 146 trees of that character; the root being orange, the body of the tree lemon, and the new top orange. These trees were planted as lemon trees in 1891; and, after producing lemons for several years, were budded over to Navels in March, 1900, and have now been producing Navel oranges for nine years. The quality of the oranges is excellent and very abundant in quantity. I cannot see that the fruit has been influenced in character by the fact that the sap runs through a lemon body.

C. C. Teague, Limoneira Company, Santa Paula.

Will say that the matters which you ask about are matters that I have no experience with whatever. The only experience I have had is budding orange stock to lemons, which has been very successfully done, even though the stock was old.

Prof. Ralph E. Smith, Pathological Laboratory, Whittier.

Regarding the character of oranges grown upon branches budded into lemon trees, I would say that such groves are particularly abundant in the vicinity of Whittier. These are upon orange root. Various opinions have been advanced as to the eeffct of such a combination, but in actual experience there is so far as I know no appreciable difference between oranges produced in this way and those grown directly upon the orange root. Certainly the difference, if any, is very slight.

C. D. Hubbard, San Fernando.

I budded over ten acres lemons for party to Valencias and fancy Tangerines. They made fine tops and bore good, smooth, fine flavored fruit. The roots were seedling oranges, and from the ground up two to three feet lemon wood. Lemon wood was ten years old at time of budding over to orange.

Citrus Culture In Northern California

N. B. CRANE, OROVILLE.

With the coming of the early miners in 1851, oranges were brought from Acapulco, Mexico, the seeds of which were planted, and from them two orange trees were produced, one of which still remains where first planted, at the south end of the suspension bridge at Bidwell's Bar, on the middle fork of the Feather river, eight miles above Oroville. The other tree proved to be of the "kid glove" family, and being at that time of no commercial value, through neglect soon died, leaving the one tree at Bidwell's Bar—the survival of the fittest. And from the time it first came into bearing, up to the present moment, it has never missed a crop. Growing as it does upon a rocky bluff overlooking the Feather river, without any particular care, it has reached a height of forty feet and is thirty feet in diameter, and produces oranges by the thousands. From this tree the foundation was laid for the successful planting of many of the first groves in this locality. Seeds were sold at $1 an ounce. The quality of the fruit was of the choicest. Crops have been known to sell upon the trees at $1,250 per acre. This variety of oranges is now known as the "Gold of Ophir." With the introduction of the navel orange, it having proved to be the superior fruit from a commercial standpoint and that which the general market required, it is being superseded.

Our groves are now nearly all worked over into navels, for we find that they pay more per acre than any of the other varieties. Coming on to the market the last of October, we have the advantage of an almost bare market, and as a result receive top prices. The bulk of the crop is on the market for the holiday trade.

Very few Valencias are raised, as the navel proves to be the best paying crop. Our oranges are shipped all over the world, to the Orient, and Australia, to England and the Continent, but the most of the crop is consumed in the United States. This year our crop was upward of 1,000 cars.

At the Midwinter Fair held in San Francisco in the year 1894, the committee selected to award the prizes on citrus fruits consisted of seven men, five of whom were from Southern California, one from Placer county, and one from Butte county. This committee passed upon the different citrus exhibits, not knowing from what locality the fruit came, and awarded sixty-five per cent to Butte county.

Lemons, wherever planted, have produced wonderfully, but with us they are more of a seasonal than an annual crop, coming on to the market for the holiday trade, and continuing to the following July. During the balance of the year they bear but sparsely. The pomelo, or "grape fruit," produces wonderful crops here, and of the choicest varieties, and is very remunerative.

I presume many of the readers of your valuable paper in the "Southland" will read this with many grains of allowance, when I tell them that here we seldom have frost that kills the tenderest vines, that a "fire pot" has never been seen, that we have no pests to combat, which not only sap the vitality of the tree, but very materially lessen the net results of the producer, that here, from the time the fruit sets until it matures, it never chills, which hastens the ripening and gives us an early market.

In conclusion, allow me to say that we do not confine our efforts to citrus culture alone, for here the olive is raised in great quantities and of the best quality. Figs are produced in abundance and of the choicest varieties.

I am an old Riversider, and know whereof I speak. The praises of this locality can be sung continuously, and then one-half will not be told.

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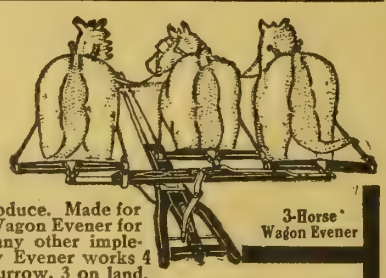

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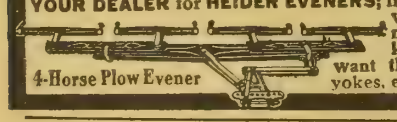

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Tulare County Citrus Conditions

W. E. SPROTT, Porterville.

The season that has just closed in Tulare county has in many respects been a remarkable one. It has been remarkable for the fine quality of the fruit both in eating qualities and in looks and the satisfaction that it has given the eastern trade. The only difficulties that the growers had to contend with in marketing the crop were the large sizes. However, as the consumers managed to dispose of nearly double the number of carloads that we have ever sold before in the months of November and December it is evident that the fruit was satisfactory to them.

The growth of the citrus fruit interests in Tulare county is enormous and while our tonnage has not increased very much at present this is owing to the fact that the large plantings of the last few years are only just commencing to bear. The time will shortly be here when there will be largely increased shipments from this county. The orchards of Tulare county are in splendid shape and the future of the industry looks very promising. Conditions of soil, water and climate vary somewhat from the conditions in other parts of the state and there is no doubt that the growers will have problems to solve, as their orchards grow older, in maintaining the fruitfulness of their trees, some of which problems the older districts have already experienced.

We have a most efficient horticultural commissioner whose duties, however, lie chiefly, not in eradicating pests that exist but in keeping out pests from infested districts, it being generally acknowledged and certified to by the state horticultural commissioner that the orchards of Tulare county are entirely free from scale.

A Good Orange Outlook for Arizona

BURLE J. JONES, Phoenix.

Though given in the government reports as normal, the Arizona crop of Navels was not up to the standard in quantity or quality, and by quality I mean in size, for they averaged larger than usual. This appeared to be due to the fact that the crop was light and that this caused the fruits to attain unusual size. This was, of course, a factor that had to be reckoned with in shipping into markets that were calling for the smaller sizes and was the predominating factor that brought the returns below what they have been in the past. In spite of all of these things, and the added fact that the California navels ripened earlier than usual and thus gave unusual competition, the prices received for the forty-five or fifty cars shipped from the Salt River Valley were very gratifying to the growers.

Perhaps the greatest difficulty that presents itself to the orange growers of this community lies in the fact that the output is too small at present to be handled in the most economical manner or to attract the proper attention in the markets to which it is shipped. Experienced help for the packing cannot be secured economically and the management is not always able to keep in touch with the markets that will be most receptive at the time that the fruit arrives. Plantings of orange trees have not gone forward every year since the pioneer groves were put out because the water supply was entirely too uncertain to warrant putting so valuable and expensive a crop at stake. The result is that the production has not been increasing materially and there has been no way to remedy the difficulties mentioned above.

With the completion of the Roosevelt Dam and in fact during the past three years, many young groves have been set. Last year there were about 30,000 trees planted in the valley and this year's planting will probably amount to 15,000. The decrease this year over last is due to the fact that the horticultural commission has wisely decided against the importation of any citrus stuff from Florida, which has in the past been the chief source of supply. The fact that even 15,000 will be planted, practically all bought in California at a cost generally exceeding a dollar a tree indicates that the community is eager to go forward with the planting of this sort of trees. There are a number of local nurseries that have passed through the pioneering stages and are now in a position to begin to supply local needs. It has been estimated that there will be between 150,000 and 200,000 trees from them that will be ready for orchard planting in the spring of 1912. This will go far toward eliminating any possibility of the introduction of insect pests and diseases, a thing which the country has been constantly liable to in procuring stock from outside sources. It will also add great impetus to the planting of orchards, since it will convince newcomers that the trees are at home in this climate and that they can be grown in all stages without material difficulty or loss.

The present enviable position of this country as a producer of citrus fruits rests largely upon the excellence and early ripening of the Washington Navel. The fact that this fruit can be put into the Christmas markets in prime condition is one of great importance to the community, a fact that has been discussed in almost every citrus article covering this region.

The Navel seems to be particularly adapted to this region. It thrives in arid situations, when given sufficient water, and matures a fruit which for general size, texture, color and flavor cannot be excelled. These things being true, it is not to be wondered at that it is in most demand by those who are planting trees here for profit. Yet it is by no means the only one to be called for. Some of the finest groves in the territory are Valencias. Largely because of cultural methods in the past and water conditions the seedling varieties have attained the greatest size and are by far the most productive. It is not uncommon to see huge Valencia trees literally loaded down with fruit. The fruit, like the Navel, matures to a very uniform size, and excellent smoothness, is thin of rind and of excellent quality. It can be left on the trees for several months without deterioration. The normal picking season for this variety is March, but I have taken Valencias from the trees in June that were full of juice and very deep in color, a thing which is not true in many regions where this fruit has a tendency to turn green when left too long on the trees. There is a grove of pomelos at Yuma and another at Phoenix that are always winners of blue ribbons in every competition. One of these took the medal at the St. Louis fair and its fruit is in great demand wherever it has been introduced. Its owner reports that his fruits net always $5.00 a box and often more. The grove at Yuma is equally noted and generally sells its fruit in Los Angeles for local consumption. There are several varieties that ripen here in November, and some may even be gathered in October. It is unusual that a fruit which has in the past reached its greatest perfection in a region so humid as Florida should be equally perfect in this section, yet such is the case with all varieties that have so far been introduced here. This fact has led to a considerable demand for pomelo trees and many planters who are putting out twenty and forty acre tracts are putting them half to pomelos.

I do not feel capable of giving you any definite information as to the

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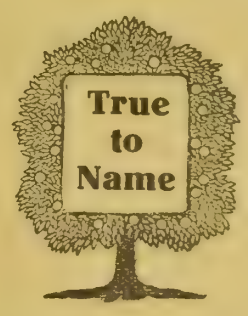

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acreage here that seems really adapted in soil and climatic conditions to the culture of these fruits. The past two winters have given a much more definite trend to this matter than has hitherto been possible. A series of unusually warm winters had encouraged planters to experiment with these trees in all parts of the Salt River valley, and the repeated dangerous or damaging weather of the winter of 1909 went far to convince these adventurous souls that they were running too big a risk. The temperature between the protected section along the hills and the flat land bordering the river often showed a difference of six to eight degrees. It is expected that as the intervening slopes are planted and natural or artificial protection results it will become more tolerant at low levels that are now considered too much of a risk. Eastern people as well as many with years of experience in California are coming here and investing in various parts of the valley, though generally in regions now recognized as being in the "orange belt." It is said on good authority that a number of men from California are now negotiating for a tract of land in the hills above the canal. They maintain that they can pump water to supply their needs as is the current method in California. This is doubtless true, and if the plan is undertaken it will open still greater possibilities here and will doubtless eventually make available to orange culture many of these coves in the hills above the irrigation system that are peculiarly suited by climatic and soil conditions to the culture of these fruits. Appropriations have been made for the establishment of power plants along the so-called crosscut canal and this will furnish ample electric power for this sort of irrigation. With all of these factors operating it is impossible to make any sort of an estimate of the citrus possibilities of this country, but it is likely to reach many thousand acres.

In the older groves cultural methods are constantly improving. Concrete ditches are being made to supplant the old natural ditches and a great saving of water is thus accomplished as well as a better distribution. Fertilizer experiments are also being conducted in several localities to determine what elements of plant food are necessary to increase the yield and general average of the fruit and it appears that this business of orange growing is soon to become one of the largest and most profitable of the country with certain water supply, better transportation facilities, and increased production with a consequent improvement in picking, packing and shipping methods.

ORANGE FREEZING POINT.

I notice an article in the Times-Union of January 21, with the following headlines: Citrus Fruit Freezing Point is Determined by a Series of Experiments Made Recently at Rollins College by Dr. O. W. Sadler.

It appears from this article that Dr. Sadler has determined by scientific investigation that the juice of the common orange will stand a temperature of 21.79 degrees. It may be possible that the juice of the orange, on account of the acids and sugar it contains will stand this degree of temperature, but every orange grower who has had experience with cold weather effects on the orange knows that the pulp of the fruit will not stand a temperature of 25 for any great length of time and, if the writer is not mistaken there was a very interesting experiment published in the Times-Union either last winter or two years ago showing by a very ingenious experiment that the common Florida orange would freeze at a temperature of 26, if the thermometer remained there for a period of four or five hours.

It is of no practical benefit for the orange growers to know when the juice of the orange will congeal, but if Dr. Sadler will, by any scientific investigation lower the record already established of the point at which the pulp of the orange will freeze and rupture the cells of the fruit he will confer a great favor upon the orange growers of Florida and can present his claim to them for a valuable gold medal with absolute success.—Times-Union, Jacksonville, Fla.

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Correspondence Invited.

W. A. T. STRATTON, Petaluma, Cal.

Orange and Lemon Industry in Arizona

A. W. MORRILL, ENTOMOLOGIST, PHOENIX

The past year has been in several respects an eventful one for citrus culture in Arizona.

Probably the most important advancement has been in the demonstration that citrus nursery stock can be successfully grown here. The spring of 1910, by reason of its excessive heat, was one of unusual severity for nursery stock newly transplanted from the seed bed. While it is true in some nurseries the losses due to the unusual condition referred to were as high as twenty-five per cent, the experience gained under these most trying conditions may be confidently considered to place the growth of citrus nursery stock in Arizona on a stable basis. It is estimated that there will be in the neighborhood of 200,000 home-grown trees available for planting in the spring of 1912. These trees will be as thrifty as any nursery stock grown elsewhere; they will be entirely free from scale insect pests and fungous diseases; and will not be subjected to the deterioration which, in the past, has resulted from the importation of trees from long distances.

The bountiful rains which have fallen during the past two months have resulted in a stored water supply for the Salt River valley which removes all fear of future shortages in the citrus belt. Furthermore, recent arrangements made by the reclamation service will make available for future plantings a large tract of land on the south side of the Salt river, which heretofore has had no adequate water supply. The unusually low temperature of the winter of 1909-10, when similar conditions were prevailing in Florida and California, were successfully met by one nurseryman who was prepared for orchard heating; and the study of weather records of past years indicates that with proper preparation low winter temperatures need not be feared by Arizona nurserymen.

The quarantine which has been established by the horticultural commission, prohibiting the importation of nursery stock from the Gulf coast citrus growing states, owing to the danger of importing the citrus whitefly even under the strict regulations enforced the previous season, has given an impetus to the local nursery industry. The future tendency will probably be to extend the quarantining of citrus nursery stock to include all points known to be infested with dangerous citrus pests. This will insure for years to come a strong local demand for the clean healthy nursery stock which will be produced in Arizona, and will eliminate competition with nursery trees of a questionable character as regards insect infestation.

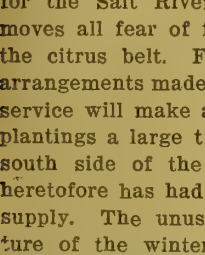
Aside from the indirect benefits resulting from the horticultural law, as discussed above, the first year's operation of this law has resulted in a better understanding on the part of citrus growers of the importance of strict protective measures against the introduction of pests. Their attention has been called to the insecurity in placing reliance upon climatic conditions for protection, and the sentiment against unnecessarily risking the future of the industry is rapidly becoming stronger. The present condition of assurance that the horticultural law now in force will be supported in the future and strengthened in the weak or defective features means much to intelligent investors in citrus lands. This condition at a time when none of the many citrus pests of Florida and California have obtained a foothold constitutes one of the most important assets of Arizona's citrus industry.

In common with all citrus producing regions the citrus industry of Arizona is confronted with problems for solution. These problems we believe are such that satisfactory solutions will not be difficult to attain. The Arizona agricultural experiment station made a careful survey of the citrus industry in 1908, the results being published in bulletin form (No. 58) by Dr. J. E. Coit, now of the Whittier laboratory, but at that time horticulturist of the Arizona station. The experience of citrus growers in the last two years has resulted in better defining certain important problems in connection with cultural methods and irrigation. It is more and more evident that these problems require local experimentation and that the best results cannot be secured by adopting without modification the time tried practice of other climates.

One important advance which has been made during the past year has largely resulted from discussions brought out at citrus institutes held under the joint auspices of the experiment station and horticultural commission. This consists in the awakening of citrus growers to the desirability of a closer study of local conditions and of testing somewhat radical ideas concerning cultural methods. Other problems relating to increasing the productiveness of citrus groves in Arizona are the subject of experimental work planned by the experiment station. Probably the first appearance of a spraying outfit in an Arizona citrus grove will soon be made in connection with the experimental work to determine whether or not the withertip disease or the citrus thrips are of sufficient importance to justify expenditures for control measures.

The proved citrus belt of the Salt River valley comprises about 100,000 acres. There are approximately 800 acres in bearing orchards and about 500 acres of non-bearing. The experience at the experiment station farm near Phoenix indicates that the Satsuma orange on trifoliate stock can be successfully grown even under the most unfavorable conditions met with in the Salt River valley. This is of interest principally to residents who desire to grow oranges in yards and gardens for home use, although an effort is being made in Texas and Louisiana to build up a demand for the Satsuma in eastern markets. The present bearing acreage of citrus fruits consists of nearly three-fourths Navels and the remainder Valencias, Sweet Seedlings, Jaffas, lemons and grapefruit. The tendency of Arizona citrus fruit to ripen early is well known. Navel oranges are usually sweet in September, but naturally are not sufficiently juicy to pick at that time. At Yuma ripe oranges have been picked and shipped as early as October 8th. As a rule Navel oranges are in prime condition for picking by December 1st and the bulk of the crop is shipped for the Christmas trade.

It has long been considered that grapefruit were not suited to western climates and the superiority of the Florida product has been generally admitted. For some reason which it would be difficult to explain, however, Arizona citrus growers both in the Salt River valley and near Yuma produce grapefruit which compares favorably with the best. That this is a profitable and successful crop in Arizona has been abundantly proven. One of the most significant records of the past two years was recently brought to the writer's attention. On the south side of the Salt river near the new citrus tract previously mentioned, nine grapefruit trees produced fruit in 1909-10 which sold for $200 and in 1910-11 for $264, averaging nearly $26 per tree for the two seasons. One grower in the older citrus belt of the north side cleared $700 from 100 trees.



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A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Descriptive booklet of our stock and farm and recipe for mixing best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels.

On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

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BECAUSE the fence gradually will pay for the luxuries, season by season. How? By enabling you to turn your waste into cash.

Fence your farm off into a sufficient number of fields to get the proper rotation of crops and the most advantageous pasturing and your *cash returns* each season are bound to increase. The farmer still using the old system of big fields is losing money through waste. The fields of your farm are like tables in a restaurant. The more tables the more people served and the greater the profit.

The steel in Ellwood fence is specially made for the purpose from carefully selected stock. It is hard, elastic, tough and springy. The line wires, composed of two or more wires twisted into cables give each individual wire the shape of an elongated coiled spring. The fence is therefore sufficiently elastic to take care of expansion and contraction, and yet so rigid when properly stretched as to prevent sagging. The small and permanent mesh is made by weaving one continuous wire throughout the fabric. The mesh or stay wires are so interwoven that slipping is impossible. The triangular truss is the strongest form of construction known. For this reason, Ellwood fence will stand hardest usage and still retain its shape.

Ellwood Fence is sold in your town. Look for the Ellwood dealer and let him show you his different styles of fence and quote you his low prices. Get his expert advice on your special needs. He is on the spot, buys in large quantities, gets the lowest carload freight rates, demonstrates quality before your eyes and is the man from whom you will get the most for your money.

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This is a big favorite in the East and has proven a success here. It often produces pods six inches in length, tender and absolutely stringless. Very early. **Packet 10 cents. Pound 35c postpaid.**

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It is the earliest producer of all, and shows a wonderful resistance to frost. Compact bush, fruit smooth, even sized and finely colored, firm flesh. **Packet 10 cents. Ounce 50 cents.**

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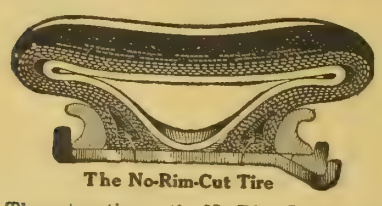
Don't Buy Auto Tires That Hook to the Rim

Motor car owners now are using 500,000 Goodyear No-Rim-Cut tires. They are so popular that our tire sales trebled last year.

And 64 leading motor car makers have contracted for them this year.

These are the hookless tires—the tires that can't rim-cut—the tires 10 per cent oversize.

They are saving motor car owners millions of dollars by cutting tire bills in two.



The No-Rim-Cut Tire

The Ordinary Tire

These two tires—the No-Rim-Cut and ordinary—are fitted on the same rim. This is the standard rim for quick-detachable tires, also for demountable rims.

The difference is this: The removable rim flanges are set to curve outward when you use a No-Rim-Cut tire. They must be set to curve inward—as shown in the picture—when you use an ordinary tire.

These removable rim flanges can be set either way by slipping from one side to the other. So Goodyear No-Rim-Cut tires involve no change in the rim.

Rim-Cutting Impossible

The No-Rim-Cut tire, when deflated, comes against the rounded edge. Rim-cutting is simply impossible. We have run these tires flat in a hundred tests—as far as 20 miles—without cutting the tire in the slightest.

The ordinary tire—the clincher tire—needs to be hooked to the rim. The rim flanges must be set to curve inward, to grasp hold of the hook in the tire. That is how old-style tires are held on.

Note how that hooked flange digs into the tire when deflated. That is what causes rim-cutting. That is why a new tire may be ruined by running a few hundred feet on a deflated tire. That rim-cutting usually adds one-fourth to one's tire cost.

How We Avoid It

We have invented a tire with an unstretchable base. We vulcanize into the base 126 braided piano wires. Nothing can possibly force this tire off until you unlock and remove the rim flange.

When this tire is inflated the braided wires contract. The tire is then held to the rim by a pressure of 134 pounds to the inch.

That is why hooks are not needed. Not even tire bolts are needed. The tire can't come off because the base is unstretchable.

We control this feature by patent. It is the only way known to make a safe, practical tire which doesn't need to be hooked to the rim. It is the only sort of tire which you will buy when you know the facts. For the worry and damage of rim-cutting is now an utterly useless waste.

GOODYEAR
No-Rim-Cut Tires

Tires 10% Oversize

Goodyear No-Rim-Cut tires are made 10% over the rated size. The flare of the tire permits that when the rim flanges turn outward.

We give you that 10% oversize without any extra cost. That means 10% extra carrying capacity. It means, with the average car, 25% more mileage per tire.

Most tires are overloaded by the extras one adds to a car. The top, glass front, gas tank, extra tire, etc., load the tires beyond the elastic limit. That is the cause of blow-outs. It is the cause of one-fourth of all tire expense. This oversize avoids that.

These No-Rim-Cut tires—these oversize tires—now cost the same as other standard tires. They used to cost one-fifth extra.

These two features together cut tire bills in two. You can get them without any extra price by insisting on Goodyear No-Rim-Cut tires.

Our new Tire Book tells scores of things which motor car owners should know. Write us to send it to you.

THE GOODYEAR TIRE & RUBBER COMPANY, 90th Street, AKRON, OHIO
Branches and Agencies in All the Principal Cities (221) We Make All Sorts of Rubber Tires

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A Plow—A Disc—A Pulverizer—A Smoothing Harrow all in one

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Compare it Point for Point With Any Disc Harrow Made

Double Gangs
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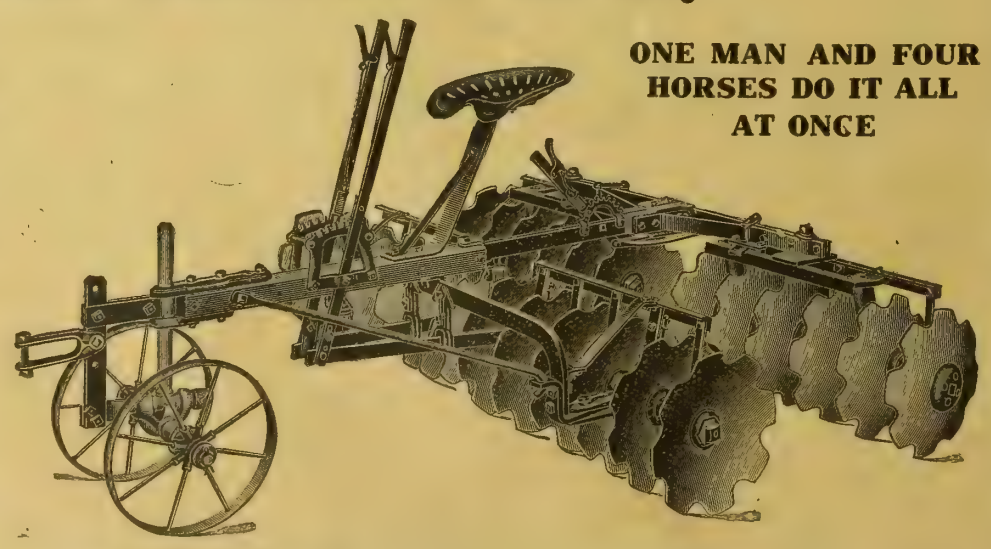
ONE MAN AND FOUR HORSES DO IT ALL AT ONCE



The flexibility of the **Arnott "Double-Cut"** in contrast with the stiff action of other two-way harrows is what is making it so popular. This flexibility is possible because of our Universal Joint connecting the front and rear gangs. For lack of this feature other double harrows have a good deal of side draft and will not make a square turn without digging a great hole. This can't happen on the **Arnott.** Independent front and rear levers within easy reach of rider.

Complete description mailed upon application. Write for prices

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All sizes in stock for immediate shipment, 4 to 10 ft. cut inclusive.

A GOOD LEMON SECTION LITTLE KNOWN.

By Philip H. Rice, Santa Barbara.

For the past eighteen or twenty years I have been identified with lemon growing, and for about ten years, to July, 1910, as manager of the Johnson Fruit Company. At no time of the game did I lose confidence in the ultimate outcome of the industry in this section, and at the time, some four or five years back, when some of the lemon growers were digging up their orchards, I began planting more trees and advocating increased planting. The result of the last few years has justified this advice.

The greatest difficulty that we packers have had to contend with in the Santa Barbara district has been the lack of interest in the essential necessities of the industry by the growers. A lemon orchard, with many, was a side issue, and received practically no attention or care except to kick at the packing house for not returning to the grower what, in his ignorance of conditions, he anticipated receiving. Practically all of our orchards had been allowed to care for themselves, and for years had received very little irrigation, practically no fertilization and cultivation, and the fruit was picked at "any old time" that happened to suit the owner of the grove. Other districts in California, not so favorably situated, had in the meantime employed the best methods of scientific culture, and far outstripped us in quality and output, until the time finally arrived when our district had to face the abandonment of the industry.

Viewed Other Orchards.

At this stage of the game I frankly told our growers what they had to face, and induced a large number of them to go to Whittier and investigate the methods of the orchard and packing house handling that were resulting in profit, and not loss, to the grower. Following this excursion, an immediate improvement was inaugurated, better methods of orchard care began, and in a few months a resultant improvement was noted.

To more fully demonstrate to our growers the necessity of careful handling, both in the orchard and packing house, I aided in inducing the Department of Agriculture at Washington to begin a series of experiments in lemon handling similar to that completed in oranges, with the result that it was fully demonstrated that the secret of lemon growing was care in culture, irrigation, fertilization, and, above all, careful picking and careful handling from tree to packing house. In a measure, this was not new to us who had followed the game for years, but, as the old saying has it, "a prophet is not without honor save in his own country." Nothing we could say seemed to have the weight of the testimony of these distinguished government experts. Growers began to sit up and take notice when it was demonstrated to them that their careless methods of picking and handling were causing them a direct loss of from 10 to 20 per cent of their fruit, to say nothing of the loss of reputation of the shipments from this district.

Improved Methods.

The first improvement to be inaugurated was in the picking gangs, whereby the fruit was picked regularly from the various orchards by a set of men under the direction of a trained foreman, instead of being picked by any men that the owner might be able to employ. This regular and careful picking, with increased care in the packing house handling, the fruit never being touched by the bare hand from the time it left the tree until it was packed for shipment, resulted in a few months in reducing the percentage of decay from 10 to 20 per cent to practically nothing.

Under the old methods, practically all shipments from May 1 to October 1 had to go under refrigeration to all Eastern markets. With the improved methods, in a short time we were able to ship without ice at all times of the year. In the last two seasons no cars of lemons, except some overripe fruit, have gone forward under ice, saving the grower, on this item alone, from $60 to $75 on each car, and in addition to this establishing a rep-

utation for the fruit that it could be safely purchased without danger of decay.

Two "Pools" Necessary.

Before the campaign of education began, some three years ago, it was found necessary to separate the fruit, as delivered, into two pools, in order to give the grower, who did try to be careful, just treatment and a fairer return for his increased expense and resultant better quality. The realization of the advantages of more care has now made the quality of the general average so much better that the double pooling system may soon be abandoned, and a considerable saving in packing house expense assured.

These changes were not effected without a great deal of persistent labor, but the reward was ample when the California Fruit Growers Exchange, about one year ago, publicly acknowledged by circular letter that the output of the Santa Barbara exchanges had changed from the poorest to practically the best in the state.

Lemons Must Have Care.

Now, the point I am leading up to is this: If the Santa Barbara district can produce and ship fruit that will compare favorably with the southern districts, where every possible scientific care in the way of selection of soil, planting, irrigation and fertilization is resorted to, what might not be accomplished if the same care were given to the industry here? I think I am safe in saying that nine-tenths of our orchards have been grown without fertilization, and scarcely a grower in the district has given one-half the care that has been bestowed upon the lemon orchards of the successful southern districts.

We have here the ideal climatic conditions; our trees will thrive with about one-third the quantity of water necessary elsewhere; scale is kept in check by parasites which will not thrive in the warmer climate of the interior, thereby saving from 15 to 40 cents per tree per year for fumigation; frost, except in a very few portions of our district, is unknown—another great saving in eliminating frost protection; damaging winds are rare, and our soil, if properly selected, is so fertile that very little fertilization is necessary. With all these advantages, I fully believe that if we will systematically begin the development of water and the planting of trees in this district, it can become the greatest lemon-growing district in California.

More Water.

One word more. Because we have these natural advantages, we must not expect that our orchards will yield a profit without intelligent effort on our part, or that our land, without water developed, is worth a fabulous price. If we are not willing to go to the trouble and expense of putting our land in condition for lemon planting, then give the man who is willing to risk his capital and labor a chance, for he will see a fair return on such investment, and aid us in developing our productive section.

Spraying Citrus Trees now Obsolete

S. A. PEASE, Horticultural Commissioner San Bernardino County.

For twenty years I have been in some way connected with the experiments and endeavors to rid the citrus orchards of the pests that have in a large measure been carelessly allowed to gain a foothold in California.

In the early nineties, the spray pump was the only known apparatus to use for the purpose of controlling and eradicating these pests. Every imaginable concoction has been tried out only to prove in the end what may be termed a basic fact that no matter what material is used the percentage of scale killed does not exceed 80 to 90 and consequently the live scale remaining intact on the trees, owing to their prolific breeding capacity, is sufficient to be a continuous draft on the vitality of the tree.

Then, too, when some of the oils had been used for a term of years it was plainly evident to the observing man that their continued use was a positive injury to the orchard. I have seen some orchards that were so badly damaged by the spray that it took at least two years for them to recover. And, not only this but good experimenters have determined it to be a fact that oil sprays reduce materially the amount of the coming crops on orchards treated.

The great reason for the long continued popularity of the spray pump was the fact that growers are inclined to look at the seeming cheapness of any operation against scale pests instead of carefully investigating results. However, we have been fortunate in having scientific experimenters in the citrus industry and it has been my pleasure to profit by watching the operations of some I have known. When it was the common practice to spray with distillate I knew of one man who was operating over many acres of orchards who tried it very thoroughly indeed and for a few years thought to make a success of it. Finally not being satisfied with results, he purchased what is termed one outfit of tents and started in to prove to himself the respective merits of the two systems. He fumigated a block of his orchard and sprayed one beside it. This he did for two years, closely watching for results as to fruit and freedom from insects. After the second year I asked him what his conclusions were. This was his reply: "There is only one way and that is fumigation for the very sufficient reason that you get more fruit, better fruit and the fruit carries better. The trees look better, are better and everything is better." After coming to this decision, this man was naturally desirous of getting rid of his dozen or so power sprayers and did so for half-price to those who still advocated the cheaper method.

Other orchardists kept coming to the same conclusions as the above mentioned man until at the present time, I think I am safe in saying that not a single orchardist who can be quoted as an authority remains to uphold the method of spraying citrus trees.

Very fortunately during what may be termed the unsettled period we were able through the efforts of Dr. L. O. Howard of the department of agriculture to secure a man to put in three years of experimenting to perfect the methods of fumigation with hydrocyanic acid gas. And so far did Mr. Woglum advance this work that today the old methods of guess work are being rapidly abandoned. As a result, if he will follow his directions any intelligent man can do good, satisfactory and safe work.

The only proper method now is to use the A. W. Morrill system of marking the tents, the Woglum way of measuring around the bottom of the tent and his prepared schedule of dosage which is printed by the department of agriculture and may be had for the asking.

Our troubles are not entirely over yet, however, for the reason that some of the growers are still desirous of cheap methods and to gain this end they employ any contractor who is willing to take a smaller amount of money than it can be done well for, and pretend to fumigate the orchard. He necessarily uses a smaller amount of chemicals than he should and this leaves many live scale on the trees and not only makes it necessary for the orchardist to have the work done again much sooner but is a constant damage to the surrounding orchards in that they become infested sooner than they otherwise would. This year one of my inspectors who operated two of our outfits of tents, on request refumigated 180 acres done by cheap contract work last year.

Now, when it is considered that a three years' experiment was carried on by the department of agriculture for the purpose of ascertaining just what it takes to kill the different scale insects and how to do it, it is my opinion that public meetings should be held in every locality to pass resolutions by the growers themselves requiring the contractors to do the same as private corporations, that is, mark their tents and use the government dosage as given on the bottom of each schedule.

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On having sufficient water depends the success of your crops. On the success of your crops—your living.

You can't always be sure of enough rain—but if you have a creek, pond, slough, or other source of water supply you can hitch it up to an I H C Gasoline Engine and pump the water where and when you need it. The cost is slight—the results sure.

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It's easy to get just the right engine for your particular needs because they are made in all styles and sizes—1 to 45-H. P.; vertical or horizontal—stationary, portable, or traction.

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The purpose of this Bureau is to furnish farmers with information on better farming. If you have any worthy question concerning soils, crops, pests, fertilizer, etc., write to the I H C Service Bureau, and learn what our experts and others have found out concerning those subjects.

If you want the I H C Gasoline Engine Catalogue to aid you in your selection, ask the I H C local dealer for it, or, write the nearest branch house.

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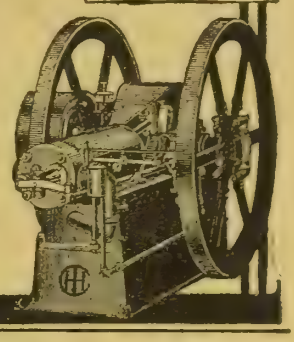

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Oregon Early Rose **Early White Rose**
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are all standard varieties. We also offer the
Snow Potatoes, something new that is a winner.
Triumph, or Six Weeks, comes from the East, the earliest grown.

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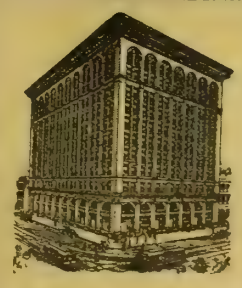

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4% **Interest on Savings Accounts**
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Which Accounts may be checked against without presentation of Pass Book. Interest is paid monthly on the minimum monthly balances provided it amounts to $300 or over.

The Safe Deposit and Storage Department is the largest and best equipped in the West

Economic Factors in Olive Production

J. W. MILLS

Olives have been grown in California for nearly 20 years. During the last thirty years a large amount of capital and labor has been expended introducing "improved" varieties of olives. Between fifty and sixty varieties have been tested, and now the greater part by far of all being planted are the same variety brought to this coast 200 years ago by the Spanish missionaries, and hence we call it the Mission olive. There are different types of the Mission olive, to which we will refer later on.

Ripe pickled olives furnish the chief outlet for the California product. There is a large trade in oil, and always a good demand for the pure article, though there is always room for apprehension as to its being the pure stuff after it has passed through the various channels of trade. It is not always possible to get pure olive oil, even by watching the process from the crushing of the olive to the bottling.

Rev. Charles F. Loop, whom all early settlers of Southern California and pioneer olive growers knew, told me that on one of his trips to Lucca, the Italian city from which olive oil bearing its name is exported, he asked a man of affairs where he could get a bottle of pure Lucca olive oil, as he wanted to take it to America with him. The Italian gentleman informed him that he did not know where he could get one in all Lucca. Crosse & Blackwell, having had adulterated olive oil foisted on them by even their most trusted Italian merchants, sent a trustworthy agent to Italy to watch the process from crushing to packing. He did so, and saw no mixing of oils, though he had the entire process under his observation and watch and key, but it only resulted in a mixture of olive oil and Alabama cottonseed oil. A still hunt disclosed a pipe line running from a reservoir of cottonseed oil on a nearby hill, and coming up through the bottom of the pan in which the olives were crushed. A secluded stopcock within easy reach of a workman was turned on after the olives were partly crushed, admitting the cottonseed oil by degrees and adding it to the oily mass of crushed olives.

When ripe pickled olives sell from 75 cents to a dollar a gallon to the retailer, there is more money in pickled olives than in oil. The culls, after grading for pickles, make good oil, and a large percentage of California olive oil is made in this way.

The Queen olive of commerce is made from the Sevillano, Ascolina, Picholine, Macrocarpa and Polymorpha, the first named being the largest olive grown. These, when well grown, are too large to pickle when ripe, as they turn soft before the lye can penetrate to the pit.

After spending large sums of money and much time trying to find some variety of olive better than the Mission, California olive growers have come to the conclusion that the Mission is the best all-around olive grown.

There are what we know as the large and small Mission olives. The largest sometimes attain the size of a medium-sized Queen olive, but the flesh is firm and of fine quality when ripe. The oil is also of high grade. If handled properly, it is a regular bearer. Our experience in the Sacramento Valley is that if the trees receive enough moisture to make a moderate growth each summer, and the fruit is picked by February, the trees will bear regularly. The soil and climate seem to be particularly adapted to their growth. Some of the finest olives that I ever saw were grown on hardpan land that had been broken through where the trees were planted. On the other hand, trees on a deep sandy loam that dries out readily will not mature salable olives for pickling if not irrigated.

It is generally conceded that the Washington navel orange is subject to a greater number of type variations than any other fruit, but the Mission olive follows a close second, and when soil conditions and varieties of soils enter into their environments, it is surely up to the record of the navel orange. We have Mission olives, all budded on Redding Picholine, that ripen from October to March, all on a five-acre lot. Some trees bear heavily every year, some only every other year, both without irrigation and growing adjoining. Some trees ripen all of their fruit at the same time, and some of them will have half of the crop still green while part has ripened and dropped off.

It has been our experience that if the fruit is picked off before the first of March, the trees will bloom profusely, but if delayed much later, little or no bloom will be the result. We discovered this in a row of trees that had always behaved uniformly, but three trees were left unpicked, having been reserved for a patron who bargained for them on the tree. The olives were not picked till April, and when the balance of the row came into bloom, these three trees had so few blossoms that it was hard to find them. The three trees produced less than three gallons, all told, while those trees picked early produced over twelve gallons per tree. This emphasizes the advantage of grafting or budding from those trees which ripen the fruit uniformly and early.

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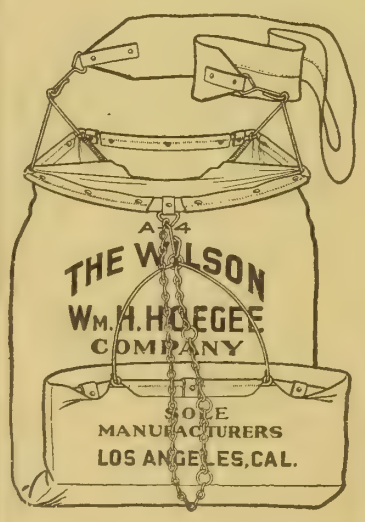

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Handling of Citrus Orchard Soil

W. F. SUTHERST, PH. D., F. I. C., LORDSBUBG.

The citrus grower must endeavor by all means at his disposal to get full benefit from his orchard soil, by utilizing the naturally as well as the artificially supplied material. The mere fact that an analyzed soil shows sufficient mineral plant food to grow fruit for a score of years or so does not mean that full power of the soil will be obtained by the usual cultivation methods.

The tree roots spread out everywhere in the direction of the greatest supply of food and drink, unless, which is most likely to occur, some obstacle puts itself in the way. It is a natural course of roots to divide up so as to cover as much soil as possible, but, of course, this can only occur when the soil is porous. If few openings for the roots are present, then few root fibers grow, as it never happens that two fibers penetrate the same opening. Our first operation is, therefore, to make the ground as loose as possible by cultivation, and, if the soil is a heavy one, by applying long-straw manure, or plowing in hard-straw crops, such as beans. The reason for getting a mass of root fibers is obvious, as in the first place a large portion of the water soluble mineral plant food does not move about with the soil water, but remains attached to the soil particles so firmly that unless a fairly large quantity is present it rerains entirely fixed. This is particularly the case with potash salts, so vital for fruit producing. The roots then must seek their food, and the more root fibers, the more food can be brought to the tree. This is more apparent with the phosphates, which are always in the insoluble form, and the roots must come in actual contact with them. Air is necessary to every living thing, both vegetable and animal, and the growing root tips are in need of it, as any other part. Anyone who has repotted plants will have noticed the mass of roots between the soil and the walls of the pot. This comes from the fact that the terra cotta is porous and allows air to enter, developing the roots to many times the extent there they would in the soil itself.

The orange tree is usually denoted a surface feeder, but roots, like animals, migrate to food (and air) supplies, so if the subsoil received the same treatment as the surface, we should get the roots traveling in another direction. Although there is perhaps more available plant food at the surface, especially after years of cultivation, yet a tree is more certain of withstanding water shortage if tap roots are encouraged, and the greater mass of soil covered by the roots in such cases would more than supply the necessary mineral plant food. Deep cultivation, not necessarily plowing, should then be undertaken, preferably by means of a subsoil plow attached to an ordinary one, the former just loosening the subsoil, so that the air can penetrate. Irrigate at longer intervals, and thoroughly when done, so that the water has an opportunity to soak into the subsoil, and on its way down carry air to the roots. Anything that has a tendency to prevent soil aeration, such as the layer of mud left on the ground after floods, should be immediately removed by harrowing. Cover crops of the long-rooted varieties have been shown by experiment to induce roots of after crops to travel to three or four times their usual distance straight into the ground. The dead cover crop roots leave a channel down which air is conducted, supplying this necessity to the next crop's roots in a region where it never existed before. There is a certain amount of difficulty in bringing fertilizers to the subsoil, but by attaching a distributor behind a subsoil plow this can be easily overcome. Barnyard manure is again more difficult to bring under deeply, so one must rely on the deep-rooted cover crop mentioned above and artificials. Where labor is cheap, trenching might be resorted to, using a trench plow to cut as deeply as possible. This course, however, tends to bring the roots all to one place, and when the fertilizer is all used up, growth is retarded. The same objection is raised to hole manuring—i. e., boring holes of several feet depth amongst the roots of a tree, and filling partly with mixed fertilizers. On most soils there is sufficient potash in the subsoil, and to induce phosphate to reach down, basic slag should be used, this fertilizer having the peculiar property of traveling downwards of its own accord. During rain, a loose soil will hold more; as soon as the soil surface is saturated with rain, further fall runs off, so efforts should be made to keep the surface in an absorbent state by keeping a good depth of soil in a loosened condition. This will mean a saving of irrigation water, as well as a gain by root aeration.

It is doubtful if the practice of cover cropping, especially with shallow-rooted crops, is of such advantage as is usually accepted. Cereal crops, being shallow and fibrous rooted, would be more likely to injure an orchard, whilst it is now known that the leguminous crops do not gather nitrogen from the air, if the soil is in a fertile condition. During the first six or seven weeks growth of vetches they rely entirely on soil nitrates for their nitrogen, and should sufficient be present for further growth, the nodules do not develop. In most cases, then, cover crops simply draw plant food from the depths to the surface, thus encouraging the tree roots to travel along the surface.

Keep the soil loose and aerated to a good depth. This will aid in developing the roots in all directions, in length as well as thickness. This is the most certain way to get abundant and regular crops.

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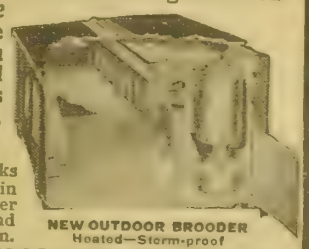

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,011 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, February 23, 1911

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ICING CHARGES REDUCED.

As we go to press the dispatches announce that in a decision by the Interstate Commerce Commission in the case of the Arlington Heights Fruit Exchange against the railroads the charge of $30 a car for precooling oranges is reduced to $7.50 a car, to take effect April 1. Manager G. Harold Powell of the Citrus Protective League is reported as saying: "This is the greatest victory the citrus growers have yet achieved."

CITRUS OUTPUT OF THE WORLD.

From G. Harrold Powell, manager of the Citrus Protective League, we have an article contributed for this issue on the necessity of co-operation on the part of citrus growers. Like some other matters, it has been forced over till a later issue, yet we must quote its first paragraph which touches upon the citrus industry of the world.

"The citrus fruit industry probably represents the largest single fruit industry in the world. There will be not less than 165,000 car loads of citrus fruits entering into international and domestic commerce during the present year. California will supply nearly 50,000 cars of oranges and lemons, Florida 10,000 cars of oranges, Spain 40,000 cars of oranges, Italy 10,000 cars of oranges and the equivalent of between 50,000 and 60,000 car loads of lemons shipped either as fresh fruit or converted into citrate of lime, lemon oil, or other by-products. The rest of the citrus fruit crop will be shipped from Spain, Portugal, Syria, Jaffa, Cuba, Porto Rico, Jamaica, the Bahamas, Mexico, Japan, and a few other countries. California is a long distance from the centers of consumption and has to pay on the average about 90 cents a box, freight and refrigeration, on the entire crop that leaves the state. The average freight rate from the foreign countries to the points of consumption varies from countries like Spain and Italy, from 18 cents to 36 cents a box. The labor in California costs from two to four times as much as it does in European citrus fruit producing countries and in many of the other sections where lemons and oranges grow."

THE MAGNITUDE OF IT.

Our readers may notice the line across the top of the cover page which states that California will ship nearly 50,000 cars of citrus fruits this year. This is according to estimates made by the California Fruit Growers Exchange a few weeks ago. To be more exact, the figures were about 48,000 cars. Californians are so prone to express facts in big figures that they some times fail in conveying the impression desired. To aid in this instance, if our readers will take their pencils and figure a bit, they will find that 50,000 cars of citrus fruits a year means practically 140 cars every day in the year, Sundays included; one hundred and forty cars daily means six cars every hour of the year; to reduce still more, one car of oranges and lemons will leave this state every ten minutes from November 1st to October 31st. If they were sent in one trainload every day, that train would be over a mile long. Great is the citrus industry.

NOT SATISFIED.

We recently had a letter from Mr. W. H. Schureman, secretary and manager of the Indian Hill Citrus Association, in response to our request that he give us some information regarding the problems of the packing house man. He replies in effect that he is unable to discuss the problem with us because of the fact that that one of the biggest "problems" was now before him in trying to prevent decay which is showing so excessively and so early. Mr. Schureman adds: "Our pack has been fortunate so far in that respect, but I am almost afraid to look at inspection reports for fear we will soon 'get ours.' We are not satisfied with having our pack 'as good as anybody else's; we want our pack the best."

The Indian Hill policy is worthy of widest copying, and surely growers marketing their fruit through that association should join its manager in this effort to make the fruit shipped from that packing house the very best. That of itself will be an incentive to neighboring packing houses to go them one better if possible, and so on, with beneficial rivalry until near perfection shall be reached.

NEAR PERFECTION.

The last sentence above reminds us of a complaint appearing in the Florida Grower. The complaint is made forceful by a few figures. In the month of December, 1909, New York City consumed of Florida oranges 253,618 boxes, of California oranges 48,350, of Porto Rico oranges 58,995, or a total of 360,693 boxes. Remember this is in the month of December when California is hardly in shipping form. However in December, 1910, the same market, New York City, consumed of Florida oranges 241,085 boxes, of California's 97,802, and of Porto Rico's 63,905, or a total of 402,792 boxes. It will be noted that a material increase, over 41,829 boxes, was made in consumption, yet a decrease of Florida oranges of 12,533, a more than doubled consumption of California's and a slight increase in Porto Rico's. The Florida Grower infers that this increase may be due to an advertising campaign of the California growers. Without discussing the question of a more attractive pack or of difference in quality of fruit grown in California, we may at least give the figures to convince California growers of the necessity of always raising quality. The Florida industry is showing greater intelligence than ever before; it has even reached the stage of co-operation, which implies greater intelligence. Advertising, more attractive pack, closer culling, all are surely coming to Florida. Porto Rico likewise is increasing its output, and both have the advantage over us in transportation. It is unprofitable to pay freight on culls, yet some occasionally go forward. Let us take Mr. Schureman's motto and have "our pack the best."

FROST PROTECTION.

It has appeared until last week that the preparations made for frost protection this year would not be given a test, but last Thursday morning the smudge which covered the orange growing districts showed that some orange growers had been up in the small hours of the night. The temperature dropped close enough to the danger line to warrant giving the oil pots and stoves a test, and so far as we know, they made good. The result was not only an actual rise of temperature during the colder hours, but a smudge protection from the direct rays of the morning sun.

We doubt not more general preparation was made this season for frost protection than ever before. This feature of the citrus industry is comparatively new, though some efforts at frost protection were made as far back as 1892. All imaginable methods have been tried, "direct heat," smudging, steam, irrigation, and even lattice screen. The smudge and direct heat people have lasted the longest, and now we believe it is generally conceded that a combination of these two methods gives the best results, direct heat during the colder hours of the darkness and smudge the last thing before sun-up to prevent injurious action of the sun's rays.

We believe this feature of citrus growing, and of practically all fruit growing, will be improved in method until but few orchardists are unprepared. When that time comes it will be a comparatively simple problem, for now it is the few energetic growers who have to bear the burden of "warming all outdoors."

NORTHERN CITRUS FAIR.

The Western Fruit Jobbers in session in Sacramento last week saw an example of the wholehearted way in which California opens its arms to the visitor. It was a great session and the citrus exhibits from the northland were surprising. That oranges may be grown successfully over a strip extending north and south for nearly 600 miles, amazes everyone on first appreciating the fact. Northern California makes its greatest stake in deciduous fruit shipments. Its fresh fruits have reached every market in the United States, and its reputation as a citrus fruit producer has grown with the years, and for exceptionally early fruit will be a stronger factor as the industry develops.

The winners of the gold, silver and bronze medals are as follows: Pioneer Fruit Company of Sacramento, gold medal for best display of citrus fruits; Butte County Citrus Association, silver medal for second best display; Exeter exhibit, silver medal for third best display; Porterville Chamber of Commerce, bronze medal for fourth best display; Butte County Citrus Association, bronze medal for fifth best display.

CITRUS GROWERS CONVENTION.

It is fortunate that in our edition especially devoted to citrus culture we may refer to a great gathering which will take place at San Bernardino beginning Tuesday morning, March 7th. It is in the nature of a state convention of fruit growers, or to be more explicit, of citrus producers. The meetings will be under the direction of the state horticultural commission. This will permit of the publication of the proceedings by the office of the state commission. The list of names announced for the program carries assurance of a great feast. We trust we may give program in full in our issue of March 2nd.

The demonstration train begins its trip for Southern California on February 23rd, at a different point than ever before. The starting place this time is Lone Pine, Inyo county. From there the train will work its way down the line to Mojave, Newhall, Lancaster, San Fernando, reaching Los Angeles Saturday night, February 25, where the train will Sunday. Monday morning it goes on to the San Gabriel Valley, Pomona and Riverside, and later takes the usual Imperial Valley trip, then the Orange county and Coast trips, completing the season's runs.

The Florida Fruit and Produce News under the guidance of Mr. Edgar A. Wright, formerly of this state, has been greatly improved and now makes a change of name to the "Florida Grower." It should be an inspiration to the Florida growers to produce and ship better fruit.

Florida growers are combining to fight the dreaded whitefly is an indication of an awakening to the seriousness of the situation. California can be none too vigorous in the enforcement of its quarantine law and none too drastic in treatment of any infestations in the state.

Agricultural News Notes of the Pacific Coast

Northern California

Snow in Lassen county caused the death of much stock on the ranges.

A thousand acre tract has been subdivided at Wyandotte, Butte county.

The Butte County Citrus Association made a big exhibit at Sacramento.

Many new settlers have located in Glenn county during the last season.

Gridley colonists are working for legislation more favorable to drainage districts.

Timber land owners of California have formed a co-operative fire protective association.

Sacramento Valley Development Association is planning for a $50,000 advertising campaign.

Guinda, Yolo county, almond growers plan the construction of a storage and packing house.

A new orchard of 1000 acres is being planted at Healdsburg. It is largely of prunes and Gravenstein apples.

A big warehouse is being constructed at Paradise, Butte county, by the Paradise Fruit Growers Association.

Many Sacramento Valley nurseries have been exhausted of pear and almond trees and Oregon nurserymen are finding sales.

Almond growers of Guinda, Yolo county, marketed 268,337 pounds of almonds last season for which was received $33,979.05.

Horticultural Commissioner Galloway of Sonoma county reports most of the nursery stock of that county as in excellent condition.

Grain growers have asked the state legislature to aid them by establishing demonstration farms showing advantage of dry farming.

The citrus fair at Sacramento made a complete showing of citrus possibilities of Northern California before the Fruit Jobbers Convention.

Orchardists at Paradise, Butte county, have planted an unusual number of Bartlett pears; also several thousand apple and almond trees.

County Horticultural Commissioner Stabler of Sutter county reports large planting of orchards and vineyards. All nursery stock in excellent condition.

The secretary of the grape growers association at Lodi reports shipment during the last season of 221,356 crates of grapes which brought a gross price of $186,280.

Farmers at Princeton, Colusa county, have pledged 2240 acres for beet growing and the hope is for a beet line railway to the sugar factory at Hamilton.

Farmers near Redding, Shasta county, are still having trouble with the Balaklava smelter which it is charged is not obeying decree of court regarding poisonous fumes.

Great increase in the average production of the dairies of Humboldt county has been effected by the action of the Ferndale Cow Testing Association. Monthly tests are made.

Sebastopol Apple Growers Union has incorporated and filed articles with the county clerk. The directors are: J. W. Turner, C. E. Hotle, W. I. Newcomb, Walter Elphich, J. R. Rosie, W. N. Couch, Edward E. Murford, J. J. Alves and Edson C. Merritt.

Central California

Kern county will ship about forty cars of oranges this season.

Poultrymen of Santa Cruz county are working for a lower egg shipping rate to San Francisco.

The Kings county board of supervisors has been petitioned to appoint a squirrel inspector.

The Directors of the Kings County Fair Association have set upon the last week in September as fair week.

Kingsburg raisin growers still holding largely of last season's output, are selling occasionally at three cents.

The discussion over the horticultural commission situation in Tulare county seems to wax warmer instead of reaching a sane conclusion.

The break in the Kings river levee near Laton caused some damage, but the good from the precipitation far more than outweighed it.

A carload of bees at Porterville recently made life miserable for passengers in a train which stopped alongside.

The Salinas Valley is waking up to the value of irrigation, many wells having been sunk there in the last three years.

The Turlock Irrigation District was damaged by the washing out of 70 feet of concrete lining near the head of its system.

Raisin cartons labeled two pounds but which contained only 24 ounces are the cause of contention amongst raisin packers.

Members of the Farmers Union of Fresno county have concluded to employ Greek laborers as less objectionable than Japanese.

The regents of the University of California have sold the crop of raisins from the Kearney estate lands to the J. P. Armsby company.

The recent run of the demonstration train through the San Joaquin Valley found especial interest manifested in olive culture and hog raising.

The Farmers Union of Mountain View, Santa Clara county, at its meeting last week, discussed best methods of eradicating ground squirrels.

A campaign of education along the lines of marketing, warehousing, and controlling raisins has been started among Fresno farmers by the county Farmers Union.

The people of Fresno have decided on April 30th as "Raisin Day" this year. The raisin growers are to be asked to contribute to the success of the campaign on the basis of about 25 cents per acre.

Fresno County Farmers Union has elected the following officers for the coming year: F. W. Abbott, Oleander, president; J. H. Bonesteel, Kingsburg, vice president; Lea W. Taylor, Selma, secretary-treasurer.

Dr. Rupert Blue at the head of the movement to exterminate ground squirrels, has informed the growers of Monterey county that the government proposes to exterminate the rodents on all government land.

The new livestock inspector of Tulare county is requesting all veterinarians to notify him of any infectious disease, and he will make especial effort to have the county released from the Texas fever tick quarantine.

Southern California

Escondido has set 700 acres of new vineyard.

Farmers' institute will be held at Placentia tomorrow.

Ventura county's lima bean output averages 22 sacks per acre.

Escondido has established its first agricultural course in its high school.

Orange county estimates she will plant 30,000 acres of beets the coming season.

Imperial county proposes to have a slice of the $18,000,000 good roads bond money.

A rancher at Elsinore, Riverside county, is engaging extensively in the production of angora goats.

Southern California's lima bean acreage in 1910 was 60,000 acres; Ventura county claims 35,000 acres.

About 20 acres of mountain land have been planted east of Julian, San Diego county, to western yellow pine seed.

The Oxnard Sugar Company has printed and distributed valuable information for the use of sugar beet growers.

Rapid progress is being made in the levee along the lower Colorado river to protect the water system of Imperial Valley.

The date trees in the experimental plantings at Heber, Imperial county, produced about 3000 pounds of fine fruit last season.

Fifty farmers of Holtville, Imperial county, have organized a co-operative creamery company with a capital stock of $20,000.

Redlands dismissed her schools and the college students all escaped during a heavy snowstorm which visited that section last week.

It is claimed that the potato famine in Southern California has been broken by extensive shipments of eastern potatoes into Los Angeles.

San Fernando people are planning for a water carnival to be held on completion of the $23,000,000 aqueduct of the city of Los Angeles.

Land owners of Riverside county have failed in their suit against the Lake Hemet Water Company and the Fairview Land and Water Company.

Engineers for the Riverside Water Company have spread the storm waters of the Santa Ana river over hundreds of acres of gravel lands near Crafton.

The state horticultural commission has quarantined all the cotton seed coming from outside the state and demanded most thorough fumigation before it can be delivered.

The sale of the 43,000-acre El Sobrante Rancho near Corona, Riverside county, gives hope to the people in that section that many settlers will be attracted to those lands.

Experts at Oxnard, Ventura county, report the average production of beets per acre in that section is 31,487 beets to the acre, whereas the normal or rather the ideal stand is 43,560, or one to every square foot.

Friends of the Chucawalla Valley are pleased over the passage of the bill, now signed by the president, permitting the construction of a dam across the Colorado river near the mouth of Pyramid canyon.

The Coast

Arizona sheep men report range feed abnudant and sheep doing exceptionally well.

Extensive plantings of apple orchards are being made near Pullman, Washington.

Fruit men of Forest Grove, Oregon, met and endorsed the Canadian reciprocity treaty.

The first association for testing cows in the state of Oregon was formed at Forest Grove.

Cattle men of Arizona are greatly pleased over prices prevailing and the demand for their stock at this time.

Self government has just been inaugurated by the students of the agricultural college at Oregon.

D. D. Rucker near Phoenix, Arizona, has a cow which gave birth to a quartet of calves, all doing well.

The Oregon sheep industry represents an investment of $23,750,000. There are 2,441,000 sheep in the state.

A bill has been recommended to the Oregon legislature granting counties power to make appropriations for local fairs.

Alfalfa ranches near Phoenix are new cutting their winter crop. These ranches are proving exceptionally profitable.

Orchardists of the Kennewick district are making extensive preparation for frost protection at apple blossoming time.

The town of Nephi, Utah, claims to have been the banner town for showing interest in farmers institutes in that state.

Grain fields of Eastern Washington are reported in the best of condition with absolutely no winter killing up to this time.

The annual convention of the wheat growers and millers of Washington was held at the state agricultural college at Pullman last Saturday.

Great numbers of cattle in Lynn county, Oregon, have been dying of meningitis, and appeal is made to the state veterinarian for relief.

The government experimental farm at Sacaton, 25 miles west of Florence, Arizona, has produced some exceptionally fine Egyptian cotton this season.

The largest oat crop reported from the Northwest is claimed by Theodore Harmes of Lewis county, Washington, and is 224 bushels from a single acre.

A thousand farmers from three states gathered at Walla Walla last week to form a more perfect organization for co-operative buying and selling.

The elevation of water in the Roosevelt dam in Salt River, Arizona, reached 131.65 feet on February 13th. The reservoir now contains 269,213 acre-feet.

The legislature of Idaho has passed a bill permitting dams to be constructed on the north fork of the Clearwater river in the aid of irrigation in that section.

The farmers of Twin Falls, Idaho, have formed an organization for the purchasing of high-grade stock. This is to secure better prices for the products of their farms. Heretofore they have sold their hay and grain. They will try feeding.

1911 SEED CATALOG

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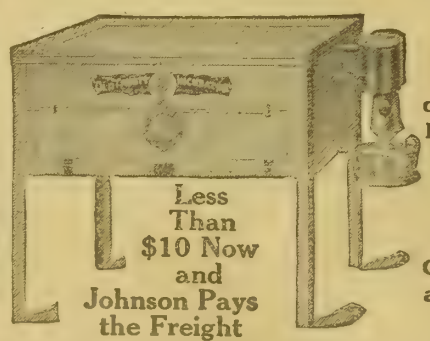

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Practical Poultry Culture

THE BEGINNER IN TURKEY-CULTURE.

Many novices in turkey-culture are dreamily meditating over the remunerative reward they will reap, writes Mrs. M. M. Robinson, in Rural Home. They may fancy that they are on the road to "easy" street, for they have boldly sailed out on the sea of turkey-culture, keeping several hens and counting every egg gathered as one poult worth so much cash. They do not realize any of the numerous details that must be promtly attended to; they can see nothing to prevent smooth sailing. Such people are destined to be failures.

It is well and good for them to be enthusiastic about their work, for there never was much accomplished without enthusiasm; but they must study the practical side of the proposition and learn to labor and to wait before their dreams can become realities. You cannot make an expert turkey-culturist without practice any more than you could make an expert lawyer or doctor without experience.

You can get many invaluable suggestions from poultry publications. The information you can acquire from these sources and the exercise of good judgment on your part and constant application to your work are sufficient equipment for you to begin the business in a small way. If you are lucky enough to have any friends who are experienced and successful in the business, seek their advice. Never fail to heed the advice of successful people, but do not listen to roll-top-desk theorists, or you will get into a dilemma. Yes, learn all you can from reliable sources, begin the business in a small way, and ere long you will acquire a practical knowledge of the business and your future success will be assured. Having familiarized yourself with the business, you can rear birds successfully on a large scale. The following suggestions will be of service to beginners in turkey-culture.

Of course you have selected your breeding stock before this, which should have been the very best procurable.

The eggs should be gathered daily and placed in a box lined with flannel, the large ends up.

Feed the hens plenty of food to keep them in good health, but see that they do not become too fat; if they do, feed boiled oats. They should be fed some shell-producing food. Supply plenty of grit and water.

Most turkey hens will lay more eggs than they can cover; set the remainder under chicken hens, but see the hens are not infested with lice.

Place a common V-shaped coop over the turkey before she hatches, and when you remove her from the nest put her in a dry place accessible to the sunlight. Keep the mother hen in the coop until the poults are large enough to follow her, but let the poults go in and out of the coop at will.

Before you remove the hen from the nest give her a good dusting with insect-powder as a precaution against lice.

Let the first feed of the poults consist of well-baked corn bread, soaking it in sweet milk and squeezing it dry before feeding. When they are three or four days old begin feeding them a ration of finely cracked corn and wheat. An occasional feed of cheese made from clabber milk by stewing it can be fed to good advantage, and good beef scraps, cautiously fed, will produce good results.

Drive them home every evening, feed them, and see that they roost at home. The following morning feed them again. You will thus keep them growing, keep them from straying from home, etc. They should also be fed in the middle of the day.

Freshly made sour-milk cheese may be fed sparingly the second week, and after that may constitute a large portion of the food, if it can be had. Up till the end of the third week about the same quantity of hard-boiled eggs should be fed—not the same proportion, by any means, but about the same number of eggs to the same number of poults.

Care should be taken not to feed too often nor too much at a time. Every two hours the first week and five times a day the next two weeks will be often enough. No more should be given at a time than will be eaten at once, for stale, sour food will cause bowel trouble quicker than anything else. On this account no more should be mixed up at a time than is required for the one feed. Sloppy foods of all kinds should be avoided, but this does not mean that everything should be fed dry. As a matter of fact, young turkeys do not take readily to dry food. It is best just moist enough to be crumbly without being in the least soft.

After the first few days they may be given full liberty after the dew is off. When rain threatens, or cold, damp days, they should be kept yarded. In very small yards the grass may be easily kept down with a lawn-mower, but I prefer a good-sized yard with a calf or two or a few sheep in it. It is often quite as much a convenience for calves as turkeys, especially where calves are raised by hand. But a yard I would have for turkeys, even though small. Until large enough to go on the perch they should be yarded nights and on wet days—at night to protect them from wild animals, and wet days to keep them from dragging around in the wet grass outside.

GOOD COUNSEL ABOUT GOOSE-RAISING.

There is very little to choose between the two most popular varieties of geese, the Toulouse and Embden, both being excellent for utility purposes, and, when bred up to standards, are marvels on the show bench, writes W. R. Gilbert, in Michigan Farmer. The Gray Toulouse appear the largest, but when placed upon the scales the White Embden are quite equal, and very often excel in weight, and the first cross from an Embden gander and Toulouse goose, or vice versa, will produce goslings weighing twenty-five to thirty pounds at Christmas time. I give preference to the gray goose and white gander, as the Toulouse lay more eggs as a rule, and seldom have a desire to sit, laying often forty eggs in a season. Of course these eggs have to be placed under hens, and here the incubators are very useful, as many a valuable gosling has been crushed in hatching, especially by close-sitting hens and geese.

The Gray Toulouse goose should be as large, massive and deep as possible, squarely built, with broad shoulders and grand bow in front. The

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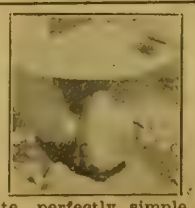

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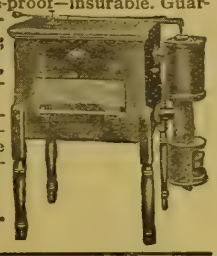

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exhibition standard calls for very large head and immense gullet, which develops considerably with age; color should be a dark steel-gray, with each feather laced with almost white edging. Flights must be solid gray, free from any white; the stern and paunch white. Toulouse geese are most prolific, laying a large quantity of eggs during the year, seldom, if ever, becoming broody, except occasionally at the end of the season.

The Embden is totally different in shape and appearance, being very close and solid in body, very broad in breast, with no inclination to bow in front, also no keel, but should have a very long, swan-like neck, large head, which is quite clean, and perfectly free from gullet. The Embden is pure white in plumage but, as in the cygnet, a few gray feathers are allowed in the gosling, which will all molt out pure white after the first year. The Embden usually lays ten to twelve eggs and then becomes broody, but will not lay again that season if allowed to hatch and rear young. They are excellent mothers and hatch out successfully if not too heavy and are undisturbed. They will lay three or four batches of eggs in one season if broken away from nesting each time.

Geese, if suitably mated, will live and breed successfully for several years and, when once well mated, should not be parted. Some have been known to live and breed for twenty years, but ten years is quite usual. The Toulouse and Embden increase in size and weight up to three or four years old, and can be made to reach the following weights: Ganders, thirty-four pounds; geese, twenty-five to thirty pounds; but twenty-two-pound ganders and nineteen-pound geese are quite heavy enough for stock purposes. Forcing for heavy weights ruins them for breeding. Stock birds do well on grass, poor grass suiting them best, and they will greatly help and improve it, but should have a feed of oats once daily, or, if laying very heavily, wheat or oats mixed with bran.

Goslings are very little trouble after the first week. They are slow to take food at first, living entirely upon the yolk of the egg. I then place them in a coop with the hen or goose, on very weak or poor short grass, if possible, where goslings have not been reared before. Their first food should be chopped egg mixed with dry biscuit meal, adding a little whole or crushed barley, not allowing them to swim or get into water (except in very hot weather) until two weeks old. If they are hatched early and in cold weather, cut sod and keep them indoors for a few days before placing them out upon the lawn or grass. They will soon take to the grass and thrive well on a feed of whole barley, wheat or meal once a day. Observe that the grass is not too rich and sour for them. The geese will always take to the goslings at the end of the season, but will soon stop their laying if allowed to take to them earlier.

ALFALFA MEAL IN FEED.

In a dry mash or a moist mash. Following formula is good and uses considerable proportion of alfalfa, about all that the birds will eat readily:

Ground alfalfa	20 pounds
Coarse wheat bran	20 pounds
Corn meal	10 pounds
Wheat middlings (white)	10 pounds
Barley meal	10 pounds
Gluten feed	10 pounds
Meat meal or scrap (sweet)	10 pounds

—American Poultry Journal.

Alfalfa will not take the place of wheat or oats. It may be fed freely as a bulky "green" food, about the same as clover, but it is not quite as well relished as good clover, and the results obtained are no better than, if as good as, those obtained by feeding best quality clover. Analysis: Fiber, 25.0; ash, 7.4; protein, 14.3; nitrogen, free extract or carbohydrates, 42.7; fat, 2.2.

Advice to the beginner in poultry is to start in a small way and learn the lesson well, using every effort to get good results. This calls for care, watchfulness and well-applied business principles.

Plumage of old fowls tends to shade lighter with increasing years.

—?—?—?—?—

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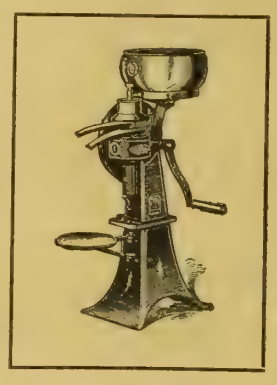

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Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

CHEESE MAKING.

By Mrs. M. E. Sherman.

When the curd is perfectly formed and springs under the knife, take the knife and put it straight at one side of the pan to the bottom. Cut straight across every half inch. Then cross-cut in the same way. Take the pan to the range, putting it on to heat with an asbestos mat under it to prevent burning. Heat slowly, stirring gently until thermometer reaches 98 degrees. Then let the fire go down, or remove the pan to a side table out of draughts. Cover it closely to retain the heat, and after thirty minutes examine the curd. Make a small ball in the center of the band, squeeze it gently together, if it falls apart as soon as released the curd is cooked enough.

Taking Up.

Push the curds to one side and bale out the whey, using a china cup. This is safer for the future cheese flavor than to use the kitchen dippers. The dippers are liable to taste of soup and onions, not to their discredit, but lowly flavors must not taint the savory mellowness of the cheese. Put a large platter on the table, stand the cheese ring on it. Put a square of cheese cloth into the hoops large enough to completely cover the curds. The muslin should be new and must be well scalded and can be put in wet. Roll up your sleeves and freshen the hands and arms with some warm water. Take up the curds by the handful, press gently together and let the whey drain. Put the curds carefully to the bottom and fill the ring by gently pressing so that there will not be any irregular places on the bottom sides.

Pressing.

When the ring is heaping full, fold the ends of the cheese cloth over the curds and put on the follower inside the ring. A simple lever can easily be made to press the cheeses. A six or eight foot scantling will answer the purpose for a cheese this size. Stand the chopping block close to a window, or a strong box will answer; put on it a clean board and several thicknesses of folded flour sacks. Put the cheese on this; place a board on the top and on this a brick. Put the end of the scantling under the edge of the window sill and lay it across the top of the brick that rests on the cheese. Make a weight of about twenty-five pounds by wiring together wornout plow shares, slipping them by a wire loop over the scantling. The pressure on the cheese is regulated by the distance the weight is placed from the end of the lever. At first the weight is close to the cheese, later at the very end; while the curd is soft, too heavy pressure is injurious to the texture.

Treatment.

After five hours in the press, take out the cheese, remove the cloth and gently wash off the whey with warm water. If this is not done the cheese will be sour tasting; rub the cheese dry, now bind the cheese around the outside with a strip of firm muslin, after having scalded out all the starch. Have the muslin wide enough to fold about an inch on the top and bottom. Draw this bandage firmly and lap about four inches. Fold the edges down on to the cheese and lay on top and bottom the circles of cloth. Scald the tin rings well and cool them, wiping them dry. Slip it over the cheese. Stand the cheese again on fresh flour sacks. Slip the weights half way to the end of the lever and leave the cheese for twenty-four hours.

Salting.

The brine way I like, as it is simpler and seems to make a cheese that does not crack readily in the curing. Make a brine by boiling water enough to cover the cheese, using all the salt that the water will dissolve. When the brine is cool put the cheese into it, submerging completely. After about a half hour take up the cheese and wipe it dry, and grease. Dry salting is done by rubbing with fine salt thickly. Turn the cheese after twelve hours and salt the other side. After twenty-four hours take up, then cover the cheese with salt twice a day for six days, keeping it covered with a cloth between time. Either way will make the cheese salty enough to be palatable. When the salting is completed the curing begins.

Curing.

Brush and wipe the cheese smooth from salt and lightly run over it with melted butter. Put on a clean bandage and fresh end covers. It will not pay in cheese making to wash out and use again on the cheese the old covers, as they are weakened by using. Turn the cheese daily, and twice a week examine to see if it is cracking. When cracks appear take off the cover bandages and grease again, then if the cracks are deep use fresh made flour paste and put a paper patch across the openings to exclude the air. Put on fresh bandage and the trouble will probably be at an end. The curing room should be an airy, dry place where the temperature is about 60 degrees. The cheese is ready to be cut in six weeks, or it may be wrapped in several thicknesses of brown paper and then in a tin box to keep away mice until used up.

Warning.

Heat is the enemy of the cheese in curing; it is, therefore, better to have a temperature below 60 than to have it above it for a period.

The pressing is simple enough if it is remembered; lightly at first and increasing as the green cheese grows firmer until it reaches the maximum.

The bandages on the cheese can be greased every other day if the cheese starts to crack badly.

Cold draughts often give trouble in making the cheese dry irregularly.

If it is preferred, the salting can be done in the curds after they are drained and before placing them in the rings or hoops. Use four ounces of salt to every ten pounds of cheese.

An error is made by stirring the uncooked curd too much. This causes the cream to escape in the whey and makes the cheese poor and tough.

In making cheese as in making butter, it is wash! wash! wash! be clean! and then after everything is clean, make it clean all over again for safety. It reminds me of the small boy who had a stepmother. A prying neighbor asked him if he was happy. Jimmy said "yes." Then questioned the neighbor further, saying: "Jimmy, does she whip you?" "No, but she does a precious sight worse," replied Jimmy. "Hum! What's that?" "Why," replied Jimmy dolefully, "she jest washes me all over every morning." —M. E. Sherman.

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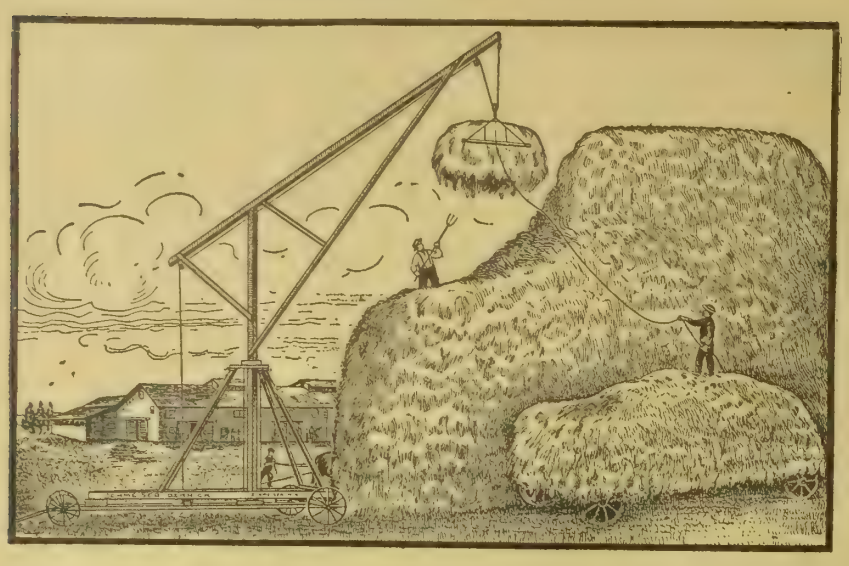

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Corner Chace and Alum Rock Ave., San Jose, California.

DECAY IN TRANSIT.

Mr. Powell's work in the Citrus Protective League has a wide scope. While he has nothing to do with the marketing operations, each shipper and the exchange handling its business as it may think wise, yet his suggestions as to loss prevention in transit are in order. On this point Mr. Powell is fully qualified by his long investigations to advise. He recently sent a circular to citrus growers, from which we quote:

"After the 1st of February the decay in citrus fruits while in transit is likely to increase. The fruit is riper, more tender, and therefore more susceptible to injury; the weather is warmer, and for a time may be more humid, and as the shipments during February, March and April become heavier, the work in the groves and packing houses is forced to the limit, and unless systematically checked is likely to be carelessly done. A sound orange with an uninjured skin does not decay; bruised oranges are almost sure to rot, under the conditions outlined. This is the time of year when every organization, every grower and every shipper ought to stop and look into its own operations to see whether the fruit is handled with enough care to prevent injury and decay.

"A sound orange not only ships in sound condition, under any method of transportation, but it remains sound in the hands of the jobber, the retailer and the consumer. A bruised orange may be transported in sound condition if it is iced or precooled quickly after picking, but it is likely to rot as soon as it leaves the car and becomes warm and moist enough for the decay to develop.

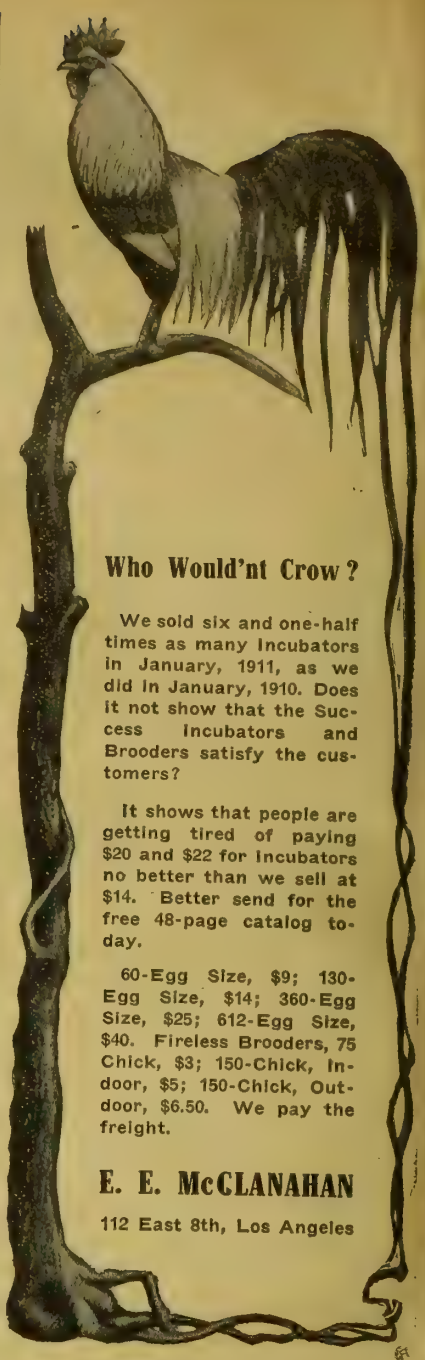
"The careful handling of the California orange and lemon crop is a business question. There is enough involved in it to cause every grower and shipper to give it serious consideration. Formerly, the loss from decay in transit was estimated to vary from three-quarters of a million to a million and a half dollars annually. It is much less now. This money, in addition to the freight paid on the rotten fruit, has been practically thrown away. It can be added to the earnings of the citrus fruit grower, as the most common losses from decay are preventable by the careful handling of the fruit.

"The decay question has been investigated by the United States Department of Agriculture for several years, and many of the growers and shippers understand it. Many of them do not. There are others who understand but who do not practice the teachings of the department. The principles underlying the decay in citrus fruits are therefore restated.

"The most common decay in citrus fruits while in transit is caused by blue mold, a low form of plant life, which cannot grow through the healthy, vigorous epidermis of the skin. It belongs to a class of organisms which grow on dead or weakened tissues. Blue mold on the skin of a vigorous, sound orange is in the same condition as barley would be if sown on an asphalt pavement; neither can penetrate the tissues or the soil beneath. They are similar, also, in that neither can grow in a good soil without heat and moisture to germinate them. The blue mold, though, will grow slowly at a temperature as low as 32 degrees Fahr., though its development is greatly retarded in a temperature of 40 degrees Fahr.

"Practically all the decay in transit is the result of bruising and injuring the fruit during its preparation for shipment. Clipper cuts, stem and gravel punctures, finger-nail scratches and rough handling in the packing houses—these are the most common forms of injury.

"The Federal Department of Agriculture has spent thousands of dollars in co-operating with the citrus industry in establishing the principles of good fruit handling. It has shown that the lemon and the orange will keep for months and can be shipped in sound condition if the fruit is handled properly during its preparation for shipment; but the government can never do for the grower and the ship-



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It shows that people are getting tired of paying $20 and $22 for Incubators no better than we sell at $14. Better send for the free 48-page catalog today.

60-Egg Size, $9; 130-Egg Size, $14; 360-Egg Size, $25; 612-Egg Size, $40. Fireless Brooders, 75 Chick, $3; 150-Chick, Indoor, $5; 150-Chick, Outdoor, $6.50. We pay the freight.

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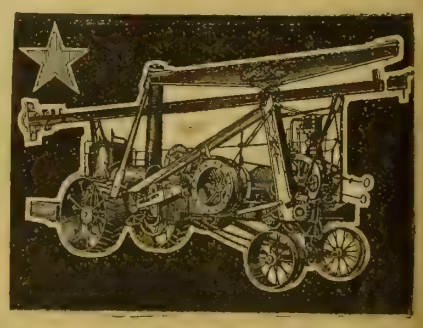

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Roofings that you don't know about are risky. Their looks are apt to deceive you. Be on the safe side, and get Genasco Roofings—mineral or smooth surface. Fully guaranteed.

The Kant-leak Kleet insures the perfect application of roofing—makes seams water-tight without smeary cement, and prevents leaks from nail-holes. Ask your dealer for Genasco with Kant-leak Kleets packed in the roll. Look for the hemisphere trademark. Write us for samples and the Good Roof Guide Book.

The Barber Asphalt Paving Company

Largest producers of asphalt and largest manufacturers of ready roofing in the world.

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Two weeks earlier than Satsuma.

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Orange Trees

First-Class Navel and Valencia one and two years old.

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The Avocado

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Illustrated circular containing description, cultural directions, and much other useful information, free.

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Placentia Perfection Walnuts
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per those fundamental operations which they only can perform. It has helped to point out the causes of decay. It remains for the industry to handle its operations in such manner as to make the findings of the government effective.

"The control of the decay is a business proposition. It is practical to control it, but it is not an easy question to handle. It is not self-regulating. It is related to the methods of paying labor, the methods of fruit picking, and to all of the business practices that surround the handling of the fruit. Any system of labor handling or of business management that places a premium on the quantity, rather than the quality, of work performed, is likely to lead to decay. The careful handling of the fruit is unusual, unless the grower, the organization or the shipper has provided some method of enforcing it. It must be the business of someone to see that careful handling methods are habitually practiced. In the end it depends on the man who handles the labor, and he must have the strong support of those who employ him, or decay cannot be escaped.

"Now is the time to stop and see where you stand. Your oranges are as likely to be in the crippled and injured class as those of your neighbor. Unless your whole system of business places a premium on the care with which the work is done, the chances are more than even that you will find from 10 to 40 per cent of your fruit injured in the various operations of handling.

"The Citrus Protective League stands squarely for the conservation of the earnings of the citrus fruit grower. It does not believe that the citrus industry can afford to lose a million dollars a year from decay, or any considerable proportion of that amount. It knows that the principal losses from decay are avoidable. Every grower and shipper is therefore urged to consider this question now, before the favorable season for decay sets in. Standardize your picking so that all of it is done with care. Make it someone's business to enforce careful handling. Be careful of the picker who is paid by the box. Look out for the man who picks over fifty boxes a day. Be careful of the loading, the hauling, and of every operation in the packing house, from the unloading of the fruit to the final loading in the car. Watch the fruit of each grower where it is pooled through an association. The oranges of one may show 2 per cent of injury, while the fruit of another shows 40 per cent. See that the points of the clippers are round, instead of pointed. Watch the emptying of the fruit from the sacks. See that the grove is fumigated next year, if the oranges have to be washed. Eternal vigilance is the price of sound fruit, but every grower and every shipper can have it if he will devote as much attention to it as he does to the culture or selling of the crop. In short, study your whole system of doing business, and determine the relation of each operation to the care with which the fruit is handled. A system that insures careful handling leads to better work in every department of the citrus fruit industry. You are urged to take this matter up with your labor, your association, your directors, your shipper, or with anyone in authority, and give it critical attention from now on."

A GOOD BUSINESS.

A characteristic story is told of the late Thomas Flatley of Boston, the well-known Irish lawyer and wit.

He was acting for the defense in a divorce case and during the cross-examination of the plaintiff asked the following question:

"You wish to divorce this woman because she drinks?"

"Yes, sir?"

"Do you drink yourself?"

"That's my business, said the witness angrily.

Whereupon the lawyer, with face unmoved, asked one more question:

"Have you any other business?"

HIS PHILOSOPHY.

The Sage: After forty years o' married life I've made up me mind it doesn't matter how often a man an' his wife disagrees, as long as he don't let her know it.—Harper's Bazar.

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Box 652 **Fresno, California**

GROW BLIGHT RESISTANT WALNUTS

A Celebrated Tree Which is Being Used to Extend Profitable Walnut Planting. The Chase Tree at Whittier Regarding which the Department of Agriculture Makes Good Report.

No disease among the fruit and nut bearing trees of Southern California has elicited more apprehension nor called forth greater effort in its solution and cure than the blight of the walnut. Its study has engrossed the best talent of the State University and also that of the federal agricultural department, nevertheless up to the present time no remedy nor preventive has been discovered; the only hope being to breed a race of trees that shall prove immune to its attacks. The disease is recognized by black sunken spots on the hulls of the young nuts, usually more pronounced at the blossom end. As the fruit develops these several spots seemingly amalgamate, covering considerable areas of the surface, until the nut becomes a disgusting black mass and is utterly destroyed. At about this time the disease also shows itself in a similar manner on the leaves and new wood. It has been demonstrated that it is caused by a bacterium which has so far resisted treatment, hence the only hope of maintaining healthy bearing trees is to breed stock that shall at least be reasonably, if not wholly, immune.

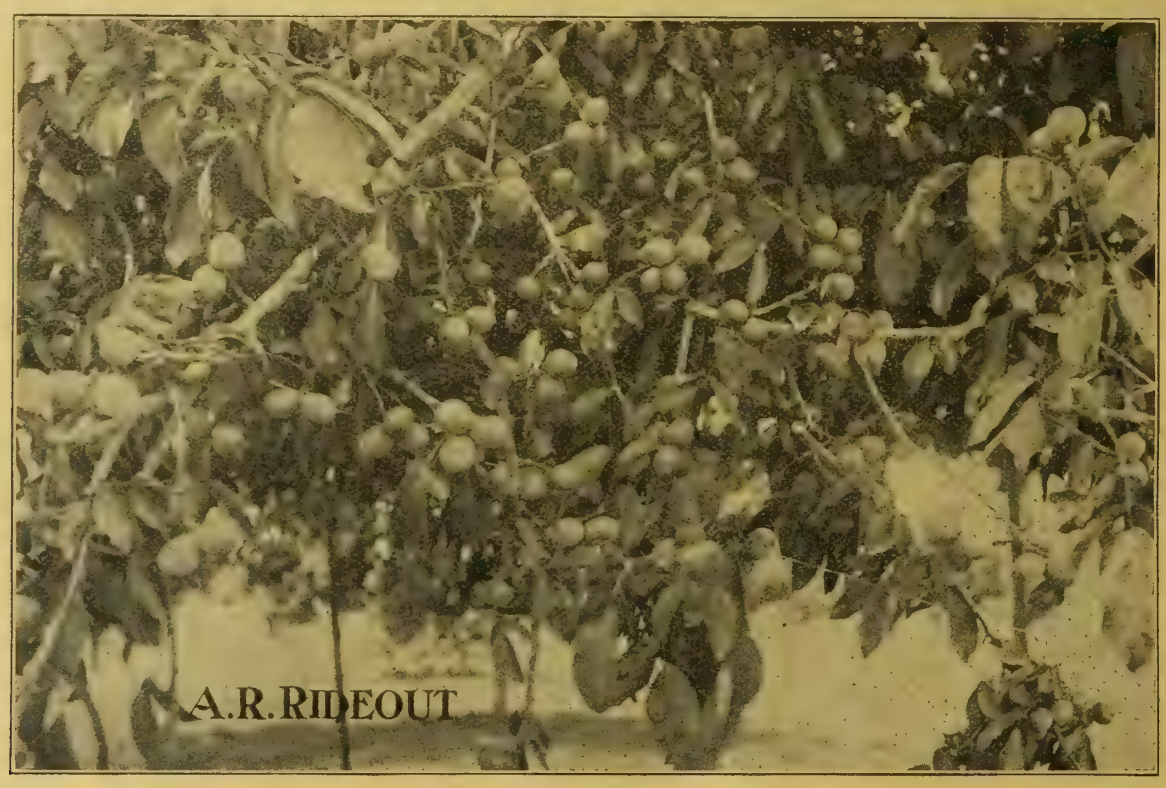
In this direction the walnut industry is not without hope. Recently it was the pleasure of The California Cultivator to inspect several walnut groves in and about Whittier planted to trees that were almost wholly immune from tangible evidences of the blight. These were all planted to grafted trees from the celebrated Chase walnut tree, (a reproduction of which will appear in an early issue of the Cultivator), while the bearing quality of these young orchards at five years of age is shown in the illustration herewith. The discovery of the blight-proof tree is due to A. R. Rideout, the popular nurseryman of Whittier, who at once recognized its economic importance for grafting purposes. Its salient features are indeed pronounced. Planted the same time as the remaining trees of the orchard, it has outstripped them all and now stands head and shoulders above its neighbors grown under similar conditions. Its vitality is remarkable. Being pruned extensively every year for grafts for the past six years, it nevertheless grows and thrives under this severe cutting. And as a large quantity of the bearing wood is being cut off annually, it has not of late years equaled its record of 325 pounds made before it was twenty years old. Still each year it has a large crop and no failure. Last year this tree yielded nearly 300 pounds, and though a little blight was slightly evident, an horticutural expert said upon looking it over carefully that it would not lose one per cent of the crop. At the same time, trees adjoining lost one-third and possibly one-half of the entire yield, thus showing a marked degree of immunity and a big stride toward solving this blight problem. Besides its immune properties, its bearing quality and vigor, this tree has other features of note. Its foliage is large and dense, which protects the nuts from sunburn. It is heavily laden with pollen, a point so necessary for well filled and matured nuts. The nuts are well sealed and well filled, thin shelled and of a fine flavor, and are unusually large on the trees.

So much for the parent stock and its superb value; let us now say a word for the young groves coming into bearing planted to trees grafted with wood from the Chase tree. For the most part these are indeed perfect specimens not only in habit of growth, vigor, bearing capacity and quality of fruit, but what is of much more importance, almost absolutely free from blight. The Benchley Fruit Co. of Fullerton purchased the grafted nuts from the young orchard, saying they were the finest and commanded the highest price of any other nuts purchased by them this year. A sample was sent to the department of agriculture at Washington and very flattering reports were received from there. To show that we are not alone in this opinion we quote the following from the pen of State Horticultural Commissioner Jeffrey, in a recent publication of his office:

"I had the opportunity of seeing a twenty-acre walnut orchard planted to grafts from a resistant tree. No such crop of walnuts was ever seen before upon five-year-old trees. An average of twenty-five pounds to the tree was the estimate made by one of the parties, and such magnificent specimens! (Since the crop has been harvested it has been ascertained that some of these trees bore as high as 80 pounds of nuts), all of the same type and every tree distinctive. The Chase strain is one of the most vital and productive in the state. Of course, one cannot advertise this tree to be absolutely free from blight, and I am glad Mr. Rideout does not do so in his article."

As to what will be the final result of these young orchards no one can tell at this time. Until scientists work out some scheme for making walnuts immune, all growers can do is to plant varieties showing the least damage and the most productive and finest nuts. Of these the Chase walnut grafted trees are not excelled by any with which we are acquainted. Out of the whole 20 acres there was one walnut that had the blight very badly, and a few that showed it slightly on a few nuts, but these were marked, says Mr. Rideout, and he is cutting graft wood only from those in the orchard that showed no signs of blight on the nuts or wood, thus furthering the picking from the immune of the immune and thereby working out the absolute immunity. It is understood that he has the budding wood from the original tree and you[illegible] orchard for four years. Next season he expects to have at least 20,000 grafted trees, a goodly portion of which is already contracted.

There can be no question but Mr. A. R. Rideout is doing the walnut industry a real service in disseminating the fact that there are walnut trees practically blight proof, as well as in propagating and distributing the trees themselves. No one planting a walnut grove can afford to take any chances on stock of questionable character as regards this disease. Having seen the orchards and examined them The Cultivator feels that the facts are worthy of exploitation in its columns. In spite of that, however, it suggests to those contemplating planting walnut trees to investigate for themselves, thus becoming witnesses to an important horticultural discovery of vast economic value to the walnut industry as a whole.



THE PROLIFIC RIDEOUT WALNUT TREES IN BEARING.

Showing the remarkable annual crops produced by this superb strain of walnut trees, because practically immune from the enervating effects of the blight.

FACTS About Opportunities in the Great

Owens River Valley

Open Letter to Cultivator Readers

Los Angeles, Cal., Feb. 18th, 1911.

With all the success we have enjoyed in selling our Owens Valley land there has been no one medium that has brought to this office more buyers than the "California Cultivator." This condition has proven one thing, that it is Southern California farmers—more than any other class of farmers—who can fully appreciate all the merits of our Owens Valley land. It is only by comparison that we can judge anything. Consequently it is the farmer who has had all the trials and tribulations of the water problem who can fully realize all the merits of this beautiful new valley.

You have doubtless read many of our advertisements, and possibly received some of our literature, and feel that we have made some very bold statements about what this new land is capable of producing. We have been criticised for using bumper crops as illustrations of what the land will do. In answer to these criticisms, we wish to go on record as saying that we firmly believe that all record crops in Owens Valley will be beaten by the new incoming farmers.

Farmers who know modern methods of cultivating and irrigating, who have kept in touch with progress, have learned the wonderful principle of conserving moisture in the soil, would only have to see the simple methods that have been pursued by the old farmers of Owens Valley, to realize, that to apply modern principles would greatly increase the yield of the land.

Most Fertile Spot in Southern California

We do not believe the resources of Owens Valley have been discovered. Every trip into the valley seems to disclose new conditions. In a small way we have found farmers growing celery equal to the best produced in the market. We are constantly coming into contact with the farmer who tells us about his unusual currant and gooseberry crops; another farmer will tell about a wonderful crop of cherries growing on a few trees. Then again we find evidence of the most remarkable production of almonds, and so on, until we become more fully satisfied than ever before that the Owens Valley, in a few years, will have the reputation of being the most fertile spot in Southern California. It is our firm belief that by virtue of these conditions, Owens Valley land, with a good water supply, will be selling for four or five hundred dollars per acre in a very few years.

With our many years of experience in selling farm land, we have never come in contact with, or heard of, a land selling proposition that showed such a high percentage of buyers, for the number of people who have investigated the land. We venture to say that nine out of ten persons that have left this office have purchased.

Of course we have made a special point of endeavoring to interest people in apple growing. We sometimes feel that by devoting our entire energies to exploiting apples, that we have given some people a wrong impression of the Valley, to have them think that they could not grow other things equally as well, but our one idea in talking apples is, that we realize the large profits to be made in developing an apple orchard. On the other hand, we sometimes feel that we make a mistake in not encouraging people to go in for trucking, bee culture, and poultry raising. We know, by proven facts, that the Owens Valley honey is equal to any, and superior to most honey that is produced in this state. We see evidence of the fact that conditions could not be more perfect for poultry. If you could view the wonderful poultry farm of Mr. Fred Eaton, you would exclaim that you never saw White Leghorns with feathers so white, legs so yellow, and combs so red.

Talk With Men Who Have Bought Land

We appreciate that all we say is as nothing compared to what some disinterested man would say, who has studied the Valley. Some man who did not have land for sale, and consequently would make little difference to him whether you bought or not. For this reason we are going to give you the names of some of those, to whom we have sold, together with their addresses, and the number of apple and pear trees they have ordered, and are now on their way from North Yakima, and which will be in the ground by the first of March. Possibly some of them live in your country, and you will be able to talk with them.

SOME RECENT PURCHASERS

Buyer	Address	Trees Ordered
Mr. Hatfield	Los Angeles	1000 trees
Mr. Hillman	Covina	845 "
Mr. Woolsey	Chatsworth	725 "
Mr. Eggelson	Chatsworth	725 "
Mr. Henderson	Chino	1000 "
Dr. Loomis	Los Angeles	771 "
Mr. Vosberg	Ontario	512 "
Mr. Pervine	Whittier	348 "
Mr. McCaslin	Los Angeles	800 "
Mr. Thayer	Whittier	1400 "
Mr. Baxter	Uplands	1600 "
Mr. Catto	Long Beach	845 "
Mr. Shingler	Uplands	1000 "
Mr. Flaherty	Laton	1012 "
Mr. Blaney	Owens Valley	260 "
Mr. Healton	Whittier	520 "
Mr. Myers	Los Angeles	1262 "
Mr. Bogart	Ontario	512 "
Mr. Greenameyer	Los Angeles	480 "
Mr. Williams	Fullerton	980 "
Mr. Hildrith	Los Angeles	830 "
Mr. Field	Los Angeles	1592 "
Mr. Willetts	Los Angeles	470 "
Mr. Wilder	Long Beach	476 "
Mr. Dorsett	Los Angeles	800 "
Mr. Burns	Nebraska	480 "
Mr. Williams	Anaheim	740 "

Our Mr. Hanson, a fruit grower of twenty years' experience, and who knows nursery stock, if any man should know it, made a special trip to North Yakima to buy these trees. He stopped at all the large apple shipping points in both Oregon and Washington, returned with the exclamation that there is nothing in those two states that is superior to our land. That first-class apple land in any of the proven districts sells from $250 to $400 per acre.

Proven Apple Land

In claiming that our land is proven apple land we make this statement knowingly. Although we believe that the entire Owens Valley is good apple land, it is an established fact that there is about 30 miles from Lone Pine, North, which is superior to all the balance of the valley. Superior in the fact that it is not so liable to killing spring frosts as the northern portion. Our lands are in the center of this 30 mile stretch. In making this statement we wish to say in all deference to the northern part of the country that they only have to introduce smudge spots to have a full crop every year. However, one should grant that to get into a country where this is reduced to a minimum is much better than otherwise.

Valuation According to Production

No doubt the hardest thing for the farmer to solve is "Why is land in Owens Valley worth $150.00 per acre?" Most people have heard of Owens Valley only in the most remote way, and liken it to some distant place where the country is undeveloped, and consequently expect very cheap land. We do not think there is a first-class farmer in California who does not believe that the time is rapidly at hand when farming land will be sold according to its ability to produce, just as business property is valued according to its ability to command certain rentals. To tell you of some of the remarkable things that have been done in Owens Valley would make you feel that such things are unbelievable. The story comes to us that 800 tons of alfalfa was taken off 97 acres, 80 acres of which was cut three times and 17 acres twice; that upon a special eight acres 34 tons of baled alfalfa was taken off on one cutting, and that this alfalfa was tied over the back of an average size horse.

We have in our office timothy hay with 18 inch heads. This hay goes two tons to the cutting and sells for $11.00 per ton.

Ideal Climatic Conditions

After everything has been said about what Owens Valley will do in the way of raising crops, a matter that is quite secondary to some, but most vital to others, is, "What kind of a place is Owens Valley to live in?" To those who consider that farming is simply a means to an end, and that end is a comfortable home, peace of mind, and an opportunity to educate the children, then we say, Owens Valley possesses more necessary qualities than any other section in California we know of. The climate in Owens Valley is ideal; we do not mean to say that it is 100 per cent perfect, and that they never have a disagreeable day—such a statement would be foolish—but we do say that taking the summer all the way through, it is equal to the best climate Southern California can produce. By that, we do not refer to the hot section of Southern California, but those sections which we all know to have beautiful summer climate. The winters show an extreme cold of about 10° colder than Southern California. This, however, only means the early morning. It is a universal remark that by 10 o'clock all men are in their shirt sleeves. Although such a thing as scenery is quite secondary to good farming, it is certainly acceptable when one can have it, and there is little doubt that Owens Valley is as picturesque as any place in the state.

We have instances where men have come into our office to get prices on our land with a "bee in their bonnet" that they want to own an apple orchard. We have discouraged such men in buying land, where we knew they were not qualified to make a success of their purchase. We have no desire to put people on our land to have them turn out a failure. They would never blame themselves. On the other hand we earnestly solicit first-class farmers, and it is to the modern farmer we invite inspection. You readily see that if we deliberately solicit from the most modern farmer an inspection of our land, that we must feel that we have the land to show.

Write for Descriptive Literature

We have an assortment of literature, a little booklet entitled "Fortunes in Apples," which gives a very complete story of the apple industry, and also tells a vivid story of the condition of our lands. We also have a little folder, "Questions Asked and Answered," in which we have taken questions from a hundred letters and answered them. We did this with the hope that we would be able to answer all the questions asked without being forced to resort to very lengthy letters. It will be our pleasure to mail this to you upon your request. We desire this printed matter to get into the hands of people who are interested.

If you have the time and inclination, we would much prefer to have you write us a letter and tell us what the condition is you are seeking. Possibly you prefer to raise hogs and alfalfa; if such is the case, we are liable to tell you a story about alfalfa and corn that would open your eyes. Perhaps you have some friend who is thinking of making a change in his location, to whom it would be our pleasure to send some printed matter.

If you have not time to write us a letter, fill out the enclosed coupon and mail to us. If printed matter is not forthcoming in a few days, drop us a postal. Sometimes these coupons get lost. Do not hesitate to ask questions.

CUT OFF ON THIS LINE

James R. H. Wagner Co., 329 S. Hill St., Room 13, LOS ANGELES, CAL.

Kindly send, without expense to me, book on Owens River Valley.

Name .....

Town .....

State .....

Mayer

Leading Lady

Shoes—leaders of women's fine footwear—style leaders and leaders for comfort and durability. Mayer Leading Lady Shoes give a trim and stylish appearance. They are satisfactory for all dress-up occasions, yet durable for general wear, and have all the qualities of refined footwear.

WEAR, STYLE AND QUALITY.

MAYER LEADING LADY SHOES

are made of choice leather selected for its quality, strength and suitability for fine shoes. They fit comfortably and are stylish looking. They are high grade quality shoes, yet they cost no more than ordinary shoes.

To be sure you are getting the genuine look for the Mayer Trade Mark on the sole.

MILWAUKEE Mayer CUSTOM MADE

FREE—If you will send us the name of a dealer who does not handle Leading Lady Shoes, we will send you free, postpaid, a beautiful picture of Martha Washington, size 15x20.

We also make *Honorbilt* Shoes for Men, *Martha Washington* Comfort Shoes, *Yerma* Cushion Shoes, *Special Merit* School Shoes and *Mayer Work* Shoes.

F. MAYER BOOT & SHOE CO., *Milwaukee, Wisconsin*

WESTERN BRANCH: Washington Shoe Mfg. Co.—Seattle, Wash.

ONE MILLION BABY CHICKS

Barred Rocks
White Rocks
White Wyandottes
Buff Orpingtons
Black Orpingtons
White Minorcas
Selected White Leghorns
Utility White Leghorns
Brown Leghorns
Buff Leghorns
Black Minorcas
Rhode Island Reds
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Cornish Indian Games
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Pekin Ducks
Indian Runner Ducks
Toulouse Geese
Bronze Turkeys

Is what we will sell during the year of 1911. Send today for 64-page book, "The Story of the Baby Chick." It's the finest book of its kind ever printed.

We sell all varieties listed in this ad. All are illustrated in our catalog. Tells prices, the way we ship chicks, hatching eggs, laying hens, pullets, cocks and cockerels, etc.

We are hatching and shipping thousands of chicks every day at present. Write us your needs.

We are the World's Largest Chick Dealers.

The PIONEER HATCHERY Co.

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Planet Jr.

Get double the present results from your time and labor. Use Planet Jr farm and garden implements, and secure bigger and better crops with less work.

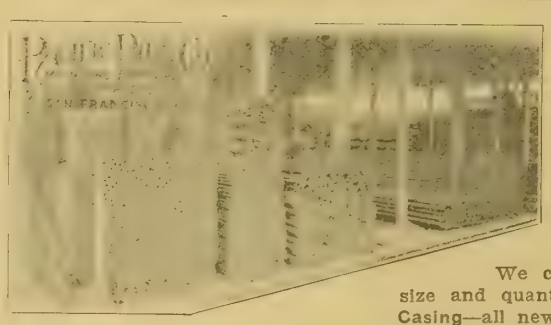
Planet Jrs do the work of three to six men. They do it more accurately, and cause a greater yield. They are the result of a practical farmer's 35 years' experience. **Fully guaranteed.**

No. 6. **The newest Planet Jr Combination Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow,** opens the furrow, sows any kind of garden seed accurately in drills or hills, covers, rolls down, and marks out the next row—all at one operation. Perfect Wheel-Hoe, Cultivator and Plow.

Planet Jr 12-tooth Harrow, Cultivator and Pulverizer is a wonderful tool for berry-growers and market-gardeners Works deep or shallow without throwing earth on the plants, and pulverizes the soil thoroughly. Invaluable wherever fine close work is needed.

You can't afford to miss the 1911 illustrated Planet Jr 56-page catalogue. **Free and postpaid.** Write today.

S L Allen & Co
Box 1106P Philada Pa



Save Money By Buying This Good Second-Hand Pipe

We can supply you with any size and quantity of Standard Pipe or Casing—all new threads and couplings—all stock guaranteed first-class.

If thinking of buying any kind of pipe, your best interests will be served by writing us for prices and particulars.

PACIFIC PIPE CO., Main and Howard Streets, SAN FRANCISCO.

Red Gum Offer Fxtraordinary ! !

100,000 Twice Transplanted ½ foot high at very attractive prices.
No **"replanting"** if such stock is used.
Also good stock of smaller plants.
General Nursery Stock.

LEONARD COATES NURSERY CO. Inc.
Morganhill, California.

Queries

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Spray for Codling Moth.

Please give a spray for codling moth infesting apple trees.—C. A., Los Angeles.

See Cultivator of November 3rd, formulas 23, 24, 25 or 26.

Temperature of Incubator.

Many of my chicks die three or four days after hatching in incubator. The trouble is white diarrhoea. What is the cause?—Subscriber.

Trouble of that kind with such young chicks is probably caused by poor heat regulation during incubation. More than that we could not give a reasonable guess without more particulars.

Green Feed for Hens.

Will hens lay and do well without green feed? Is alfalfa meal a good substitute? Will citrons be a good feed?—Subscriber, Ceres.

Hens will not do their best without green, succulent feed. Alfalfa meal is good, and with green bone makes an especially fine feed. For preserving healthfulness of a flock, however, if something like lettuce, Swiss chard, green alfalfa or similar crop can be supplied, it is a great aid. Citrons are of little food value, but will help to keep the hens in healthful condition. Ground alfalfa meal possesses most valuable of food constituents.

Borers.

Because of my prune trees losing their leaves every season on account of red spider, many of the younger trees are sunburned. Where they are not too badly burned is there any method of restoring their vigor and preventing borers from gaining access to trunks?—Subscriber, Colusa.

Our first suggestion would be to eradicate the red spider, information regarding which is given in this department. The trees which are already sunburned should be protected from further injury by shading or wrapping trunks. The burned portion may be protected by whitewashing with mixture of 30 pounds lime, 4 pounds tallow, 5 pounds salt, with enough water to make flow well. This is an excellent protector from sunburn as well.

Capacity of Pipe.

How many miner's inches will be discharged through two-inch pipe connected with four-inch pipe with 10 foot and 20 foot pressure, providing no one else is getting from the main line at same time? Again, suppose two parties were getting water through two-inch pipes at same time from same main, one of the two-inch pipes 1000 feet long with 30-foot pressure and the other 2000 feet long with 40-foot pressure —J. E. R., Oroville.

This query was referred to Mr. J. B. Neff, who answers:

"When 2-inch pipe is used, pipe to be smooth and clean, the discharge will be as follows:

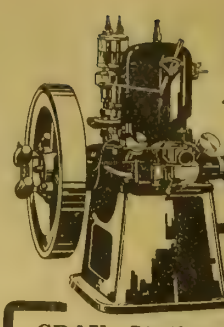
10 feet head, 1000 ft. long, discharge 231 gallons per minute; 2000 ft. long discharge 230 gallons per minute.

20 feet head, 1000 ft. long, discharge 323 gallons per minute; 2000 ft. long, discharge 320 gallons per minute.

30 feet head, 1000 ft. long, discharge 400 gallons per minute; 2000 ft. long, discharge 390 gallons per minute.

40 feet head, 1000 ft. long, discharge 447 gallons per minute; 2000 ft. long, discharge 430 gallons per minute.

If the pipes are well connected with smooth fittings and there is a plentiful supply of water there will be but a trifling difference when both are running at the same time. Common usage allows 9 gallons per minute for one miner's inch. The above is for pipes in the best condition and when the smaller pipe is connected with the larger by a taper joint. In ordinary practice the discharge will vary and is usually only about 65 per cent to 75 per cent of the quantity given."



3 H. P. Farm and Pumping Engine $65
8 H.P. like cut $186

GRAY Stationary ENGINES

For IRRIGATION and PUMPING, Spraying Machines, and driving churns, cream separators, washing machines, grindstones, wood saws, feed mills and all kinds of machinery on the farm and in the shop.

Full Horsepower, Perfectly Governed, Workmanship and Material Best Obtainable.

Absolutely guaranteed by a firm who have the reputation of standing back of their guarantee. Ask Dunn or Bradstreet or any bank in Detroit.

Branch Agencies in San Francisco, Sacramento, San Diego and Los Angeles. For catalogue and full information about 3, 4, 6, 8 and 12 H. P. Stationary Engines, write to the main office at Detroit.

Gray Motor Co., 125 Leib St. Detroit, Mich

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TURBINE PUMPS

Noiseless
Valveless
Economical

Byron Jackson Iron Works, Inc.

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THE "BOSS"

Tree Protector

MADE OF YUCCA PALM

Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

PRICES.

	Per 1000.
10 in. long, 7 in. wide	$ 9.50
12 in. long, 7 in. wide	10.50
14 in. long, 7 in. wide	11.50
16 in. long, 7 in. wide	13.00
18 in. long, 7 in. wide	14.50
24 in. long, 7 in. wide	17.00
30 in. long, 7 in. wide	20.00

YUCCA MANUFACTURING CO.
1380 WILLOW ST., LOS ANGELES, CAL.

SULLIVAN'S

Buff Orpingtons

1000 birds to select from. Trios, $7.50 and up. Eggs for hatching, $2 and $3. Special selection; prices on application. Mr. & Mrs. W. S. Sullivan, 50 Market St., Agnew, Santa Clara Co., Cal.

Walnut Trees

Grown from carefully selected seed. Will bear 95 per cent No. 1 nuts, of which 25 per cent will grade fancy. Nuts grown from seed are less liable to damage by frost, late rain, blight or sunburn. Postal for price list.

A. A. MILLS
Anaheim, Cal.

20th Century Grader

The Light Weight Wonder

—masters the most difficult pieces of land—cuts the brush—stirs the soil so it won't need ploughing—levels the land—throws up dikes—digs ditches and maintains your roads.

This grader is invaluable on fruit farms. One man—one team—operates it. The 20th Century is

The Original One-Man Machine

It is all steel and will last through years of hard service.

It does the work of several special machines and adds to your profits.

Send a postal card for complete detailed information and pictures of machine in actual service. Address

The Baker Manufacturing Company
531 Hunter Building, Chicago, Illinois

Figure on Painting This Spring

A second short flax crop keeps linseed oil up, but the increase in price in pure white lead paint is not so great as you may fear.

Get at your dealer's the cost of 100 pounds of "*Dutch Boy Painter*" White Lead, 4 gals. pure linseed oil, 1 gal. turpentine, 1 pint turpentine drier—this makes 8 gallons of old-fashioned paint.

Compare this cost, either by the gallon or by the job, with what you used to pay for paint.

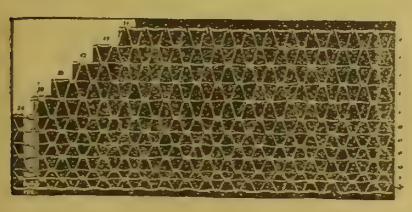
You'll find the difference so small that you can't afford to put off painting, or to paint with anything except "Dutch Boy Painter" White Lead. Write for free "Painting Helps No. 626

NATIONAL LEAD COMPANY

Offices in the following cities:

New York Boston Buffalo
Cincinnati Cleveland St. Louis
San Francisco
(John T. Lewis & Bros. Co., Philadelphia)
(National Lead and Oil Co., Pittsburgh)

KOKOMO



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The kind that "fences." Square or Diamond mesh fences for all farm purposes. Our net prices on fencing gates, barbed wire, poultry netting, etc. will save you dollars. Catalog free. Mail orders a specialty. Write us.

California Anchor Fence Co.
Main and Grant Sts.
STOCKTON, CALIFORNIA

Eucalyptus

All varieties and sizes; extra hardy stock. "The finest trees I ever saw," is the verdict of all who see them. Write today for free booklet C on their culture, etc. Questions gladly answered.

LLOYD R. TAYLOR, Modesto, Cal.

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Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Discharge from Nose and Lameness.

A horse which has a sore on his hock jerks the leg up high when moved in the stall, and groans as if in pain. When taken out of the stall he is lame the first few steps and then lameness disappears. White matter runs from his nose and while drinking he manifests pain by occasionally elevating the head and continually moving one front foot.—Subscriber, Glendale.

Have a qualified veterinarian examine this horse at once, for an infectious disease. A catarrhal condition of the nose associated with sore spots and swelling of the limbs, especially of the hind limbs, is highly suspicious of a dangerous disease.—F. G. M.

Abortion.

A fine Jersey red sow raised her first litter of ten pigs; was bred again but lost the pigs after six weeks; and at the next breeding miscarried after three weeks. She has a good run and is with other sows which carry full term.—Subscriber, Santa Cruz.

This sow is subject to habitual abortion or has some chronic disease of the generative organs, probably the latter. If too valuable as a brood sow to butcher, allow her to go unbred 10 or 12 months and then ten days before service give the following powders, each containing potassium iodide one scruple, nux vomica half scruple, and cinchona bark one drachm, twice daily in the feed for eight days.

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway. Los Angeles.

To Center of Road.

If a man buys a certain number of acres, has he to pay too for the strip of land the county road takes away? Road was dedicated to the county some 20 years ago.—Subscriber, Norwalk.

What the purchaser pays for is purely a matter of agreement between himself and the seller, and it would be impossible to give a more definite answer to your general inquiry.

After one has bought a piece of property and made his bargain with his eyes open, he can hardly complain if he has failed to observe that a road comes off of the property, and that he has paid for the acreage in the road at a stipulated price. If he discovers that he is buying a road before he has made his bargain he has his option to complete the deal or refuse it.—E. L. P.

We may add that when a section or square mile is surrounded by road, one-half of it is taken from land on either side, hence the land is described as running to center of road. We think such custom usually obtains in this state, excepting sometimes in case of subdivisions into small parcels of high-priced land, etc.

Statute of Limitations.

Please state if a note given me in summer of 1906 without any payments being made has expired, or how long is it good yet? Also when does note secured by chattel mortgage outlaw? —Subscriber.

Your note expired, or will expire, four years after it became due. It does not make any difference how the note is secured. The Statute of Limitations begins to run against it as soon as it becomes due.—E. L. P.

TREES — ***LARGEST STOCK ON THE PACIFIC COAST***

All Varieties--- All True to Name

We are authorized Commercial Propagators and call particular attention to

The Formosa Plum
Largest size, heart-shaped and light cherry red in color. Best grower and shipper on the market.

The Standard Prune
Best combination drying and shipping prune ever offered. Enormous and never-failing bearer. Strong, healthy grower.

Patagonia Strawberry
Has a most exquisite flavor—is a very strong grower and a remarkably fine keeper.

BURBANK'S NEW CREATIONS

Wonderful Pomegranate
If you have strong alkali or very damp ground, there is nothing that will bring you such handsome returns as this, the showiest of all fruits. Color like the Baldwin apple, only three times the size. Sells readily in the Eastern markets at from $2 to $4 per 20-lb. box.

WE HAVE A FINE STOCK AND ARE PREPARED TO OFFER SPECIAL INDUCEMENTS.

We are prepared to fill your orders for any quantity of

FIGS, APRICOTS, PEARS, PRUNES, CHESTNUTS, GUAVAS, LOQUATS, OLIVES, ALMONDS, APPLES, PEACHES, PLUMS, LIMES, ORANGES, POMELOS, LEMONS, PECANS, WALNUTS

Jerusalem Artichokes
Make the greatest and cheapest hog feed in existence. Planted like potatoes. Require no care. Yield abundantly. Write for quotations on large or small quantities.

26 Years Experience.
We have had over 26 years' experience in growing reliable nursery stock. If you desire good trees let us have your orders.

1600 Acres
devoted exclusively to our business. We have the largest nurseries on the Pacific Coast. Write us about your requirements.

Our Annual Illustrated Price Catalogue
which lists and describes over 2000 varieties of trees and plants and also "California Horticulture"—the fruit growers guide—will be sent you FREE if you mention this ad. Write us today.

Paid-up Capital, $200,000.

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(*Incorporated*)
Geo. C. Roeding, Pres. and Mgr.

P. O. Box 12, Fresno, Cal.

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Extra fine draft stallion. He combines the world's two greatest draft breeds. Sire is an Imported English Shire, weighing 2100 pounds, one of the best of this great breed on the Pacific Coast. Dam is a very fine, pure bred Percheron. This colt will be 3 years old in May, weighs 1750 pounds now, in ordinary condition. He will weigh 2100 or 2200 pounds at maturity. He has good, heavy bone, splendid conformation, excellent color, style and action, and is a horse that will please the most critical. Price very reasonable. Write for particulars. Geo. A. Smith, Corcoran, Cal.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Steck Farm, Fresno, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

Polled Jerseys—Breeders names of Chas. S. Hatfield, Secy., Springfield, Ohio.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, L448 Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Wanted to Purchase—10 acres, San Gabriel Valley, must have or be suitable for oranges. Send description to Herbert F. Clark, Hollywood, Cal.

Help Wanted—We want several good solicitors to solicit for a high class suburban monthly publication. Good profitable employment to the right party. For particulars address Box H, Cultivator Office, Los Angeles.

TREES.

Trees and Sour Orange Seed bed stock for sale—Freight prepaid to any part of State. Peaches, Muirs, Lovells, Elbertas. Tuscan, Phillips, Orange and McDavitts clings, first class trees 5 to 7 ft. at 12c. Apricots, Tilton, Royal and Peach trees 4 to 6 ft. at 18c. Plums, Burbank, Satsuma, Kelsey, Wickson, Cherry and Peach 5 to 7 ft. at 15c. Prunes, Sugar, French, Tragedy, 5 to 7 ft. at 15c. S. E. Courtney, Rose Lawn, Hanford, Cal.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Ballou's Nursery, 728 East Orange Grove Ave., Pasadena, Cal.

We Have Fruit Trees of all kinds from 18c to 25c. Send us your wants. Roses. Our new blue Marguerites, try them. Many more plants. Geraniums a specialty. Golden West Nurseries, 49 West Main St., Los Gatos, Cal.

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

For Sale—5,000 Navel and Valencia orange trees, 1 yr. buds 4½ ft. high 1 inch through. I. F. Dutton, West Anaheim, Cal. R. D. No. 1.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

TURKEYS.

Mammoth White Holland Turkey Eggs for hatching, $5.00 per 13 eggs. Extra large and thrifty stock, not related. Toms weighed 26 lbs. at 7 months. Light Brahma eggs $3.00 per 15; Barred Rock eggs $2.00 per 15. A. H. Blakely, Ontario, Cal.

For Sale—Few fine Mammoth Bronze Turkey Toms, standard weight. No eggs or hens at present. Mrs. A. C. Wisegarver, San Fernando, Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

FARM LANDS FOR SALE.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars, call or address Paxton, 612 Lankershim Bldg., Los Angeles.

For Sale—In Riverside County, California, near Elsinore, 435 acres, 25 acres in olives, balance good grain and hay land, well and windmill, plenty of water 22 feet below the surface, barn, small house. $50 per acre, one-half cash. 60 acres, 6 acres in olives, 13½ acres in apricots, bearing trees, balance of land good for fruit or grain. House, barn, fruit house, 3 wells, windmills and reservoir. $5000. A. G. Hayes, 2809 Eliot St., Long Beach, Cal.

For Sale—$125 per acre, 160-acre ranch in Owens River Valley, 2 miles from county seat. 12 acres Stayman Winesap apples, 50 acres alfalfa, 60 acres farming, balance pasture. Entire ranch soil suitable for apples and pears or farming and alfalfa. 100 inches water continuous flow, non-assessable. Would consider one-half exchange in Southern California. Address Owner, Box 52, Independence, Cal.

24 Acres in the Famous "Orland Project," 18 acres alfalfa, 6 acres bearing oranges; all irrigated by the U. S. Government; Orland's best soil; small residence, barn, dairy-house, etc.; right in town, and will double in value in a short time; worth $12,000 now if cut into city lots. Will sell for $8,000 for a short time. Address owner, J. Vance Wilt, Box 71, Orland, Cal.

If You Want a Fine Home, No. 1, rich, level land, close to best market in the state, best climate, where irrigation is not required, write me. I have a few 80 and 160-acre tracts at $10 per acre. Also a fine 160-acre relinquishment for $500, if taken quickly. Wm. T. Mantz, Pattiway, Cal.

For Sale—50-acre alfalfa ranch, 30 acres fine stand 2d year, 20 easily seeded, 40 H. P. pumping plant, good improvements, North of Corona. Price $17,500 including 3 brood mares, 1 cow, 4 heifers, wagons, implements, etc., immediate possession. Might take $5000 cash, $7500 in trade, balance mortgage, 6 per cent. Herbert F. Clark, Hollywood, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale—815 acres in San Luis Obispo County. A typical dairy ranch. Plenty of wood, water, irrigable land, buildings, fenced and cross fenced. Orchards, vineyards, oranges, lemons and walnuts do exceedingly well here. Forty acres of land suitable for these. Price $21 per acre. For further particulars apply to Mrs. F. A. Clink, Pozo, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

Cuba—Most productive soil. Delightful and healthful climate. Ample rainfall. Cheapest transportation facilities to the world's greatest markets. Particulars free. Sanderson, 13 Palace Building, Minneapolis.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

Parker & Sternberg live in the San Fernando Valley and sell bargains in Ranches, Houses and Acreage. Office 310 Brand, Glendale, Cal. Write or call.

For Sale—160 acres Imperial County, two miles from Palo Verde; $16 per acre, cash. Address Joseph Zalkovsky, Palo Verde, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

SEEDS

For Sale—Oregon evergreen sweet corn seed 7c per lb. White seeded Chilean watermelon seed 40c per lb. L. C. Lea, Buena Park, Cal., or 125-126 Los Angeles Public Market. 6th St.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

White Orpington and White Wyandotte Eggs for hatching. A fine lot of breeding cockerels at $5.00 each. No culls, I market all those. I will send you the best bird possible for the money. Write for list of winnings. A. W. Huskins, 713 Waterloo St., Dept. C, Los Angeles, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

For Sale—White Muscovy, Indian Runner and Pekin duck eggs. Also fine Buff Orpington and White Leghorn eggs. Mrs. Ungerland, Route 2, Box 300, Los Angeles. Phone Boyle 8080.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

For Sale—Imperial White Pekin duck eggs, $1.00 per setting. Incubator lots, $7.00 per hundred. T. H. Hanson, Petaluma, Cal.

For Sale—One Cyphers 144-egg and one 244-egg incubators, 1910 models. Used only twice and in excellent condition. Prices $20 and $27. Arden Dairy, El Monte, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Indian Runner, Muscovy and Buff Orpington Ducks.—Stock and Eggs. Rabbits and Guinea Pigs. Book on rabbits. Price list free. Caldwell & Co., R. D. 3, Los Angeles, Cal.

Minorcas, White and Black—Get my mating list before ordering eggs. Quality and prices both attractive. L. C. Buhl, Pomona, Cal.

Blue Andalusian and Buff Orpington eggs—from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Crystal and Pearl White Orpingtons—Eggs from mature birds direct from Kellerstrass and Byers farms. Settings $5.00 per 15, fertility guaranteed. Also some very choice cockerels. Address B. Striner, Glendale, or phone Sunset Glendale 4363.

R. I. Red Eggs for hatching from scientifically tested layers. The Luedkes, Anaheim. R. D. 1.

White Rock eggs for hatching. Best laying strain, $1.00 per setting. A. G. Morley, R. D. 4, East Bakersfield, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

Eggs for Hatching—Duckwing Leghorn, Buff Orpington and Black Minorcas. H. R. Leek, Escalona Ranch, Santa Cruz, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

CHICKENS FOR SALE.

Cook Strain White Orpingtons—"The Real Thing," where Kellerstrass and all other breeders had to go to get the pure blooded Orpingtons. The Standard Poultry Yards has them direct from Cook Brothers, Scotch Plains, N. J. Note report of late San Diego Show: "C. A. Loud, all awards White Orpingtons." Eggs and baby chicks for sale. Also Northrup heavy weight S. C. Black Minorcas. Send for folder. C. A. Loud & Bro., San Diego, Cal.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Kellerstrass Strain Crystal White Orpingtons—Best in the world. At the Santa Barbara Poultry Show with only three birds entered I won four prizes: 1st cockerel, 1st pullet, 3d hen and special premium for the best White Orpington male in the show. Eggs, select matings, $3 per 15. Extra special matings, $5 per 15. Chicks, 50 cents each. S. Gascoigne, 520 Stevenson Ave., Pasadena, Cal. North loop car.

For Sale—3 Barred Plymouth Rock cockerels, fine Eastern exhibition stock. Price $3 to $8 each. 6 fine Columbian Wyandotte cockerels, 20 yearling hens, very low for quality. Eggs from exhibition quality Columbian Wyandottes, Buff Orpingtons and White Cornish, $2.00 per 13, $4.00 per 26. Address J. W. Whitney, Upland, Cal.

S. C. White Leghorn Eggs—Eggs for hatching from stock bred for beauty and duty. **All our birds are especially bred for heavy** egg production as well as fancy qualities. Every egg is especially selected for hatching. Prices very reasonable. Place your orders now for future delivery. Geo. A. Smith, Corcoran, Cal.

White Leghorn Chicks $10 per 100 from 2 year old birds on free range. Hatching eggs $5 per 100. 90 per cent fertility. I hatch this breed exclusively and can furnish the best. Rancho Poultry Farm, Inglewood, Cal.

Very Fine Strain Barred Rocks, R. I. Reds S. C. Black and White Minorcas, White Leghorn chicks and eggs. A few splendid cockerels. Prices reduced Feb. 1st. All pure bloods. Also, I have a few cases No. 1, home-canned peaches for table use to sell. R. B. Sherman, Newcastle, Cal.

For Sale—Pure bred White Cochin Bantams, very fine, excellent layers. $1.50 per pair. Cockerels 75c, F. O. B. Fillmore. Address Ona King, Fillmore, Ventura Co., Cal.

Sterling White Wyandottes—Place your order at once. I can supply you with stock, eggs and baby chicks from my heavy laying strain of prize winning birds. Write S. P. Moore, 958 Spence St., Los Angeles, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Barred Plymouth Rocks hatched to order at $12 per 100. P. L. Simpson, Orland, Cal.

For Sale—A fine selection of Buff Orpington cockerels. This is thoroughbred stock and you will make no mistake in selecting one of these birds. Prices $3.50 each. Mrs. J. R. Snead, Dixon, Solano, Cal.

Baby Chicks—Order now from R. I. Reds (Thompkins strain). S. C. Black Minorcas (Northrup strain). White Minorcas, Buff and White Leghorns. Eggs for hatching. C. U. Chamberlin, Los Gatos, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Buff Orpington and Buff Leghorns for Sale—Eggs $1.00 per 15 or $5.00 for 100: Order early. Satisfaction guaranteed. Mrs. F. E. Turner, Visalia, Cal.

For Sale—Pure bred Barred Rock cockerels, 10 mo. old, $2.00 and $3.00 each. Mrs. Nellie Hart, Holtville, Imperial Co., Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Barred Rocks exclusively. Eggs from best matings $1.50 and $3.00 for 15, incubator lots $3.00 to $6.00 per 100. Prices right. G. L. Hawley, Madera, Cal.

For Sale—Thoroughbred White Rock, Rhode Island Red and Buff Orpingtons. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

For Sale—Thoroughbred White Rock cockerels, 10 mo. old. Must sell at once. $2.00 each. Mrs. Amos B. Sutton, Chico, Cal.

Barred Rock Pullets and Buff Orpington cockerels for sale. Eggs for hatching. Popular prices. M. A. Young, Los Gatos, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100, $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

S. C. Rhode Island Reds—Laying hens for sale. Eggs $1.50 per 15, $6.00 per 100. L. Haynes, Madera, Cal.

Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

NURSERY STOCK.

For Sale—Fine plants Asparagus Plumosus, two years old, $40 per 1,000. Also Springeri sane agi, $20 per 1,000. L. J. Goodman. R. F. D. 1, Box 22, Los Angeles, Cal.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one year old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

For Sale—Crimson Winter Rhubarb plants. Also Mammoth Red sweet potatoes for seed. Clair Bishop, Highland, Cal.

NURSERY STOCK.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

For Sale—Acacia Baileyana. A fine lot of this splendid variety. $25.00 to $35.00 per 100. Also Acacia Floribunda, A. Latifolia, A. Salicina, A. Pycnantha, and A. Verticillata. We are overstocked with these and will make very low prices to reduce. The above are well grown and thrifty. Armstrong Nurseries, Ontario, Cal. Box 117.

For Sale—Sour, Sweet and Trifoliata citrus seed bed stocks. T. Jikihara, P. O. Box 215, Upland, Cal.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J A. Powell. R. D. 1. Box 1. Ripon. Cal

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

Grafted Walnuts, all kinds. Grafted Giant paper shell pecans, Walnut scions and grafting wax. Elberta peach, Grand Duke plum in quantity. General Nursery stock, all kinds. Tribble Bros., Elk Grove, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

MACHINERY.

ATTENTION, FARMERS!

120 Horsepower Pumping, Lighting and Power Plant, composed of two 60-horse gasoline or distillate engines, with Westinghouse generators, switchboard, circuit-breakers, storage batteries, etc.

In addition we can furnish four 20-H. P. D. C., one 10-H. P. D. C. and two 7½-H. P. D. C. Western Electric motors. All of these are in first-class condition, having been overhauled at our works.

Just the power for pumping several wells at a short distance from each other. We will sell one unit of 60 H. P.

This plant cost new $10,000, but we will sell complete for $4,000. The generators alone cost $2000. We can supply any extras as we have all the patterns of the parts. Will make prices on motors in proportion to the above.

Also one R. & V. 6-H. P. vertical gas engine, new, and one new 18-inch single-acting Addison pump head and cylinders. Price $360.00, which is 25 per cent discount on lowest purchasing price.

Do not miss this chance.

Axelson Machine Co., Wyse and Ann Sts., Los Angeles, Cal.

For Sale—32 H. P. Fairbanks-Morse distillate engine. Need money by the 1st, so will sell cheap for cash. Engine is in first-class order. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—9 H. P. portable distillate engine, heavy running gear. Will guarantee and make right price. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—A practically new No. 2 Sharples Separator. Snap. C. P. Dandy, 421 Wilcox Bldg., Los Angeles.

DOGS

For Sale—Two beautiful pure Spitz male pups, very small breed, $10 each. Pure Buff Leghorn eggs. Mrs. Geo. H. Andrews. San Luis Obispo, Cal.

MACHINERY.

For Sale—Windmills, pumps, engines, piping, brass cylinders, guaranteed 1st class. Wagons, buggies, harness, plows, scrapers, power feed cutter, fruit crusher, 2 H. P. Hurst orchard sprayer, windlass, 20 H. P. hoist, sundries too numerous to mention.

8 ft. Aermotor windmill complete with tank and pump at $59 on cars.

2 H. P. engine, jack, pump and pipe complete, $89 on cars.

5 H. P. Pumping Plant.

Special Sale—last chance—must move next week, 5 H. P. Stearns engine and jack, 5-inch pump, belting, engine house, 6000 tank and 24-ft. stand, $235. This is complete plant and running now, engine alone cost $225 new. Don't write in two weeks from now and expect a snap like this. Bring an engineer and examine it.

Tanks.

50,000 gal. tank and stand, 10,000 gal. tank and 34 ft. stand, fine cover $90, only used one year, 2,000 gal. $19.50, and many other sizes.

5-ton brand new parts for mowers and rakes, such as knives, guards, sickle guards, connection rods, 100 complete sets rake teeth. Will sell at 50 per cent off wholesale price. For real bargains and good material see Demmitt Co., upstairs, 120 N Main St., Los Angeles.

Business

RARE PLANTS.

A nursery or rather botanical garden which is a factor in the introduction of some of the choicest of plants is the Coolidge Fernery and Rare Plant Garden, the property of D. W. Coolidge of Pasadena. A tract on Colorado street in that city is given up to a botanical collection including among fruits several new citrus fruits, the white orange of Blida, a green orange from the King's Garden, Burma, a variegated orange, the Rangoon lime, in color and shape like the Tangerine, Avocado, Feijoa, Sapota, Cherimoya, Macadamia or Queensland nut, Kai apple, Carissa or Natal plum, Harpephyllum of Caffir plum, Castanospermum or Moreton Bay chestnut, Rose apple, and other uncommon fruits; many rare ornamentals, a Japanese arbor covered with rare vines in which will be displayed many Japanese lilies and plants, a lily pond showing many rare Nympheas, an acre devoted to bamboos (over 25 varieties), an acre of roses, many of the French and German roses with all of the best Americans, and over 100 varieties of evergreen ferns.

GOODYEAR TIRES LEAD.

More cars were equipped with Goodyear tires than any other kind among the exhibits in the automobile show at Grand Central Palace, New York. The tire census taken among the exhibits showed a total of thirty-two cars out of the 119 exhibited fitted with Goodyear tires. The Goodyear had a good lead on its nearest rival, which was represented on nineteen machines.

The premier showing of the Goodyear tires gives an idea of the standing of that tire in the eyes of the manufacturers of standard motor cars. The exhibitors all want their cars to make the best possible showing at the show, and for that reason they are always equipped with the tires that the manufacturer feels are **the best.**

The unsolicited testimonial to the Goodyear places it in the proud position of being considered the best tire made by a large number of the manufacturers of standard motor cars.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks —White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S WHITE FOWL FARM, Moorpark, Cal

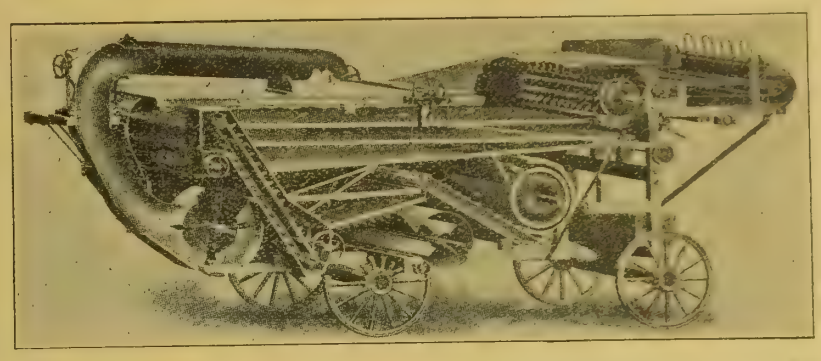
Music WRITING THOROUGHLY taught in 15 easy lessons. No knowledge of music necessary. Success guaranteed. Valuable book —"How To Write Music,"—sent free. Desk 51, Nat'l Conservatory of Musical Composition, Washington, D. C.

Compare

In order to be convinced that the **BIRDSELL** principle of hulling (rubbing it out) is correct, you will only have to compare a head of Wheat with Alfalfa.

You can readily see that the leaves, the seed, the seed receptacles, in fact they differ so widely that a blow which will thresh out grain will not be sufficient in threshing alfalfa, because it must be rubbed out and the **BIRDSELL** is the machine to do it.

Compare



this machine with the ordinary grain separator and you will agree with us that the **BIRDSELL** is the only machine made that will save all the seed and put it in the sack ready for market. We can sell you a combination machine if you want one. Get busy now, write or come in and see us, we will put our time against yours.

ZIMMERMAN & JONES

Plowing and Threshing Machinery.

Hart-Parr Gas Traction. **Nichols & Shepard Threshing Machinery.**

Birdsell Alfalfa Hullers.

877 Stephenson Avenue. **Sunset Bdway. 1858**

Los Angeles.

Take Hollenbeck Park Car on East Third Street.

Tap the Air for Nitrates and Cut Your Fertilizer Bill in Half

High Bred Nitrogen Gathering Bacteria put on the Seed will do all the Work

DON'T pay big prices for nitrate fertilizers. Don't waste the time and labor needed to spread them. Let nitrogen-gathering bacteria do the work for you at a mere fraction of the cost and practically **no extra work.**

Here is the making of all the nitrates you want at a cost of $2.00 an acre.

This Bottle does the work for an Acre.

FARMOGERM

High-Bred Nitrogen-Gathering Bacteria.

Farmogerm is a pure culture of nitrogen-gathering bacteria that have been carefully selected and bred up to a state of strong vitality and great nitrogen-fixing power. That is our guaranty. Farmogerm is a jelly-like culture, put up in specially sealed bottles, guaranteed to reach you in perfect condition and to keep for months.

It is Ready to Use on Your Seeds

Just mix with water and moisten the seed or spray on soil or young plants. The bacteria will increase rapidly, by the millions, in the soil, and draw nitrogen from the unlimited supply in the air, feeding it to the growing crop and storing it in the soil for future crops. For use on Alfalfa, Clover, Peas, Beans, and all legumes.

Get Our Free Book AB and reports from high authorities and many farmers who have tried it and **know.** We can prove every claim. The U. S. Dept. of Agriculture states that the pure culture method of soil inoculation has "come to stay." **Order Now** if you want to plant at once, or spray on what you have planted. **Acre size $2.00—Garden size, for Peas, Beans and Sweet Peas, in mixed culture, 50c.** White Clover also in 50c.-size. Mention what crop you want it for when ordering. We pay postage or express charges to you.

EARP-THOMAS FARMOGERM CO., **BLOOMFIELD, N. J.**

DAIRYMEN, ATTENTION!

Why Pay Rent When You Can Own Your Own Irrigated Farm

Where Every Condition Makes for the Greatest Yield of Butter-Fat at the Lowest Cost.

Pure Bred Holsteins of S. V. I. Co. Crossing River Branch Canal.

$125.00 per acre is the price—The terms the best—$15.00 per acre cash, the balance in ten annual installments.

Let your rent money work for you, each year placing to your own account what has gone forever when paid the landlord. In a few years time the rent money of the past comes back to you in a nice farm home fully paid for, where peace, plenty and prosperity will always be yours.

Unrivaled opportunities for dairy, poultry, hogs or fruits. for all crops grown in California make big yields in the

SACRAMENTO VALLEY

For further information cut around dotted line and mail coupon to

.....

THE SACRAMENTO VALLEY IRRIGATION COMPANY

H. L. Hollister & Co., Sales Agents.

WILLOWS - - - - - CALIFORNIA

Name .....

Address .....

State .....

Or any of the following offices:

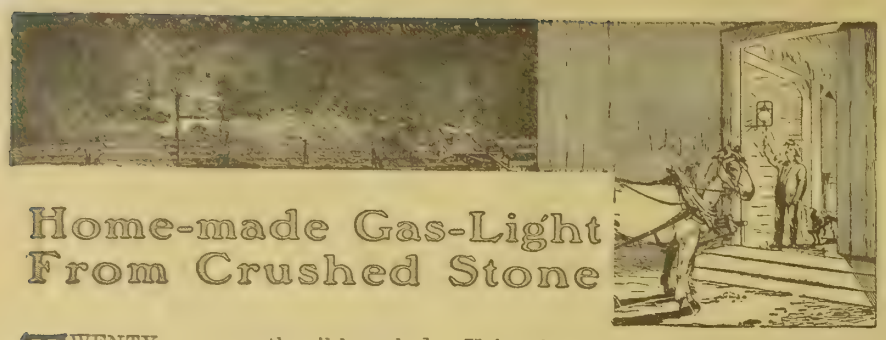
506 Central Building, Los Angeles, California.

345 Fourth Avenue, Pittsburg, Pennsylvania.

205 La Salle Street, Chicago, Illinois.

1027 Ninth Street, Sacramento, California.

CC5 412 Market Street, San Francisco, California.



Home-made Gas-Light From Crushed Stone

TWENTY years ago the oil lamp had already been driven out of the city into the country home where gas could not follow—so we thought.

In those days we would have laughed at the idea of a country home lighted with gaslight.

But like the telephone and free mail delivery gaslight has finally left the city to become a common rural convenience.

In the year 1911, the up-to-date villager or farmer not only lives in a gas-lighted house, same as his city cousin, but when he drives home on a cold, wet night he actually lights up his barn, his barnyard or porches on his house with this gas-light by simply turning an "ignition" button on a post or wall.

CRUSHED STONE

* * *

And this change seems quite like magic when you consider that this rural gaslight is home-made— made by the family itself right on the premises.

Take fifteen minutes once a month to make all that can be used in a large house.

The magic is all in the curious manufactured stone known commercially as "Union Carbide."

This wonderful gas producing substance, "Union Carbide," looks and feels just like crushed granite. For country home use it is packed and shipped from warehouses located all over the United States in sheet steel cans containing 100 pounds.

Union Carbide won't burn, can't explode, and will keep in the original package for years in any climate. For this reason it is safer to handle and store about the premises than coal.

* * *

All that is necessary to make "Union Carbide" give up its gas is to mix it with plain water—the gas, which is then instantly generated, is genuine Acetylene.

When piped to handsome brass chandeliers and fixtures Acetylene burns with an intensely brilliant, stiff flame, that the wind can't affect.

This flame makes light so white in color that it is commonly called "Artificial Sunlight."

Experiments conducted by Cornell University have proven that it will grow plants the same as sunlight itself.

Physicians recommend Acetylene as a germicide and a remedy for eyestrain, and it is used as an illuminant in fifty-four hospitals in New York City alone.

Then, too, Acetylene is so pure that you might blow out the light and sleep all night in a room with the burner open without any injurious effects whatever.

On account of its being burned in permanent brass fixtures attached to walls and ceilings, Acetylene is much safer than smoky, smelly oil lamps, which can easily be tipped over.

For this reason the Engineers of the National Board of Insurance Underwriters called Acetylene safer than any illuminant it commonly displaces.

In addition to all these advantages, Acetylene light is inexpensive.

An Acetylene light of 24-candle power costs only about 4 cents for ten hours' lighting, while for the same number of hours regular oil lamps of equal volume cost about 6 cents in kerosene, chimneys and wicks on the average.

* * *

Consider this carefully and you will hardly wonder at the fact that there are today no less than 185,000 town and country homes lighted with home-made Acetylene, made from "Union Carbide."

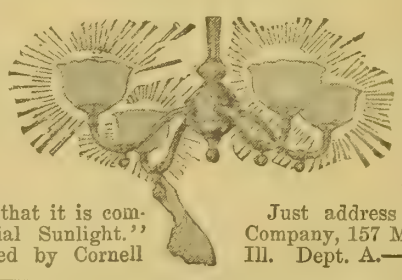
Once a month some member of the family must dump a few pounds of Union Carbide in a small tank-like machine, which usually sets in one corner of the basement.

This little tank-like machine is automatic—it does all the work—it makes no gas until the burners are lighted and stops making gas when the burners are shut off.

The lights located in every room in your house, on your porches, in your horse and cow barns, or barnyards and chicken yards if you like, will all be ready to turn on with a twist of the wrist or a touch of the button at any time of the day or night.

No city home can be as brilliantly or as beautifully illuminated as any one of these 185,000 homes now using Acetylene.

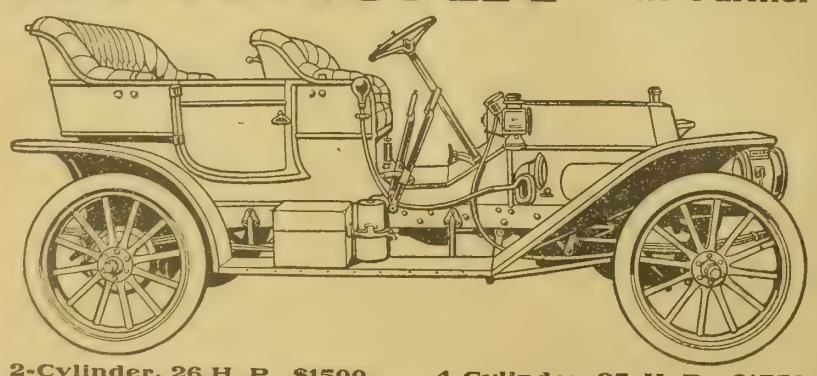
* * *



If you want to be up-to-date, enjoy modern conveniences, and keep the young folks at home, write us how many rooms and buildings you have. We will send you free an intensely interesting lot of facts, figures and booklets.

Just address Union Carbide Sales Company, 157 Michigan Ave., Chicago, Ill. Dept. A.— 41

DUROCAR The Car for the Farmer.



2-Cylinder, 26 H. P., $1500 4-Cylinder, 35 H. P., $1750

Made in Los Angeles and factory open to your inspection. Come and see us.

Both Phones **Durocar Mfg. Co.,** 935 S. Los Angeles St. Los Angeles, Cal.

Leader Since 1884 The Isaacs-Woodbury Business College Strong, Modern, Successful.

Fifth Floor Hamburger Bldg., Los Angeles-100 feet above street-noise and dust.

Entire year enter any time. Catalogue-27th year. F 1850. Main 2305. Edward King Isaacs, Pres

General Household Notes

A WOMAN'S ALPHABET.

I will be:
Amiable always.
Beautiful as possible.
Charitable to everybody.
Dutiful to myself.
Earnest in the right things.
Friendly in disposition.
Generous to all need.
Hopeful in spite of everything.
Intelligent, but not pedantic.
Joyful as a bird.
Kind even in thought.
Longsuffering with the stupid.
Merry for the sake of others.
Necessary to a few.
Optimistic, though the skies fall.
Prudent in my pleasures.
Quixotic, rather than hard.
Ready to own up.
Self-respecting to the right limit.
True to my best.
Unselfish, short of martyrdom.
Valiant for the absent.
Willing to believe the best.
Xmplary in conduct.
Young and fresh in heart.
Zealous to make the best of life.
—Ex.

THE STORY OF BLUEBEARD.

"O, sister Anne, go up, go up, and look
out of the tower;
I'm dead unless my brothers come in
a quarter of an hour."

How many children have been half frightened and wholly interested as they have read or heard the story of Bluebeard? In Brittany, France, where the story probably originated, fathers and mothers and nurses repeat the narrative of this wicked man, sometimes telling how he murdered his many wives, at other times how he cruelly destroyed boys and girls.

One popular account is that Bluebeard was a man of great power and wealth, who married a beautiful young lady. Some time after their marriage the husband said he was going on a journey. But before starting he gave to his young wife the keys to all the rooms in his palace, and with the rest a little key to a private chamber. She was to have ready access to the rooms which the large keys unlocked, and make use of their treasures as she wished; but the private chamber she was forbidden to enter.

After Bluebeard's departure, for some days his wife obeyed his command, but at last she became so desirous of looking into the forbidden room that she took the little key, unlocked the door, and peered in. What did she see? Ranged around the walls of the room she beheld the murdered bodies of his six wives. This so excited the young woman that she dropped the little key, and it became stained with blood. Hastily she picked up the key, and tried to rub off the dark and telltale spots. But this she was unable to do.

Soon Bluebeard returned home, and asked his wife for the keys. When she gave them to him he saw the blood stains on the small key, and accused her of going into the forbidden chamber. He became very angry. "You have been in the closet once, and you shall go again," he said. This filled the young wife with fear and trembling, and she fell at his feet asking for mercy. But the hard-hearted man would only grant her a reprieve of fifteen minutes.

The bride had a sister in the castle, and two brothers who she knew were coming to visit her. Almost in despair she shouted to Anne, her sister, to run to the top of the house, look over the country to see whether her brothers were coming, and if so, to shout to them to hurry to her deliverance. At first Anne saw no horsemen, but when she looked the next time she beheld two riders coming very fast. They proved to be the brothers, and they reached the castle just in time to rescue their sister, and to put to death the cruel-hearted slayer of wives.

The other account which the cronies of Brittany tell to their wondering hearers is how Bluebeard killed boys and girls, and used their blood to try to discover the elixir of life, which would restore old age to the beauty, strength and vigor of youth.

While both of these stories are somewhat mythical in character, the latter at least has a basis in fact.

Some years ago Thomas Wilson, LL.D., was appointed United States consul to the city of Nantes, France. While there he made a thorough study of the life of Gilles de Retz (or Rais), a soldier of Brittany, who lived in the fifteenth century. Many of the historians and literati of France believe this man to have been the original Bluebeard. His life is of thrilling interest, and whether or not he is the Bluebeard of children's folklore, it is true that his debased and cruel character and his abominable acts make him worthy of posing as a bloody-handed villain.

Gilles de Retz was born in the chateau of Machecoul, Brittany, France, in the year 1404, it is supposed. When he grew to man's estate he became a soldier, noted for bravery and daring. He fought in the war against England with Joan of Arc, and so distinguished himself as to become a marshal of France. He was of noble birth, rich, lord of many manors, and respected both by the nobility and peasantry of his country.

In person he was tall, handsome, well-formed. His complexion was fair, eyes large and blue, eyebrows and lashes long and black. Long black hair covered a nobly formed head, and his full, silky beard, raven black, becoming shiny, had an appearance of blueblack. This may have given him the name Bluebeard.

After the wars in which he fought Bluebeard returned to his estates and lived in splendid luxury. His extravagant style of living made great inroads upon his wealth, and at last some relatives who expected to inherit a part of this property made complaint to the authorities.

It was at this time that Gilles de Retz determined to recoup his fortunes by resorting to "ways that are dark," namely, black art, magic, and other secret processes. His ambition was to find the philosopher's stone, which would transmute base metal into gold, and to discover the elixir of life, which would restore youth to old age. We shall see how his methods brought terror and consternation to many hearts.

In the year 1432 a large district in France became excited by the frequent disappearance of children. A child would be sent on an errand, or playing in the street, or visiting a playmate, and would mysteriously disappear. In spite of all attempts to discover its whereabouts it was never found. At last a very panic seized the people. They were at their wits' end.

At last the abductions were traced to De Retz by the Bishop of Nantes. The crimes exposed form one of the most cruel and tragic chapters in French history.

It transpired that the murders were committed at the Chateau Tiffanges, a large and commodious stronghold. In this building Gilles de Retz and an Italian priest and alchemist, Francois Prelati, by name, fitted up a laboratory.

In this laboratory the two men by alchemy, magic, and murder attempted to discover the elixir of eternal youth, and to change inferior metals into gold.

Gilles de Retz was twice tried for these enormous crimes, first by the ecclesiastical and then by the civil court. He was found guilty by the church and excommunicated, but upon repentance this punishment was remitted. By the criminal court he was condemned to be hanged and his body burned.

To many there is little doubt that when Charles Perrault placed the story of Bluebeard in his book "Contes de Mere l'Oye." ("Tales of Mother Goose") in 1647, he had in mind Gilles de Retz as the original of Bluebeard. —Classmate.

Winter Rhubarb a Wealth Producer

Valuable Suggestions Secured from a Short Interview with J. B. Wagner, the Pasadena Plant Specialist and Grower of Giant Barb which Promises to be a Wealth Bringer.

For ten years Crimson Winter Rhubarb has been a favorite with a few California growers. Of course during the first few years it was known only to those who were quick enough to see the advantages to be derived from taking up a new thing of such great merit. One of the earliest to see possibilities in its production was Mr. J. B. Wagner, the plant breeder of Pasadena. Mr. Wagner determined to give a thorough trial to the plant, and while most enthusiastic from the start, did not realize the full advantage such an industry might be to this state until he had made a few seasons' practical tests. With all of his enthusiasm for the plant, he was not blinded to the fact that in some points there was need of improvement. The way to secure the improvement was not so plain as the need of it, but at the same time, the only way to improve is "to improve," and Mr. Wagner went at it with a will.

RHUBARB READY FOR SHIPMENT.

Size a Factor.

The one defect that he decided to overcome was in the matter of size. Crimson Winter flavor and Crimson Winter color, and in fact every other quality except the one of size, was to the queen's taste. It was necessary to reproduce plants, with the rapidity required, to reproduce from seed, and from some strains of the Crimson Winter, these seed did not always produce plants which gave as large stalks as the trade preferred. Here was Mr. Wagner's opportunity, and not satisfied with the foundation he had in the very best plants which could be procured from Mr. Burbank, he ransacked the world over for others which came as near to Crimson Winter qualities as possible, and at the same time were more desirable in size. The first season brought but little encouragement, the next little more, but persistence finally evolved "Wagner's Giant" which embodies all of Crimson Winter's highest qualities and has a stalk almost the size of a man's wrist and two or three feet in length.

Now for Sale.

As the Cultivator has announced before, this strain of rhubarb has not been offered to the public until this season. It has been tested out for several years on Mr. Wagner's Experimental Grounds, and has proven so satisfactory, and the trade has looked at it with such admiration that the plant breeder has decided to dispose of a few roots as a starter.

The size of this plant was illustrated in the issue of the Cultivator of January 27th, 1910, the photographs showing the stalks to be fully as large as Mr. Wagner's wrist. In length it runs from two feet to sometimes as high as three feet.

A Few Hints.

As this product is now to have a wider distribution, and as many will be inquiring as to manner of culture and requirements of the trade, we give a few hints along those lines.

Get hardy, stocky plants, growing only such plants as will produce desirable "fruit." (We say fruit, for this product is really in the fruit class, and every dealer should endeavor to put it up in such a way as to have the attractiveness of the most desirable deciduous fruits.) Grade carefully, because while the industry is in its infancy it should not be injured by putting on the market anything but the very best. One large concern shipping Crimson Winter rhubarb to the East has advised packing in bunches instead of loose in boxes as many have done in the past. Put in each bunch printed instructions for cooking, or have instructions on attractive lithographed wrappers.

Be sure to cut the leaf from the stem in such a way as to leave a small portion of the leaf. If a part of the stem is cut away with the leaf, it has been proved that the stalk will not hold up in long transit so well as if a very small portion of the leaf is left at the upper end. Also in "pulling," if the stalk is broken off at the butt end, that also will prevent long carrying. Gather while young and fresh. If too old and tough the plants are past their best and the trade will surely be injured. Do not wash before shipment. Water applied at time of gathering injures its keeping qualities. The same holds true as to gathering in the morning when very wet.

Above all, demand plants which are red; upon this very much depends. Be sure such plants are secured. Deal with a reliable propagator. One shipper says that even the size may be sacrificed rather than color. That is what Mr. Wagner worked so long to obtain with his "Giant," that is, he has demanded redness as well as size in his wonderful plant.

The Market.

Regarding the possibilities of California working up a great market for this product, one of the largest shippers has said: "It may take some little time to get a large and profitable market established but we believe success will be attained."

"MAKE ME A PIE, MAMMA."

A large dealer in rhubarb writes from Philadelphia: "We find that it is in favor in this city. During the past season it has consumed a car load per day. Where winter fruit is more abundant, the demand might be limited, but the Eastern market must be made, just as it was for oranges and other fruits. If this is done, the industry will become a permanent success."

When the great field for marketing rhubarb and the limited field for growing it are considered, it is no wonder that Mr. Wagner has persisted in his investigations until he has made most signal success. Later, when the state is shipping out train loads of rhubarb, it will give him the credit due for his persistent labors in breeding these desirable strains which will produce 52 weeks in the year whereas the common varieties cease bearing in 12 or 14 weeks.

If any puzzling problems confront the producer, they will be solved in a few words by this plant breeder who has investigated rhubarb in nearly every section of the state. Tear off the attached coupon and mail at once to J. B. Wagner the Rhubarb King of Pasadena. If one lives in Southern California, the trip to Pasadena will be well repaid. Take the North Loop car and go east on Orange Grove Avenue to the City Limits. Then go south to the school house where you will find Mr. Wagner's place where many kinds of rhubarb may be seen.

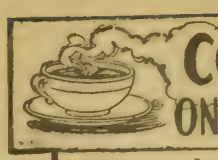
A letter to Mr. Wagner at his Pasadena home will bring you his 64-page treatise on Rhubarb, which contains much more information than can be given on this page.

Fill Out and Mail this Coupon NOW

Any one having good land can get credit for plants. No California product ever has or ever will pay as well as Crimson Winter Rhubarb. For full information and circulars, send this to **J. B. WAGNER, Pasadena, Cal.**

Name .....

Address .....


COFFEE ONE CENT PER POUND

Salzer's French Bean Coffee
(SOJA HISPIDA)

A wholesome drink! The healthiest ever; you can grow it in your own garden on a small patch 10 feet by 10, producing 50 lbs. or more. Ripens in Wisconsin in 90 days. Used in great quantities in France, Germany and all over Europe.

Send 15 cents in stamps and we will mail you a package giving full culture directions, as also our Mammoth seed catalog free; or send 31 cents and get, in addition to the above, 1000 farmers unsurpassable vegetable and flower seeds—enough for bushels of luscious different vegetables and brilliant flowers.

JOHN A. SALZER SEED COMPANY
224 South 8th St. La Crosse Wis.

6% INTEREST PAID
STATE MUTUAL
BUILDING & LOAN ASSN.
223 S. SPRING ST., LOS ANGELES, CAL.
THE LARGEST ASSOCIATION IN CALIFORNIA
Assets, Jan. 1, 1910, - $2,485,188
Send for 20th Annual Statement and Booklet

Save for the Home at the Home Savings

Your Money Grows Here

You draw out more than you put in when you become a savings depositor at this Home Bank. Your profit is definite, sure, constant. Every year is a prosperous one. Begin now. Keep your surplus funds at work.

We Pay

3% Interest on Minimum Monthly Balances of $300 or More, Account Subject to Checking.

4% Interest Paid on Six Months Term Deposits of One Dollar or Over.

Home Savings Bank
Alexandria Hotel Bldg.
Fifth and Spring Sts.
Los Angeles, Cal.

SEED CATALOG
READY TO MAIL

The leading Seed Catalog of the West—Lilly's Catalog. Your 1911 crop depends on GOOD seed—send for this Catalog and get the best. Write now to the
CHAS. H. LILLY CO., Seattle, Wn.

Sievert Distillate Oil Burners

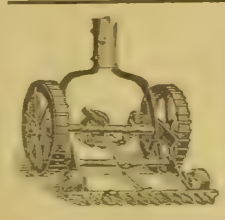
the most efficient all round Heating appliances for Stoves, Ranges, Boilers, Water-Heaters, and especially Hot Air Furnaces of all kinds. Brooder House and Heating Stoves. Send for Free Circulars.

Sievert Oil Burner Co., Manufacturers.
710 N. Main St., Los Angeles, Cal.
All Kinds of Oil Storage Tanks.

Syracuse Easy Vacuum Washers and Hand and Power Vacuum Cleaners. Patented Clothes Line

Sold for cash or easy payments. 30 days Free Trial. Freight paid. 6000 sold in California.

JAS. SCOTT & CO., 824 E. 9th St., Los Angeles, Cal.



THE CLIPPER

There are three things that destroy your lawns Dandelions, Buck Plantain, and Crab Grass.

In one season the Clipper will drive them all out.

Clipper Lawn Mower Co
Dixon, Illinois.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, Feb. 22, 1911.

Butter.

Butter is down a cent a pound, the fall occurring on Monday. Market firm.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	32½
Firsts	30
Ladles	22
Cooking	20

Cheese.

Local	17½@18
Oregon Daisy	17½@18
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Eggs took a tumble during the last of the week, but recovered a cent on Monday, and another on Tuesday, with the market firm at present quotations.

Paying price f. o. b. Los Angeles is:

Local ranch candled	27
Case count buying price	23
Northern	21
Eastern storage	24

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	17
Roosters	10@12
Broilers	27
Fryers	24
Roasters	21
Turkeys	15@24
Ducks	22
Geese	19
Guinea hens, doz	4.00
Squabs, per doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8½
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	2.10@2.25
Salinas	2.50
Watsonville	2.35
Nevadas	2.00@2.10
Oregon, Early Rose	2.25
Northern Early Rose	2.00
Lompoc	2.50
Idaho Rurals	2.00@2.10
White Rose, local	2.25
Sweets, yellow, cental	3.25@3.50
Sweets, white	2.50

Onions.

Wholesale quotations:

Oregons	2.75@3.00
Australian browns	2.50@2.75
Nevadas	2.75@3.00
Utah	2.50
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.10@1.25
Asparagus, lb	40
Beets, sack	90
Brussels sprouts	10
Bell peppers, lb	15
Green chilis	10@15
Cucumbers, doz	1.00@2.25
Cabbage, sack	75@85
Celery, crate	2.25@2.50
Cauliflower, crate	1.35@1.50
Carrots, sack	90
Egg plant, lb	15
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@1.25
Oyster plant, doz	40
Peas, lb	8@10
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Radishes, doz. bunches	20@25
Rhubarb, Crim. Winter, box	1.00@1.25
Spinach, doz	20@25
Hubbard squash, lb	2@2½
Tomatoes, crate	1.50
Tomatoes, Mexican	1.50@1.75
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.25@2.25
Grapefruit, seedless	2.75@3.50
Lemons	1.25@2.25
Tangerines	1.35
Limes, per 100	1.25@1.50

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.20
Spitzenbergs	1.75@2.50
Jonathans	2.25@2.35
Greenings	1.10@1.25
Pearmains	1.10@1.50
Newtown Pippins	1.20@1.35
Pineapples	6½@8
Pears, lb	5@6
Bartletts, lb	8@10
Winter Nelis	2.50@2.75
Strawberries	15

Beans, Dried.

Wholesale quotations:

Limas	6.25@6.50
Black eyes	7.00
Pinks	6.25@6.50
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Bayou	4.75@5.00
Lentils	6.00

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	12.00@13.00
Wheat hay	13.00@14.00
Tame oat	14.00@16.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	3.75@4.00
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Feb. 21, 1911.

Butter.

Butter has taken a serious slump, and the general tone is poor.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	26
California firsts	24
Seconds	16

Cheese.

California flats, new	14@16
Cal. Y. America, fy, new	16½@17½
Oregon fancy	13½

Eggs and Poultry.

Eggs are in bad, and a serious slump has occurred. Market featureless.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	22
Firsts	20
Seconds	19
Hens, doz	5.00@9.00
Fryers, doz	6.00@6.50
Ducks	6.00@10.00
Broilers	3.00@4.50
Roosters, doz	5.00@9.00
Turkeys	18@20
Geese	2.00@2.50
Pigeons	1.50@2.50
Squabs	3.00@4.00

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	5@6½
Hogs	6@8½
Milk lambs, unshorn	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4½@5

Potatoes.

Wholesale market quotations:

River White, cwt	1.60@1.90
Salinas Burbanks, cwt	2.10@2.30
Oregon Burbanks, cwt	1.90@2.10
Lompocs	2.25
Early Rose	1.65@1.85
Sweets, ctl	3.00@3.25

Onions.

Onions, California, sack	2.25@2.40

Vegetables.

Wholesale quotations:

Asparagus, forced	20@25
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	1.00@1.50
Celery, crate	50@2.00
Bell peppers	10@12½
Chili Peppers, lb	5@12½
Egg plant, lb	10@15
Peas, lb	10@15
Rhubarb, box	1.25@1.50
Tomatoes	75@1.00
Turnips	65
Garlic, lb	4@6

Citrus Fruits.

Navels, new	1.50@2.25
Grapefruit, seedless	1.50@3.00
Grapefruit, seedlings	1.50@2.00
Lemons	1.50@3.00
Limes, Mexican	5.50@6.00
Tangerines	50@1.25

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Belleflowers	1.15@1.25
Newtowns	1.15@1.40
Spitzenberg	1.75@2.50
Bananas, Hawaiian	1.00@2.50
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.00

Beans, Dried.

Limas	6.10@6.15
Pink	5.50@5.65
Black eyes	5.50@5.60
Small white	3.25@3.50
Large white	3.25@3.50
Kidneys	6.25
Garbanzos	3.00
Bayo	4.90
Horse beans	2.50
Red Mexicans	5.50
Cranberry	4.50@4.75

Hay.

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Wheat, No. 1	1.45@1.52½
Barley, fancy	1.16¼
Barley, good to choice	1.12½@1.15
Barley, poor to fair	1.07½@1.11¼
Oats, white	1.50
Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00@18.00
Bran, ton	29.00@30.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Ground barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	32.50@35.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@26.00
Shorts	29.00@31.00

Citrus Fruit Market

LOS ANGELES, Feb. 22, 1911.

A material improvement is noted in the orange market. Prices are somewhat higher, but, more, the general tone is greatly strengthened. This is gratifying, especially in face of the exceedingly heavy shipments now being made. Exceptional days see the 200 mark reached, and the more ordinary days fall but slightly below it. Extra fancy navels easily command $2.50, and some markets have crowded them up close to the $3.00 mark. The decay which was so serious is not so pronounced, owing in part to weather conditions being more favorable and to extra care being given in packing house and orchard.

The lemon situation is much the same as it has been for several weeks; the shipments are not heavy, but such offerings as are made are readily picked up. In quality, Californias are a long favorite over Mediterraneans.

Shipments.

Shipments of oranges since November 1, 10,005 cars; of lemons, 1,381; total of citrus fruits, 11,386 cars. To same date last year: Oranges, 5,894; lemons, 1,203; total, 7,097.

NEW YORK, Friday, Feb. 17.—Twenty-three cars navels and three cars lemons sold. Market unchanged, both navels and lemons. Raining.

NAVELS—	Avge.
Elephant, Or, Elephant Orchard	3.00
Laverne Heights	2.00
Lighthouse, Sd, Randolph F Co	1.90
Redlands Best, xf, M O Dis	2.65
Victory, Or, C C U	1.75
Orchard, Or, National O Co	2.50
Standard, Sd, National O Co	2.10
Regal, fy, Growers F Co	2.45
Regina, xc, Growers F Co	2.25
Sierra Celeste, W T Michael	2.40
Stock Label	2.15
Ideal, Highland Prot F A	2.50
Delicious, Highland Prot F A	2.10
Euclid, Or, Growers F Co	2.75
Uplander, Or, Growers F Co	2.40
Regal, fy, Growers F Co	2.55
Regina, xc, Growers F Co	2.30
Slover Mountain, fy, Growers F Co	2.25
Mt Harrison, fy, Sewell	2.45
Independent, Growers F Co	2.35
Pine Cone, S B Ex	2.80
Arrowhead, S B Ex	2.45
Pinnacle, O K Ex	2.70
Quail, O K Ex	2.40
Majesty, O K Ex	2.25
Sunny Heights, Redlands G O A	2.45
Sunlight, R H, Redlands	2.20
Vista Bonita, A F, Hemet	2.25
Lake Hemet, A F, Hemet	1.95
Mission Indian, A F, Hemet	1.65
Iris, D M Ex	2.45
Violet, D M Ex	2.35
Stag, A C G Ex	2.30
La Mesa, Riverside Ex	2.65
Golden Rule, Riverside Ex	2.40
Golden, Riverside Ex	2.25
Stork, S A Ex	2.25
TANGERINES, HALVES—	
Orchard	1.30
Stock Label	1.35
Pinnacle	1.90
Quail	1.55
Stag	1.30
La Mesa	1.60
LEMONS—	
Peerless	3.50
Sunset	3.40
Regina	3.40
Sunny Heights	3.50
Mikado	3.50
Bouquet	3.25
Mars	3.10
Cove	2.95

PHILADELPHIA, Friday, Feb. 17.—Eight cars navels and two cars lemons sold; twenty cars Floridas sold. Oranges sold $1.10@4.10, average $2.05; grapefruit, $1.10@2.85, average $2.15. Market is unchanged.

NAVELS—	Avge.
Bloomington, A F, Bloomington	2.05
Golden Circle, R H, Redlands	1.90
Stag, A C G , Glendora	2.55
Golden Flower, xf, Red G O A	2.35
Cloverleaf, Interstate F Dis	2.20
Globe, xc, F. Schwan & Son	2.15
Sunlight, R H, Redlands	2.15
LEMONS—	
Family, Q C, Corona	3.40
Blue Flag, Q C, Corona	3.45
Crybaby, Q C, Corona	3.20
Sunrise, Sd, Earl F Co	3.25
Blue Flag, A Q , Corona	3.40

Silence, Q C, Corona.....3.25
Marguerite, xc, Earl F Co.....3.30
Black Beauty 3.05

ST. LOUIS, Friday, Feb. 17.—Warm, clear. Market is easier. Eight cars navels, one car lemons sold.

NAVELS—	Avge.
Carmencita, S T, Fullerton	2.00
Pointer, A C G, Glendora	2.20
Lochinvar, R H, E Highland	2.40
Lochinvar, R H, E Highland	2.45
Uncle Sam, Riverside Ex	2.30
Pond Lily, Riverside Ex	1.95
Echo, S T, Arroya Park	2.20
Tournament, S T, Arroyo Park	2.25
Fountain, ch, Green & Speich	1.85
Colombo, S T, Fullerton	1.80
Hunter, A C G, Glendora	1.80
Belt, R H, E Highland	2.10
Billiken, Riverside Ex	2.05
Orchard Run, Riverside Ex	2.20
Arroyo, S T, Arroyo Park	2.10
Redskin, xc, Rialto O Co	1.90
LEMONS—	
Sunset	2.70

CLEVELAND, Friday, Feb. 17.—Four cars of navels, one mixed car and one car lemons sold. Market very strong. Weather warm, temperature 60.

NAVELS—	Avge.
Red Shield, A C G, Azusa	2.15
Alta Cresta, A H, Pachappa	2.80
Hobo, A H, Pachappa	2.20
Tiger, S B, Colton	2.30
Alhambra, S T, E Alhambra	2.05
Robusta, A H, Pachappa	2.45
LEMONS—	
Moose, O K Ex	3.45
Quail, O K Ex	3.65
Coyote, O K Ex	3.40
White Ensign, O K Ex	2.95
Black Ensign, O K Ex	3.55
Prong Horn, O K Ex	3.20
Buck, O K Ex	2.95

BOSTON, Friday, Feb. 17.—Nine cars sold. Cold, cloudy. Market unchanged.

NAVELS—	Avge.
Red C, Covina Ex	2.05
Angora, O K Ex	2.35
Princess, Q C, Corona	2.50
Constitution, Cleghorn Bros	2.30
Golden Gate, xc, Redlands G O A	1.85
Lincoln, A H, Casa Blanca	2.10
Laurel, Q C, Corona	2.85
Independent, Or, Growers F Co	2.50
LEMONS—	
Homer, Q C, Corona	3.65
Laurel, Q C, Corona	4.15
Camel, Q C, Corona	3.30
Princess, Q C, orona	3.50
RUBY BLOODS, HALVES—	
Laurel	1.65

PITTSBURG, Friday, Feb. 17.—Five cars sold. Market higher on oranges, steady on lemons. Cool and cloudy.

NAVELS—	Avge.
Elephant, Or, Elephant Orchard	2.65
Red C, Covina Ex	1.85
Iris, D M, Duarte	2.40
Elephant seconds, Elephant Orch	2.30
Parrot, S A Ex	2.40
Jasmine, D M, Duarte	2.30
LEMONS—	
Blue Jay, O K Ex	2.80

CINCINNATI, Friday, Feb. 17.—Warm. Market advancing on oranges. One car navels, two cars Floridas sold. Florida Brights, $1.50@2.25; Russets, $1.25@2.40.

OBSERVATIONS OF THE YEAR.

(Continued from page 227)

secure the best available investigators, men adapted by training, experience and personal temperament, and set them to the work, to stay by it till demonstrated results are obtained, however long that may be, just as Mr. Powell was set to find the cause and prevention of fruit decay, and as Mr. Shammel has been put to his work.

Yes, this will take years and will cost—cost heavily. But what is the lack of this definite knowledge which is believed attainable, costing us now every year? Figure out what one-fourth and one-half of the entire expense of our present orchard fertilization amounts to, and somewhere between these sums, I believe, we will have the actual cost of the lack of the definite information needed, the cost of which would really be but a slight fraction of the amount we are throwing away every year. Yet we expect the industry is to be carried on by our children's children and then on.

CITRUS AUCTION.

The first citrus auction house on the Coast was opened at Los Angeles on Tuesday with the sale of ten cars at prices ranging from 90 cents to $1.50 per box. These prices were considered fair, but not up to the expectations of its friends. The second sale is being held today.

CHICAGO, Friday, Feb. 17.—Three cars navels sold. Market unchanged; strong on good, sound fruit. The following were sold by the Central Fruit Auction Company:

NAVELS—	Avge.
Orchard, Or, National O Co	2.65
Crafton, xf, Redlands G O A	2.09
Cloverleaf, Interstate F Dis	1.56
Standard, Sd, National	2.10
Black Beauty	1.49

Lemons rule easy. Some imported are now offered. This gives Californias some competition. At this season there is only a quiet trade. Boxes, California fancy 300s, $3.50; 360s, $3.25; off sizes, $3.00; extra fancy, $3.75; extra choice and choice, 25c per box discount; Messina, $2.00@2.50.

Oranges—The market does not change much either way. There remain good offerings of Californias. There is a good deal of soft, shrinkable fruit, and present mild, damp weather is not favorable. Buyers are not taking hold as freely as desired in view of the conditions. An easy feeling continues. Boxes, navels, California fancy 96s, $2.50; 126s, $2.50; smaller sizes outside in rather a small way, $1.75@2.25; choice and extra choice, 25c per box less.

Columbia county, Washington, yielded over 2,000,000 bushels of wheat last year. A big bunch of hops was sold in Spokane last week at 18½ cents; most growers are demanding 19 cents.

The ice plant at Coachella, Riverside county, has been acquired by the Holt interests of Imperial.

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

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Nitrate of Soda

on a small part of a field, on any staple Crop. It will be a useful demonstration of the value of Nitrate as a Fertilizer when used as a Top Dressing. The Trial

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The result of 25 years experience, and the most Practical Incubator made.

Cycle Hatchers $6.50, Brooder Hatchers $8.50
FIRELESS BROODERS THE KIND THAT RAISE THE CHICKS
THE PHILO SYSTEM
Philo System Book and Poultry Review (one year) $1.00
READ WHAT OTHERS SAY:

117 Miles Ave., Oakland, Cal., Nov. 12, 1910
Cycle Hatcher Co., Oakland, Cal.
Gentlemen: A year ago we started with the Philo System, and raised as fine a lot of White Orpington pullets as anyone would wish to see. The two machines we purchased of you last season have given excellent satisfaction. We shall probably need more this year, and shall use the Cycle machines in preference to a larger incubator. Yours truly, S. N. Haines

Send for "Poultry Profits." Mailed on request.
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Warehouse at Los Angeles, Cal. Address all correspondence to Oakland.

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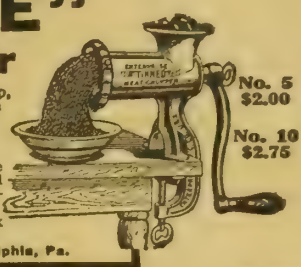
Meat and Food Chopper



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Phosphoric Acid (Soluble in weak acid)	1.50
Nitric Nitrogen	1.50
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Work will be done in the order of receiving the samples.
When called to make field examinations charges will be $10.00 per day from the time of leaving Los Angeles to time of arrival here in returning, and expenses.

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Chemist and Soil Engineer
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Importer and breeder of RED POLLED CATTLE, SHROPSHIRE SHEEP, RAMBOUILLET SHEEP, HORNLESS AMERICAN MERINO SHEEP. Both sexes for sale. Take electric car at Petaluma or Santa Rosa for LIVE OAKS STATION. Address all mail to Petaluma, Sonoma Co., Cal.

THE PERCHERON SOCIETY OF AMERICA.
Has just taken over all records and business of Percheron Registry Company of Columbus, Ohio. 215 breeders took membership in P. S. of A. during December and January alone. 137 more new members added thru recent acquirement named above. There is now but one recognized Society in the United States recording Percherons. For information address WAYNE DINSMORE, Secretary, Union Stock Yards, Chicago, Ill.

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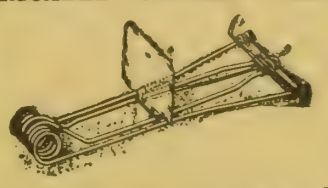

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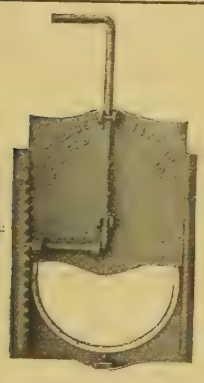

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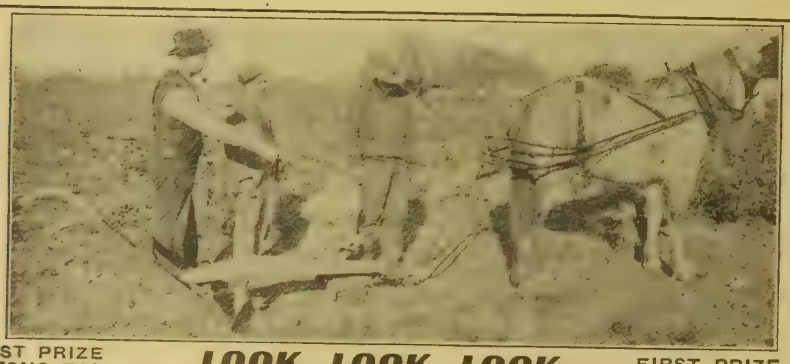

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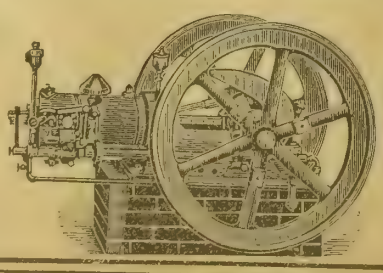

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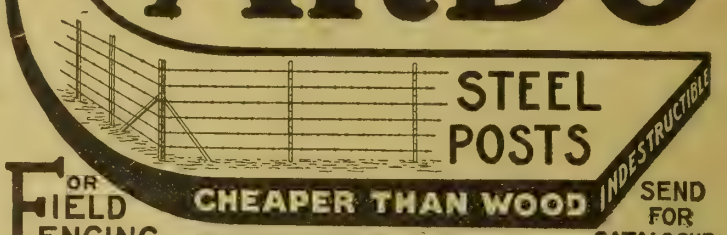

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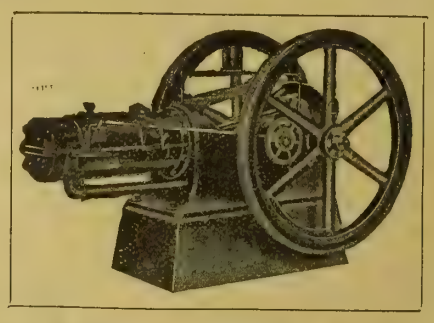

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California Cultivator

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LOS ANGELES MARCH 2, 1911 SAN FRANCISCO

THE CHASE BLIGHT-PROOF WALNUT TREE.

THE LIFE HISTORY OF A GREAT WALNUT TREE.

The Chase walnut tree was planted in 1886, about three miles south of Whittier, by Mr. Van Vorce. The nuts were obtained from France by the late Felix Gillett, the Baron Hill nurseryman of Nevada. This magnificent tree now has a spread of 80 feet and is the finest specimen of a walnut tree in California. It is noted for its size, vigor, bearing and blight-resistant characteristics. It bears a regular annual crop of nuts, the heaviest being 325 pounds. The nuts are large, well filled, and of fine flavor, and are smooth, thin shelled, well sealed and never perforated.

The bacterial disease, or blight, as it is sometimes called, is robbing the walnut grower of thousands of dollars annually, and will probably continue to do so the remainder of the life of all the seedling orchards now planted. This blight can be overcome only by immune varieties, of which the Chase stands among the first, and with all its other good qualities this places it in a class by itself.

A thorough test of the bearing and immune qualities of this tree can be seen in the 20-acre orchard lying just east of and adjoining the La Habra school house in Orange county, which contains trees planted from all Chase grafts excepting four rows, which are Chase seedlings. Here can be also seen the superiority of grafted trees over seedlings. This orchard has been pronounced by all who have seen it to be the heaviest bearing and most free from blight of any orchard of equal size in the state.

Mr. A. R. Rideout, Whittier, Cal., who is himself a recognized authority in practical horticulture, is so keenly alive to the importance of clean orchard trees, that he is at all times willing to show interested parties these blight-proof walnut groves, and cheerfully invites correspondence on the subject.

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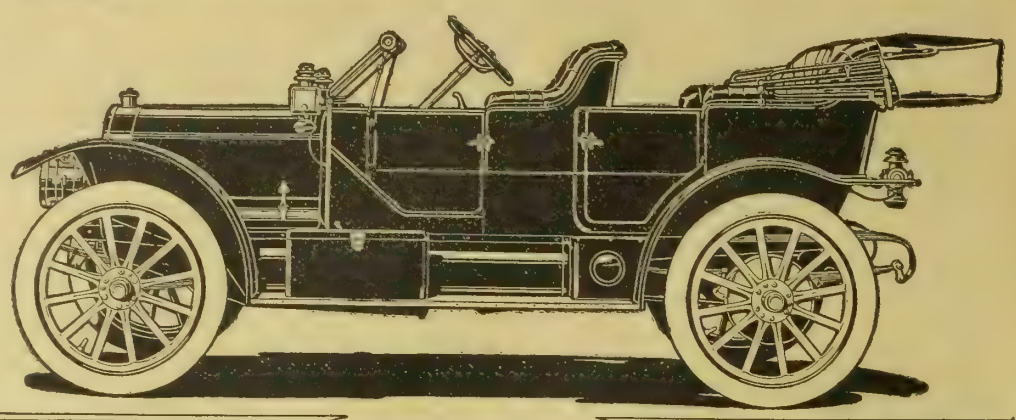

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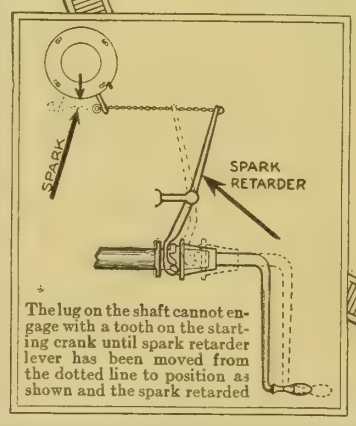

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36,000 feet	1-inch Standard, at	4c per foot
20,000 feet	1¼-inch Standard, at	5c per foot
30,000 feet	1½-inch Standard, at	6c per foot
50,000 feet	2-inch Standard, at	8½c per foot
10,000 feet	2½-inch Standard, at	15c per foot
15,600 feet	3-inch Standard, at	17c per foot
15,000 feet	3½-inch Standard, at	19c per foot
20,000 feet	4-inch Standard, at	25c per foot
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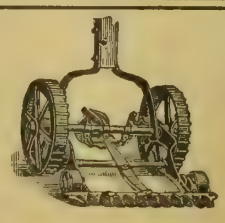

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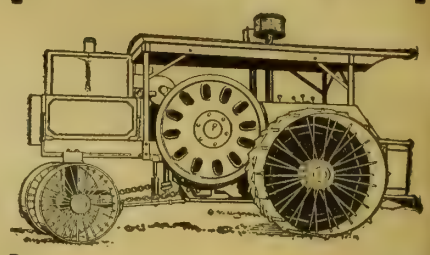

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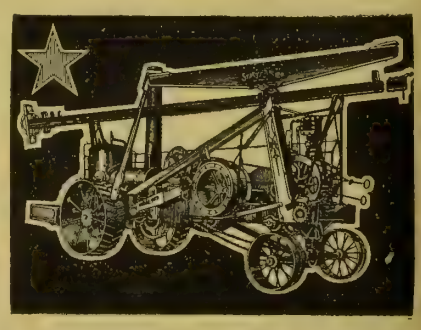

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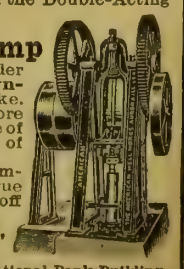

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California Cultivator

Vol. XXXVI. No. 9. LOS ANGELES: THURSDAY, MARCH 2, 1911 One Dollar the Year

Brightest Men in the Industry Seek More Information

The Citrus Growers Generally Concede Themselves to be in the Class of Those Who Know Not and Know that They Know Not all they Wish To, and are Anxious for the One Who Knows He Knows to Come and Show Them.

INFLUENCE OF STOCK ON SCION.

Some of the later arrivals answering Mr. Blanchard's question were necessarily held over till this issue. We hope these and those given last week will spur orange growers to closer observation and to reporting any case where apparent influence of stock—or trunk in this case—has been observed. For those who may not have observed Mr. Blanchard's question we repeat it.

Nathan W. Blanchard, Santa Paula.

"I submit to you a question which is an interesting one in itself, and which I would be very glad to have light upon, namely: Will the character of oranges grown from wood produced by budding into lemon stock, which is itself a growth from budding into orange stock, be influenced by the lemon wood, say from two or three feet from the lemon stock between its own bud and the orange bud? Some years ago many lemon trees were budded over into oranges. These lemon trees were presumably grown on orange roots, so that some growers will doubtless be able to answer the above question. The early orange growers will remember that oranges grown on Chinese stock or roots were very coarse and could easily be recognized."

Q. A. Lobingier, Arlington.

My experience with the case in question hardly merits an opinion that would be of value. This question of influence of stock upon the fruit has been up for discussion for many years, but I agree with you that the general belief is that the stock has no influence upon the quality of the fruit. My experience has been more extended with the apple than with either orange or lemon, and I always thought the variations noticed in the apple could be traced to the source whence the scions came rather than any influence of the stock.

J. W. Mills, Marysville.

In answer to Mr. Blanchard's query, I believe that the orange will be influenced by the lemon stock to a considerable extent. I can only give my reason as theory, though numerous cases seem to indicate that such is the case, regardless of theory.

We know that pears grown on quince stock (the trees being dwarfed) are very much changed in appearance and texture; some varieties are improved by such dwarfage of the stock. Conversely, the coarse, rank growth of the Chinese lemon has a tendency to rush the growth of the orange grown on it, resulting in a coarse product. While this theory does not work with all rank growing stocks, neither does it work oppositely in the case of all varieties of dwarfed fruits. There may be cases where the Chinese lemon does not have this effect, but the tendency seems to be to grow a fruit in sympathy with the stalk. It has been proven beyond doubt that in many cases young orange trees budded on pomelo stock (also a rank grower) have become badly diseased even before they leave the nursery. Oranges budded on Chinese lemon are prone to contract gum disease also. These two stocks seem to have an influence on the bud, but the pomelo stock does not seem to influence the fruit. Experience seems to indicate that the Chinese lemon does, which, after all, is worth more than all the theories.

W. P. Watts, Covina.

I have about 600 trees that were grown as lemon trees for eight years. They were budded to Valencias nine years ago and are bearing fine crops of fruit none the worse for the lemon stumps. I think that to insure success the trees should be budded early and leave lots of wood to carry the sap, and when the buds start leave a sprout on the opposite side of the limb to keep the limb green. By this method I should hope to avoid mottled leaf that affects budding trees.

Dr. F. Franceschi, Santa Barbara.

Please excuse delay in replying to your letter. I tried to gather more information which might throw some light upon the most interesting question proposed by Mr. Blanchard, but I regret to say, with very meager result.

I remember quite well that in 1892, when I first came to Santa Barbara, people had started to bud orange orchards to lemons, but I was unable to ascertain, and very much doubt, that any of said trees did escape the "grubbing out" which took place eight or ten years later in Montecito and elsewhere.

The only personal experience which I have had in this line was when, some ten years ago, I had raised a number of "Florida rough lemon" and Citrus Trifoliata seedlings, and had them budded to different varieties of citrus fruits. Contrary to my expectations, I could not detect any difference in growth of the two different stocks. Those trees were sold and scattered about, and I have entirely lost track of them.

Mr. Kahles of the Crocker ranch, our best authority on lemon growing, does not believe that the character of orange fruits can be influenced by the quality of stock they are budded upon.

G. P. Rixford, San Francisco.

Undoubtedly the orange will be influenced by the two or three feet of lemon wood between it and the orange root, the same as if budded into a lemon stock on its own root. The effect of stock on the graft is not clearly understood, but is generally considered by horticulturists chiefly a dwarfing or an invigorating effect. The well-known dwarfing of the pear on the quince and the apple on Paradise stock are instances of the first, and the English walnut on the California black is a good illustration of the latter. I doubt if the flavor of the fruit or its general appearance is affected by the character of the stock, though there is quite a widespread opinion among citrus cultivators that the China lemon stock produces a coarse, rough orange.

In this connection it would be interesting if some of our cytologists would investigate the cellular tissues at the point of junction of stock and graft of different varieties of trees. The cells of the quince elaborate the sap, and quince fruit is evolved. When a pear graft is inserted on the quince, through the functions of the cells of the graft, a pear is produced. There are doubtless differences in the cellular tissues of the two woods, or in their cellular functions, that account for the result. Microscopic study of the point of transition of one set of cells into the other would be interesting, and might explain the phenomena.

W. H. Volck, Watsonville.

With regard to the question of Mr. Nathan W. Blanchard I have no expermental data bearing on this subject, but would infer that the small amount of lemon wood forming the trunk would have little or no influence on the orange fruit. There has been quite a little of this kind of working over done in the citrus groves, and I have never heard of any effect on the fruit.

Burle J. Jones, Phoenix, Ariz.

In debating the matter I have in mind a record I once saw in a horticultural journal in which some enterprising grower in Florida had been experimenting on this very thing. He had selected from his grove a number of buds from his choicest Navels. A portion of these he inserted into the tops of Navel trees that were not as good as those especially selected and still others he put directly into old sour, or bitter, Seville trees. The flavor and general texture of the fruit resulting from the former was reported by him as being in no respect finer, smoother, or better than that taken directly from the sour orange stocks, though in general he acquired a much better fruit by this process of budding over than he had previously secured. From this it appears that the fruit is likely to follow the bud and not the root stock. From my own experience and observation, however, I can imagine that there might be a limit to this. It has, of course, been argued in California for some years that the fruit from a grove budded into sweet root is sweeter and perhaps a little finer in texture than that on sour. As the study of this matter progresses, however, it appears that there is little ground for this assumption and that the difference generally lies rather in the methods by which the groves are handled. I have never seen any instance where the quality of the fruit, citrus fruit, was known to be materially influenced by the sweetness, acidity or coarseness of the natural fruit of the root to which it was budded, but I should feel it necessary to make a very extended study of the matter before putting that down as a definite conclusion.

In the case cited in your letter I am reasonably certain that the intervening lemon wood will not affect the quality of the fruit and that it would pay far better to select the orange buds to be inserted with great care as to quality and bearing propensities than to endeavor to eliminate the lemon wood into which they are to be put.

FARMERS CLUB.

Next to a good farm paper, the Farmers Club and the Grange or other organization in which social and intellectual life are stimulated, possess greatest value. We believe we are justified in putting the good farm paper first, but there are some clubs in this state which are doing remarkably effective work. It was our pleasure to attend a meeting of one of these clubs a few days ago at Covina. The interest shown and the questions discussed were certainly a credit to the fruit growers of that section. The club meets monthly at the Woman's Club House, the attendance having become so large that private residences are unable to accommodate it.

The afternoon is spent in discussion of vital topics, one of the principal ones at the recent session being chlorosis of the orange tree. On this point the club has heard men of scientific attainment. Other lighter topics, together with an excellent musical program, filled out the afternoon. Later the ladies took charge and refreshments were served. A novel rule obtains that the ladies assigned to each afternoon's entertainment are restricted to three articles on the menu. On this afternoon, however, they fudged, and cake was slipped on the unsuspecting attendants in addition to the coffee, sandwiches and salad.

The benefits of such a club are not only in the social pleasures of the afternoon, but in the bringing together in one aim of those who are following the same calling. Questions pertaining to the welfare of the community are discussed, and if not solved, a better understanding of them is gained. There are several of these clubs in Southern California and many Granges in the northern part of the state. It makes little difference what is the name or particular plan of the organization so the people get together. The movement should be extended.

Fumigation of San Bernardino county orchards under private contracts is not proving so satisfactory as under the former county control plan.

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Citrus and Tropical Fruits

ORANGE SEED BED.

Answering request of a subscriber for information as to handling orange seed bed we quote from Citrus Fruits by R. M. Teaque of the San Dimas nurseries:

Preserving the Seed.

To insure good results the seed should not be allowed to become dry after being taken from the fruit, but should be heeled in moist sand in a cool place or kept in water, changing the water frequently to avoid having the seed sour. It can be kept for a considerable length of time by either of these methods. Great care must be taken in handling the seed so as not to bruise it to any extent.

Planting the Seed.

The best season in the year for planting orange seed is in the early spring months, much depending on the season; preferably from March to May. If the soil is cold the seed is apt to decay in the ground before germinating. It is much better to wait until the warm weather has commenced. The ground should be kept moist after the seed is planted so as to insure its germinating properly.

Preparing the Seed Bed.

In preparing the seed-bed for the seed, the ground should be well plowed or forked up to a depth of at least twelve inches, leaving the soil as loose as possible. After preparing the land in this manner, it is necessary to erect a lath house of sufficient size to cover the ground to be used for a bed, or to cover same over with burlap or light cloth of some kind. In erecting the lath house, it is best to use common plaster laths, nailing them on 1x3 battens with space left between each two the width of the lath. In this manner the ground is half shaded, which is sufficient for the protection of the plants after they begin to grow. If it is undesirable to go to the expense of a lath house, the bed can be successfully covered at much less expense by putting up stakes at intervals and stretching wires on them. In these wires should be strung strips of burlap or light cloth. This protects the young plants from the sun.

There are two methods of sowing the seed, the first being by broad-casting. After the seed is scattered, it should be covered to a depth of about one inch with sand which has been thoroughly screened before using. It is also a good plan to first cover the seed with about its own thickness of fine sifted soil before applying the sand. This will insure the seed being moist at all times and will greatly help in the germinating process. In following the above method of planting it is necessary to sow the seed in beds, leaving small walks of sufficient width so a man can go through to spray properly when necessary with a garden hose, and without damage to the plants. The second method of sowing the seed is in drills of from eight to twelve inches wide, leaving about a six to eight inch space between each drill for the running of water in irrigating. Seed sown in this manner will grow stockier plants as a rule than by the broad-cast method in beds. However, it takes up more room for a bed of an equal number of plants than by the broad-cast method. After the seed is planted it is necessary to keep it sufficiently watered for the germinating and starting of the plants, but not an excessive amount of water. If too much water is used, it is apt to decay the seed in the ground.

If the bed has been properly cared for and the season favorable, the plants should be ready for removing to the nursery the following season, or one year from the time the seed is planted, though if desirable they can be carried two years in the bed before being removed, and with good success. In this way a much larger lot of plants would be secured. It is not best to plant very small seed-bed stock in nursery form, it being too delicate to successfully withstand the open rays of the sun and is apt not to start readily in the nursery, if at all. Where the removing of the plants from seed-bed to nursery can be delayed, it is best to leave them two years, as the stocks vary in size. If desirable, the larger plants can be removed from the bed the first year from the seed, and the small ones left in the bed another season. As the remainder will then be thinned to some extent, the plants remaining in the bed will do much better and make good, stocky plants at the end of the second year.

Transplanting to Nursery.

In taking up the seed-bed plants for nursery planting, it is well to thoroughly wet down the bed so as to insure getting all the root system possible, and in loosening the plants it is best to use a four-tine spading fork. After they are thoroughly loosened they can be taken up and made or sorted in two grades, or the larger ones can be pulled out, leaving the smaller ones to remain in the bed over another season. If the entire bed is to be used at one planting, it is best to make two grades and plant in nursery form separately. In this manner, the small plants can be given extra attention and budded to some strong-growing sort to make up for the deficiency in size at the start. It is very necessary in removing the plants from the bed not to allow them to become exposed to the wind or sun, hence as soon as sorted pack immediately in damp moss and box securely until ready for the nursery. It is also a good plan to cut the ends of the tap roots off slightly so they will not double up at the botom when planted and cause the tap root to become crooked. A good method to follow is to take from twenty-five to fifty plants at a time, and by using a sharp tool of some kind, the roots can all be cut off at one stroke. It is also essential to cut the tops back in proportion to the roots. The quickest and best method is to take a pair of hedge shears and trim up the bed to suit before removing. After the plants are topped and forked up and packed, they are ready for the nursery.

Preparing Nursery Ground.

The nursery ground should be thoroughly plowed and left as smooth as possible with a drag of some description to answer the purpose. After the ground is prepared to suit, it should be laid off in rows, which can be done as follows: stretch a wire the full distance of the field where the nursery is wanted, the ground having previously been staked off in rows the desired distance apart, and over the

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3,000,000 Eucalyptus for immediate planting.

Deciduous and Citrus Trees in quantity.

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Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

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10 in. long, 7 in.wide	$ 9.50
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First-Class Navel and Valencia one and two years old.

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High Grade Trees

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Write for prices.

Placentia Perfection Walnut Scions, Eucalyptus Trees and Seeds, and a General Nursery Stock. SUNSET NURSERIES, Tropico, Cal.

wire run some kind of an implement to mark off the distance apart the plants are to be set. An implement of this kind can be made by taking a wheel and nailing or bolting on to it at intervals the distance apart the plants are to be set small cross pieces of wood or iron. This, when run over the wire, will make impressions in the ground where each plant is to be set. The ground should be moist enough so as to open properly when using a sharp tool or dibble for the purpose of placing the roots of each plant in the soil. After the marker has been run over the wire, it can then be taken up and moved to the next row or stakes where the row is to be, and thus be out of the way of the workmen in planting the one previously marked. The usual distance apart for setting the plants is from twelve to eighteen inches, with the rows four feet apart. It is best to have the rows four feet or more apart so as to allow ample room for cultivation without breaking off any of the young buds, and also room for a small sled to be run between the rows in taking the trees to the ends of the rows when ready for market. Planting too close together in the rows, is apt to make the trees inferior in size, and if it is intended to ball stock planted in this manner, it is not possible to cut out as large a ball of earth with the root system as it would be if planted further apart.

LEMONS.

By C. D. Hubbard, San Fernando.

A few don'ts in the lemon business.

Don't buy land to plant lemons on unless you are sure it is the right kind of soil. Don't buy land to plant to lemons where it is subject to frost.

Don't buy lemon trees unless you know they were budded with buds cut from the very best selected trees. Like produces like and years of labor and expense may pan out a failure just from the careless selection of buds. Don't plant a tree that has been stunted.

Don't fail to prepare your ground for planting lemon trees in the best possible shape. Level if possible to irrigate two ways. Don't fail to plow deep.

Don't fail to plant your lemon trees far enough apart. Don't fail to have a good large ball. Don't fail to cut the lemon trees back well when planting out. Don't dig too small a hole. Don't get too far ahead of your water when setting your lemon trees. Don't set the trees too deep. Don't fail to wrap the trunks with something as soon as set to protect from sunburning or getting hidebound.

Don't fail to give the trees plenty of water and as often as needed according to locality and weather. Don't let the suckers grow on the young trees. Don't fail to dig or hook up around the trees if water has run around them. Don't let the young trees go without staking and tying them so as to have them grow straight. Don't fail to put on some good stable manure and some good brand of commercial fertilizer right from the start. Don't let the gophers work on your trees. Don't let the branches grow down and lie on the ground; it will breed trouble. Don't fail to grow cover crops as long as you can. Don't fail to get all the straw and manure on you can. Don't fail to cultivate and plow deeply and thoroughly.

Don't put your pruning off too long. Don't haul out the prunings but cut

(Continued on Page 266.)

CITRUS Trees

There is No Crop

which will yield you a surer revenue year after year and increase in value more rapidly than a good Citrus orchard. Planting should be done in March, April or May—April being the best month. Send us your orders now.

Our stock is all grown under the most perfect climatic and soil conditions. Our trees are sturdy and strong, well matured with excellent roots.

We can fill orders for any quantity of ORANGES LEMONS POMELOS

—Write for prices to—

ROEDING & WOOD Nursery Co.

P. O. Box A. EXETER, Tulare CO., Calif.

Citrus and Tropical Fruit Trees

5000 Eureka Lemon trees
5000 Valencia Late Orange trees
5000 Navel Orange trees
3000 Grafted Walnut trees

People who intend to plant lemon or grafted walnut trees this season will have to secure them from some source early as they are now very scarce.

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I have for sale 8,000 Eureka Lemon trees, two-year old buds on three-year old Florida Sour Stock, in first class condition for Spring planting. For prices, etc. address——

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Canvas Goods

Picking Bags,
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Citrus Trees

(Exclusively)

Buy now and it pays to buy the best. We offer a complete, clean, vigorous stock which, we think, are as good as can be grown.

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FLORIDA SOUR ORANGE SEED

Write for quotations.

Superior Flower, Garden, Tree and Palm Seeds.

Eucalyptus seeds a specialty, Pamphlet "Eucalyptus Culture" mailed free.

Roses, Palms, Ornamental Trees and Shrubs.

Fruit Trees and Berry Plants.

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Genuine Florida SOUR ORANGE SEED-BED TREES

Extra fine one year stock, the best to be had; be sure you are getting the genuine article. If you will send your orders in now, we are prepared to fill them, be they large or small; but order early, as the supply is limited.

3,000 fine large two year Valencias, get our prices.

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We are wholesale growers of deciduous and citrus fruit trees, grape vines and eucalyptus trees.

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Get the best stock available and at the most reasonable cost from a man who selects the buds and scions of the best strains.

Deliveries made from our sales yards at Fresno, Madera, Merced, Turlock, Banning and Chico.

Write for quotations on your order. Address Main Office, Fresno, Calif.

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A complete line of Nursery Stock. Special prices on Peach, Plum and Apricots. It will pay you to let us figure with you before placing your order for Spring planting. All stock guaranteed true to name.

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Sweet Potato Plants $2.50 per thousand. Write for special prices in quantities.

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W. W. BURFORD, 740 Glendale Ave., Glendale, Cal.

Deciduous Bush-Tree Fruits

THE LABORER IN THE VINEYARD.

By John T. Bramhall.

"The harvest truly is plenteous, but the laborers are few." That was an apt simile, indeed, in a country like our own, blessed by warm suns, an equable climate and a fruitful soil, and at the same time inhabited by a people who, for the very reason that their simple wants were easily supplied, were averse to manual labor. What are we to do in our fruitful California, where our ingenuity, and perhaps our cupidity, have called forth harvests beyond our capacity to reap? How shall we get laborers for the harvest?

It is, indeed, a singular problem, differing from that which confronts the husbandman in any other part of the country. The finest land, the finest climate, the most profitable crops—and yet a scarcity of labor.

In the days of empire-building, when our Pharaoh needed hewers of wood and drawers of water, not being able to get a sufficient number of Irishmen from the East, at the price, he turned to the West and got Chinamen. It was said to be a work of necessity. But be it noted that the Mormons built Salt Lake City without any aid from Chinese. As soon as it is perceived, as it must be, that our preservation and perpetuation as a white or Caucasian state and nation depends upon the exclusion of the Asiatic, means will be found for the introduction of desirable Europeans. And we need not look far for an example. Senator Dillingham, the chairman of the federal immigration commission, has made a detailed report on the subject of the immigration situation in Canada, from which much is to be learned that may be of great value to California in the work that lies before her. Anyone traveling in Canada, both in her cities and farming districts, cannot but notice the absence of that class of immigrants that we call "undesirable." Her working people, both in city and country, are of a high class of intelligence and ability, which may account, in some degree, for Canada's reaping more than twice as much wheat to the acre as we do.

The Canadian immigration policy, as we learn from Mr. Dillingham, is based on the purpose of the government to promote the settlement of the newly opened agricultural regions of the western provinces and other parts of the Dominion, and to discourage the coming to Canada of such classes of immigrants as tend to congregate in towns and cities. In other words, she uses a wise policy of selection, while we, with lavish prodigality, have wasted our substance in entertainment of each new-hatched, unfledged comrade. Canada looks to the United States, and our best agricultural states at that, and to the United Kingdom, and to northern and western Europe for her desirables, and carries on in those countries a systematic and successful propaganda to promote immigration to the Dominion. If an agricultural unrest is reported from Iowa, or from Finland, agents with descriptive literature—and it is honest literature—are sent to invite the farmers to come to Canada. The agents are paid a bonus of one pound ($4.86) for each man, and half that for youths, from Great Britain and northern Europe, and $3 per man, $2 per woman and $1 per child for immigrants from the United States. The difference is not based, it should be explained, upon the value of the immigrant, so much as the cost of the service. In 1908 Canada spent $480,000, in round numbers, upon immigration work at home (administration, printing, etc.), and $250,000 in the United States, $270,000 in the United Kingdom, and $74,000 in continental Europe. She got 58,445 immigrants from the United States (costing $4.30 each, not counting administration expense), 120,182 from the United Kingdom (costing $2.24 each), and 12,954 from continental Europe (costing $5.71 each). In addition to the above, she received, without making any direct expenditure, 54,600 immigrants from other European countries, including Syria, of whom 14,268 were from Austria north of the Carpathians, and 11,212 were from Italy and 6,280 from Russia, including Finland. The Oriental immigration numbered 12,108, but this proved so unwelcome that it was cut down to 2,388 in 1909.

On the whole, then, it would appear that Canada is getting a class of immigrants who, judging by race, language and religion, are likely to be quickly and advantageously assimilated with her population, 68 per cent of the total coming from the mother country and the United States. When we consider the occupation of the immigrants, we find that Canada has been equally fortunate. In an official pamphlet intended for circulation in the United Kingdom, farmers, farm laborers and female domestic servants are mentioned as the only persons advised to emigrate to Canada. And so we find that, of the total white immigrants in the past three years, 43 per cent were of the especially desired class, and 19 per cent were general laborers, mechanics and miners; 62 per cent workers. No wonder Canada is prosperous.

Why should not California follow the example of Canada? We may regard the states east of the Rockies as Canada does the United States, as good fishing grounds, and may send our agents to outbid those of the Lady of the Snows, or not, as we think wise. It is good hunting. There is scarcely a state that has not some settlements of Germans, Finns, Swedes, Norwegians, Belgians, Swiss, Italians (Piedmontese or Lombards preferred), Austrians, Hungarians, Poles—we may take our pick. Can anyone look closely at Texas, and see what the Germans have done for that state; or at Kansas, and note the benefits she has derived from the scorned Dukhobors; at Wisconsin and her Swedes; at the Italian colony in the Ozarks, and at the thrifty Polish gardeners in the Connecticut valley, without wishing that California had more examples of such wealth producers and home makers as these?

"But," says Mr. Bigranch, "you do not realize our real needs. These people are industrious, and honest, and all that, but they have a spirit of independence which ill fits them for laborers in the vineyard and orchard—in short, they lack the servile ability which——"

"Which would make them slaves, Mr. Bigranch, or peons. Would we not better recognize the fact that congress will not permit further open-

ing the doors to Asiatics, even though Japan is even now pounding at the gates and protesting against our proposed safeguarding our own lands? And would we not better realize that our only salvation rests in offering a friendly and cordial welcome to the intelligent and industrious white man, and giving him a white man's treatment when he comes?"

Should we wait for 1915, and a year or two after that? I think not. An immigration commission, entirely divorced from politics, under the direction, or perhaps selected by the State College of Agriculture and the Horticultural Commission, to look into the matter and study what is being done elsewhere, with power to take up the work at once, would no doubt bring good results. Our immigration work is all done at this end, when it should be done in the East. Let California send its agents to the East with the message: "A white welcome awaits the white settler in California."

Apple Trees

12000 Winesap, Rome Beauty, Jonathan etc.
Cherries Calimyrna Figs
Plums
Satsuma, Hale, Kelsey; etc.

Luther Burbank's New "DUARTE"
Two weeks earlier than Satsuma.

PIONEER NURSERY CO.
Dept. C., *Monrovia, Cal.*

EXPORTS INCREASING.

In your issue of Sunday, January 29, you quote from a long article on raisins in the Seattle Trade Register, most of the statistics in which were taken from the paper I read before the California State Fruit Growers Convention at Stockton on the 7th of December last. The article further states that in 1910 the exports amounted to 8,526,000 pounds, and that this amount had only once been exceeded, viz., in 1907, when the total was 9,128,000 pounds.

When I read this, I knew it was utterly wrong, but I believe in the old saying, that it is best not to prophecy unless you know, and at the time this was published the custom returns for the year had not been issued. Today I have received the advance proofs from Washington, and they show a wonderful and very encouraging increase in the export of California raisins, amounting to nearly double the quantity above quoted.

In order not to take up too much space, I will simply give you the figures, and allow them to speak for themselves.

Raisins exported during the calendar year ending December 31:

Year.	Pounds.
1905	3,978,645
1906	9,749,690
1907	4,720,606
1908	7,084,178
1909	8,363,845
1910	15,547,074

The imports of foreign raisins continue to show a considerable falling off, the figures being:

Year.	Pounds.
1905	11,511,347
1906	4,537,648
1907	9,927,771
1908	4,875,693
1909	5,219,649
1910	3,022,918

Thus, while the imports are the lowest on record, the exports are nearly double what they have ever been before.

The exports of most other fruits, also, show a very satisfactory increase:

Apricots (Dried).

Year.	Pounds.
1905	13,616,010
1906	3,268,457
1907	1,540,471
1908	14,463,948
1909	13,644,135
1910	18,366,055

Peaches (Dried).

Year.	Pounds.
1905	700,902
1906	1,819,863
1907	1,354,317
1908	1,296,095
1909	2,843,968
1910	4,946,406

Prunes (Dried).

Year.	Pounds.
1905	34,820,748
1906	31,777,704
1907	37,674,800
1908	18,087,319
1909	83,128,101
1910	64,470,370

Oranges.
(Quantity not stated until 1908.)

Year.	Boxes.
1908	714,365
1909	952,869
1910	962,229

The quantity of fruit exported depends to a certain extent on the size of the crop. For example, the prune crop for 1910 is estimated at about 74,000,000 pounds, compared with 150,000,000 the previous year, which was one of the largest on record. The apricot crop also varies greatly.

With another "Raisin Day," and a little more advertising of California raisins abroad, the consumption might be easily doubled, and the problem of how to get 3½ or 4 cents would then be solved.—George Robertson, in Fresno Republican.

THE CHERRY.

The cherry, it is true, likes good soil, but it is very impatient of much moisture. It must have good drainage to do well. The best of all soils—particularly for sweet cherries—is sandstone upland. In such situation it is no trouble to have abundance of the finest cherries in their season. There is no surer fruit crop when all is right; and every one who has a proper location should grow cherries. The fuit ripens so early and is so grateful to young and old, says National Stockman and Farmer.

How many farmers consider that a few cherry trees in bearing at home may prevent the children from committing depredations on their more thoughtful neighbors? Or, if it be said—which is true—that well-raised children do not do such things, it is also true that to be without this choice fruit while the neighbors are well supplied, is a trial to which no thoughtful parent would wish to subject his boys and girls.

And in obtaining young trees to plant, it is well to remember that the sweet cherries should always be budded (or grafted) on the Mazzard—their own kind. While the acid varieties are well suited with the Mahaleb as a stock, very few of the sweet cherries do well on it.

Shrinkage vs. Stability

MANY persons have found that their investments in stocks, bonds, real estate, etc., have shown large shrinkages in value during the past year. But there has been no shrinkage whatever in the value of a Savings Bank Deposit—either in principal or Interest.

Money deposited here earns at a fixed rate that you can thoroughly depend upon. And the income is clear, because money in Savings Banks is tax-exempt.

Consider these FACTS carefully. Remember, they apply equally to large sums or small—and that the Depositor of Ten Dollars receives the same consideration, courtesy and rate of interest as the Depositor of Ten Thousand.

Accounts opened at Four and Three Per Cent Interest—the latter with checking privileges under moderate restrictions.

¶ Perfect Safe Deposit Facilities. Boxes and Storage at Moderate Rates.

¶ Around the World and other Tours arranged by our Steamship Department.

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CALIMYRNA FIGS

The Best and surest Fruit to plant for large and certain Crops.

Year after year a fig orchard will yield abundantly, and the failure of a fig crop in California is an unknown quantity.

Living under your own vine and fig tree is one of the attractive similes of California horticultural life.

If your land is all planted to other fruits, put in a border of Calimyrna figs—which is the Smyrna fig of commerce, introduced by us.

In raising figs, the owner has only to care for them during the winter months and can generally sell the crop on the trees while still clothed in winter garb. Buyers pay from one to two dollars per tree for the future crop, and assume all responsibility for its maintenance and harvesting.

We have the largest stock on the Coast of MISSION OR CALIFORNIA BLACK FIGS, WHITE ADRIATIC, WHITE ENDICH, as well as CALIMYRNA.

TREES

All Varieties.

We are absolute headquarters for all sorts of trees:

Deciduous
Citrus
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Vines and Plants

Our nurseries occupy over 1600 acres and are the largest in the West. We can supply your wants in every line. Send for our

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It lists and describes over 2000 varieties of trees and plants, including Burbank's latest creations in fruit products, for whom we are authorized commercial propagators. You should have a copy. Write today.

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You can buy no better seed than that sold by us, and we are always glad to assist you in selection. Among other extra fine varieties that we recommend are the following

Three 1911 Specialties

CASAD'S Improved Muskmelon
A distinctly new sort that has been firmly established. Slightly netted rind, buff yellow flesh, luscious and smooth, approaching a pineapple flavor. Send for a packet 25 cents.

GIANT Stringless Green Pod Beans
This is a big favorite in the East and has proven a success here. It often produces pods six inches in length, tender and absolutely stringless. Very early. Packet 10 cents. Pound 35c postpaid.

GERMAIN'S Winter Queen Tomato
It is the earliest producer of all, and shows a wonderful resistance to frost. Compact bush, fruit smooth, even sized and finely colored, firm flesh. Packet 10 cents. Ounce 50 cents.

You should have our 1911 Catalogue—Please Mark Letter Dept. C

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Garden and Field Crops

THIS MONTH.

By O. M. Morris.

In commencing this article it is necessary in making this of universal interest, that we divide the territory into, say, three sections. The first section, or that which is the earliest section or mildest in reference to cold, this section would be what we might term the immediate coast region, where there is no heavy frost. The second section we might term the Great Valley, and the third the Mountain section, at considerable altitude. Each is not wholly confined by these territorial divisions, as there are many exceptions even within a few miles of each other and one must be guided by his own experience or observations.

To this mildest section we will confine our operations; and for territory in section two, say, two weeks to thirty days later, and for the extremely cold sections thirty to forty days later than for the mildest section.

For the coast region nearly every variety of vegetable, excepting corn, melons and cucumbers, can be planted this month, and likewise hardy annuals, perennials and biennial flower seed; the more tender kinds can be protected for a few days in bad weather. We can now plant potatoes of early sorts. In some instances they may be nipped by frost, but are seldom damaged to any great extent. Plant liberally of peas, at earliest convenience so as to avoid the crop coming in very hot weather. These, in fact, can be planted now throughout the state. At this time the Yorkshire Hero is most popular in Southern California. It is yet a little early for beans, but some Canadian Wonders, Ventura Wonder Wax and Stringless Green Pods are being planted. These are all of the most hardy sorts. Beets are in order and can be planted now or at any time, in fact; Crosby's Early Egyptian for early short top, or Eclipse for a larger and taller sort.

Plant parsnips, onions, radishes, parsley, spinach, turnips, salsify, mustard, lettuce, endive, cress, chicory, etc. These are all hardy in most any section, where ground can be put into order. Also plant in beds for transplanting later the following: cabbage, cauliflower, onions, chives, collards, kale, brussels sprouts, asparagus, artichokes and leeks. The above are nearly all hardy and need no protection except in very cold regions. Make up your hot beds or protected frames and plant liberally of tomatoes, peppers and egg plants; the latter two should have some bottom heat to germinate well and a good hot bed is almost a necessity. A small planting of celery in the open is also in order for early supply, but it is too early for general crop.

Considerable planting is also being made of cucumbers and early summer squash in protected beds. The cucumbers are often planted directly in the ground and protected with cloth frames, but don't try this unless you are able to give them the required care, and also be sure of getting only the early forcing sorts, as the average seed will only bring disappointment. Early summer squash are often planted in pots or berry boxes, set in hot bed and when four to six inches high carefully transplanted to their permanent place during good weather, and covered cold nights. These early vegetables are the ones that bring the money.

Varieties of Vegetables.

There is a very remarkable difference in the varieties of vegetables used in different sections. In lettuce for example in the northern part of the state the market is satisfied (to some extent at least) with a loose heading variety, but the Los Angeles market demands a hard head suitable for shipping and with good keeping qualities and it must be of curled leaf type. In some other sections a smooth leaf variety takes preference.

The loose and smooth headed varieties are seldom used for shipping. The most popular on Los Angeles market this year is New York (special market gardeners strain), closely followed by Wonderful, which is also very popular; April and on until September the Iceberg will be the most popular summer variety. All these are hard headed, curled leaf varieties.

In cabbage, the Early Winningstadt is the most popular small early shipping sort, but the Cannon Ball, Danish Ball Head and Early Flat Dutch are the best market sorts, especially the first named, as it makes a fine showy head, of popular weight without the coarse ribs of the Dutch Cabbage, and is ten days to two weeks earlier than Winningstadt or any variety on the market. It is a new variety and not very generally catalogued by the seedsmen.

The most popular carrot is the Oxheart, an early fine sweet sort, closely followed by Danvers and Chanteney.

As many readers will be interested in early poultry greens, the China cabbage is highly recommended. It matures quickly and is gone before Swiss chard and kale are ready; it is also a good table vegetable, but it never forms a hard head like our cabbage.

In radishes, 25 to 30-day sorts, the Early Scarlet Globe and Early Scarlet Turnip are very popular, but it is not too late to plant the large Winter Japanese Mikado radish, which makes large fine roots which are very sweet without any tendency to pungency; also try some Japanese Summer radishes and California White Winter. These are all slow to bulb out and require considerable space for best development.

In Swiss chard the Improved Lyon has the largest leaf stalk, but any of the several varieties are good. For spinach the Winter Prickly seeded is best for the present time.

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LILLY'S CATALOG Lilly's SEEDS 1911

Home Grounds Beautiful

THIS MONTH.

By O. M. Morris.

The planting of all hardy annuals is now in order. Asters, poppies, larkspur, centaurea, gypsophila, nasturtiums, sweet peas, phlox and all like plants are seldom if ever hurt by cold spring, and should be planted as early as possible. Also the biennials, such as Canterbury Bells, Sweet Williams, etc., should be planted as well as all the list of hardy perennials. If planted early the most of the perennials bloom the first year and make strong plants for the succeeding year. Such as delphiniums, hunnemanias, salvias, verbenas, anemones, coreopsis, etc., bloom in about four months if planted now.

ORNAMENTALS.

From a paper read before the Tulare Grange by Thos. Jacob we take the following suggestions as to ornamentals suitable for the San Joaquin Valley.

In this county the subject would seem to be one of locality more than climate, for while the same general climatic conditions prevail in all the lower portion of the county, the nature of the soil, natural or applied moisture and comparative freedom from frost all go to make local conditions that have a bearing on this question. With proper care almost any tree or shrub of the temperate or semi-tropic zone will flourish here.

Among tall growing trees few, if any, surpass the native oak. It is a rapid grower and only needs a fair chance to prove its worth, but for best results it must have natural moisture. The method is to grow the oak from the seed. For wide avenues or for a single specimen, where the soil is deep and mellow, the elm has few if any equals. Its long slender branches, covered with deep green foliage, seem to be a standing invitation to enjoy its cool shade.

Of the eucalyptus family several varieties are highly ornamental.

Another very beautiful evergreen is the Grevillia Robusta or silk oak. As a sidewalk tree this is a great favorite.

As a single specimen for the lawn or small grounds, few, if any, equal the well known Magnolia Grandiflora. Its compact form, large glossy leaves, and immense pure white blossoms, always attract attention. The above are a very few of the taller or large growing trees of which there are many more deserving ones, but we cannot spend all of our time with this class and must pass on to our little favorites.

Here again the list is almost endless and I will only attempt to enumerate a few, among them acacias, camphor, crape myrtle, oleanders, syringa, lilacs, euonymus, date and fan palms and roses.

No class is more effective than palms. No lawn or farm looks complete without them. Classed as semi-tropic, they are perfectly hardy here and readily adapt themselves to almost all conditions of locality or soils.

The rose grown in bush form is one of the indispensables. From the native wild rose of wayside and meadow to the hybrid perpetual and tea, so common in our yards, all have their special points of excellence, so there is not much danger of making a mistake in selection. When color effect is desired, roses takes the lead.

Perhaps at this time it will not be out of place for me to refer to the action of the county board of forestry in calling attention to the trees and plants especially adapted to roadside planting, as this subject is receiving considerable attention all over the state. Among trees suggested for this county are the following:

Deciduous—California and American black walnuts, American elms, soft maple, several varieties of oak, Carolina poplar, Balm of Gilead, honey locust and others.

Evergreens—Olives, Grevillia, pepper, stercula, acacias, Monterey cypress, casuarina and eucalyptus. The above are recommended only for roads in districts where no power lines exist as they soon grow to interfere with the wire, necessitating the cutting away and disfiguring of the trees.

Among low growing trees and shrubs are the following: Loquat, oleanders, crape myrtle, date, California and Japan palm, camphor, largustrome (Japan privet) Laurustinas, altheas and so forth. With proper care all of these make beautiful specimens and are very effective on narrow roads and in front of small places or orchards where large growing varieties would not be desirable. Most of these varieties can be grown under power lines without any danger of coming in contact with the wire.

THE TREE THAT OWNS ITSELF.

Was ever anywhere but in the southland of our country such a sentiment for beauty and for gracious deeds as is shown in the story of the tree that owns itself? William Jackson loved a tree as some men love friends or fame or gold. And because he loved it so well he could not have it that axe or other ill should come near. And so he gave the tree its own splendid self to have and to hold, with a deed of all the land within eight feet of the tree to be its own, uninvaded by the greedy intrusion of man.

Now this was such an act of high sentiment as belongs to the days of romance and the knight of La Mancha. But it was done in our own land and less than 100 years ago. Moreover the citizens of Athens, Ga., where the tree stands, are worthy of this inheritance from their townsman of yore, since though the deed is not valid in law, they still hold it good in reality and will not have it violated.

A tablet stands near the tree bearing the following legend:

"For and in consideration of the great love I bear this tree and the great desire I have for its protection for all time, I convey entire possession of itself and all land within eight feet of the tree on all sides.

"WILLIAM H. JACKSON."

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Send us 50 CENTS, silver or stamps, and we will send you the following Seeds by mail, postpaid:

Beans, Sanborn's Wax; Beet, Eclipse; Cabbage, Surehead; Carrot, Oxheart; Cucumber, Long Green; Lettuce, Hanson; Onion, Early Red; Parsley, Extra Curled; Parsnip, Hollow Crown; Peas, Alameda Sweet; Radish, French Breakfast; Spinach, Best "Swiss Chard;" Squash, Best Scallop; Tomato, Beauty; Turnip, White Flat

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Roses, Roses—all the leading kinds. Acacias, Silk Oaks, Peppers, Dracaenas, Hedge Plants, Fruit Trees. Black Walnut Seedlings cheap.

Giant Himalaya, Loganberry, Superlative and Yellow Antwerp Raspberries.

The "San Francisco," a veritable giant among strawberries.

Prices right. Lists mailed free. Correspondence and inspection invited. Wholesale and retail. Write and see if we are not a LIVE WIRE.

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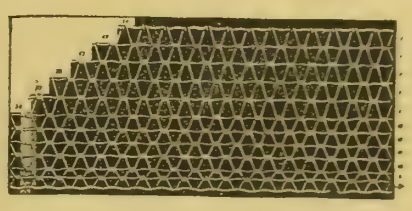

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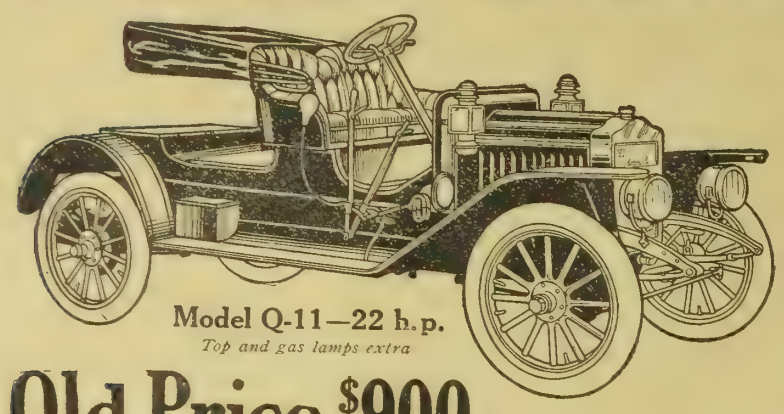

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Top and gas lamps extra

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Including Magneto, 3 Oil Lamps, Complete Set Tools, Tire Repair Kit, Horn and Tube.

Old Price $900

PREVIOUS to January 1st this identical high-powered Runabout sold for $900. It was the greatest seller Mr. Maxwell ever produced. People realized its wonderful value and bought every one we made. Its success has endured because it is built right. During the unseasonable month of November, 1910, $1,125,000 worth of these machines were sold. Everyone marveled. We did ourselves. Most of these machines went to farmers in the Central West, who realized that a machine properly equipped was just as serviceable in Winter as any other time. On January 1st the industry and buying public marveled again when the Maxwell prices were reduced. In the height of our success prices were lowered. Why? Because when the Maxwell joined the United States Motor Company, we promised to give to the public the economies effected by this affiliation. It was able to do so January 1st, and did, although 95% of its cars were then sold to dealers.

You can afford this Car

High-grade, first-class in every particular, it is not only low-priced, but most economical to maintain. This is the car that demonstrated in public test last October, that it can be operated cheaper than a horse and buggy. As a money maker and time saver it cannot be beat. Speedy, with more power than you ordinarily use, it is an ideal Roadster for two. When you need room for four people, you can adjust a surrey seat in a jiffy. For hauling, errands, etc., receptacles can be put on and taken off in a minute. Everything conveniently located, comfortable, first-class and absolutely reliable.

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Don't Fail to Investigate this Car

If you consider buying a car, this one deserves your closest attention. Don't part with your money before you know its wonderful value. At $900 it was the greatest seller ever produced. At $750 it is in a class by itself; it has no equal. After May 1st not one of these cars will be left. Better inform yourself now, and get in a reservation order.

These Books Free

We want to supply you with information on automobiles in general that will aid you in making your motor car investment. We have prepared booklets that tell the story from start to finish. Our "Farm Booklet," "How to Judge an Automobile" and latest catalogue are three books worth reading. They surely will save you money—cost nothing and involve no obligation. Send us a postal. Just say, *"Mail Books."*

Sale of Maxwells to Date

Sold to Feb. 1, 1911 -	41,273
Sold During Feb., 1911	1,392
Maxwells in use today	42,665

Watch the Figures Grow

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The best that 40 years experience can produce, being grown slowly, in the cool atmosphere of the coast, are more hardy and more vigorous than those grown in the hot interior of the State.
Correspondence Invited.
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LEMONS.

(Continued from Page 261.)

them up and let them work into the soil, making mulch and humus. Don't puddle the water around the trunk of the tree. Don't stir the ground when it is too wet.

Don't fail to pick your lemons once a month. Don't clip the stems too long. Don't clipper cut the lemons. Don't use sharp-pointed clippers. Don't drop the lemons into the sack; put them in carefully. Don't empty from sack to picking box without first turning picking box upside down to empty out any dirt, sand, grit or small sticks that might be in the box. Two or three sharp pieces of gravel the size of a wheat grain in the bottom of a picking box with the weight of lemons on it would puncture the skin of the lemon. The hole might be so small that it would go through the packing house and be packed up and started East to arrive decayed, and possibly four or five more good lemons around it, causing a discount on a good car of fruit.

Don't haul on wagons without springs. Don't think a gang of pickers after being started right and running smoothly for a day or two will go on that way without a foreman to keep the work up.

Don't fail to provide against frost no matter how "safe" you are, as one of our biggest growers says, which is a good rule: Put one oil or smudge pot to every four trees in a grove considered to be in a frosty district, but in one of the orchards in a "safe," absolutely free from frost district put one oil or smudge pot to every tree.

Don't fail to keep your lemon trees free of all insect pests.

Don't forget the lemon business requires eternal vigilance from start to finish.

"STOP THIEF."

"Who steals my purse steals trash, but he who robs me of my chance to get pure food is a murderer."

"Knock! Knock! Knock!"

We take these remarks from circulars issued by the New England Mineral Fertilizer and Chemical Co. We understand that these shots are fired at The R. N.-Y. Your humble servant is the supposed thief, murderer and knocker, and he is disposed to carry his honors easily. This concern is offering stuff as fertilizer which it claims contains in each ton 30 pounds of potash and five pounds of phosphoric acid. At regular market prices this means a value of about $1.75. The price charged for this stuff is $15 to $20 per ton. In our opinion any man who would be silly enough to pay such a price for this stuff does not deserve sympathy, but should be put in charge of a guardian. We stick to the old-fashioned truth that the only safe way to buy plant food is to figure on the value of the potash, phosphoric acid and nitrogen which it contains. Such powers of stealing, murdering and knocking as we possess will be exercised upon the guff, pious profanity and inane science which is used in floating so-called "fertilizers."—Rural New Yorker.

Some Californians also have an ambition to sell similar stuff for a long price. Like nursery trees, fertilizers should be bought of reputable firms.

The American National Live Stock Association, recently meeting in Denver, protested against the Canadian reciprocity treaty.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

THE PIGGERY.

By Mrs. M. E. Sherman.

On the last run of the demonstration train we had an additional car with hog pens in it; four pens were built, expecting to have at least four breeds of pure bred animals represented. Two good Poland-Chinas grunted in one pen while two supercilious-nosed Berkshires were in the other. The other two were empty; neither Mulefooted or Duroc-Jersey could be found to fill them. At nearly the end of the run a young breeder at Clovis has offered to let us have a Duroc-Jersey bred in Illinois for the next run. The mule-footed or Chester Whites seem not to be obtainable at all. The advantage to the breeder should be considerable in the way of advertising to have their animals shown all over the country to farmers.

Car Windows.

The train in passing ran along by fields in which hogs were rustling for a living. On dry stubble fields they did not look particularly well or happy. When the grain of the season before has been short the combined harvester misses a reasonable amount that the hogs glean. When the grain has been tall, the gleanings are small, and I think most of the grain was tall last year. At least the hogs looked as though grunting was an effort too great to be considered. The hog is not by nature a ranging animal and does not thrive well for a long period when he has to rustle. He needs soft ground with succulent roots and nuts and grain to do well. These must be near enough together so he will not have to travel far between meals or at any time be a great distance from water.

Alfalfa.

Alfalfa alone comes nearer to being a perfect hog feed than any one food, yet it may be abused if the hogs receive it only. The old idea of hogs as an adjunct to the corn cob is passing and the alfalfa field is considered as the cheaper way to make a success of raising them. Anywhere the dairy cow can be fed on home-grown feeds is also the home of the hog. The hog thrives on a large variety of foods and his stomach and digestive juices are more nearly like those of the human family than the other animals. Like the human family his appetite cloys easily when fed continually on one kind of food. Therefore to gain rapid growth feed him a variety of food and never overfeed one day and give him too little the next. Green food should always be supplied, or if not obtainable, a good supply of pumpkins or pie melons may take the place as a part of the food. Skimmilk or buttermilk is always acceptable to his majesty the hog.

Barley.

Barley as a pig food was long overlooked in the West. It, as well as Egyptian corn, was fed whole instead of ground or rolled and the results did not compare with feeding corn. The hog soon tires of barley unless it is soaked in milk or water and mixed with something else. Cut beets are good, also pumpkins and a little middlings or ground wheat may be used. It might be said to feed whole Egyptian corn dry is to waste about half its value as a food, for the pigs cannot digest it all and it disagrees with them after a time. Barley produces the best bacon that is made. The Denmark hog is used to make the breakfast bacon that the English use as a daily breakfast food. So the hog of Denmark supplies the English king with his breakfast bacon, and that hog is a barley and skimmilk fed animal. That is surely going some for barley. One-third of the food used to finish the hog can be rolled barley to advantage.

Molasses.

Last year the advertisements for molasses for stock ran in all the papers and it has proven of value in feeding horses and cows in a limited way. The molasses available came from the sugar beets and as beet pulp was offered at the same time the two feeds are usually considered together in taking up a ration. The Utah station sent me a bulletin in reply to an inquiry on this point from which I take the following facts. Two and eighty-one hundredths pounds of beet molasses gave thirty-six hundred pounds of growth when combined with shorts and beet pulp, saving four and three-tenths of a pound of beet pulp and nine-tenths of a pound of shorts. Summed up this means that with pork at four cents a pound, molasses has a value of eighty-four cents per hundred pounds. These estimates are based on a price for beet pulp of a dollar a ton and for shorts of sixteen dollars a ton. With pork at eight cents a pound these prices could be doubled. I take these figures directly from the bulletin and I often think these experiments are interesting as an observation of the scientific mind at work in securing results that are hard and fast if it were not that in all animal life we are dealing with individuals and as these are not always the same the conclusions could not be disputed. The general results, however, may be accepted that there is economy in using molasses if the market price is right.

Beet Pulp.

Four and four-tenths pounds of shorts are required for each pound of pig growth when fed alone; when ten and one hundredths pounds of beet pulp are added to two and three-quarter pounds of shorts, the same pound of pork is produced. At four cents for pork, this gives the sugar beet a value of four dollars a ton. Sugar beet pulp is said to make a fair quality of pork when fed with shorts. The molasses fed pork is not liked, as it gives poor, greasy flavor and soft body to the pork. The addition of skimmilk to the diet of sugar beets and middlings, when the skimmilk was valued at fifteen cents, gave a feeding value to the pulp of 2.57 cents. The whole sugar beet has a value of $3.52 a ton in making a four-cent pork, while by the removal of the beet pulp the value is reduced to $2.57.

Pigs.

As the next run of the demonstration train comes into Los Angeles and the surrounding towns I hope that enough people will come on board and see those pigs and hear all about

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

Have You a "Cow?"
Have You a "Creamery?"
Have You a "Cheese Factory?"
"WRITE US"

Cream Separators
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the form and appearance of perfect specimens. The pig is the humblest of all our farm animals and usually receives only the leavings. He is a poor relation of all the other animals and has to take a back seat in the family gatherings. Yes! that was yesterday; today he is one of the best paying propositions on the farm and therefore when the money comes in for him this year just be honest enough to turn some of it back into making him comfortable quarters. This is the first grunt; the next one will take up Mr. Pig as he should be at home in the green fields he loves so well.—M. E. Sherman.

HOG CHOLERA.

All cases of hog cholera do not show the typical symptoms. Generally two, or possibly three, hogs appear dumpish; the eyes watery; later the lids may become adherent. There may be a slight discharge from the nostrils. In the course of a week or ten days these hogs go off their feed and are attacked by diarrhoea. The discharges from the bowels vary in color from black to grayish, are watery and a very offensive odor. They now appear tucked up in the flanks and possibly thumping may be noted. They rapidly become thin in flesh and finally too weak to move about, crawl under some straw and die. In a few days others become sick; those that were first attacked now begin to die, and in the course of three or four weeks, most of the herd may have succumbed to the malady unless remedial agents are administered and the ravages of the disease are checked. Pneumonia may accompany the disease, and when it is present, there may be noted accelerated respiration and a short hacking cough.

Autopsy.

There may be noted red or purple patches, particularly along the belly or flanks; this is particularly noticed in white skinned hogs. The ears may become inflamed and appear red and swollen. When the hog is opened, small hemorrhages may be observed on the serous membranes or linings of the thorax and abdominal cavity. Very small hemorrhages may be noted in the kidneys. The lymph glands (kernels) may show hemorrhage in them. When the bones are cut open, the softer, spongy parts may appear reddish black, due to hemorrhages. If the stomach and intestines be opened, areas in the stomach will be noted bright red. This is an area of inflammation, but may not always be present. The inflammation may affect only a part of the stomach. This inflammation may extend into the intestines. If the colon or large intestines be opened, there may be found ulcers varying in diameter up to one-half inch. These usually appear button like and are hence sometimes called button ulcers.

Treatment.

Intestinal antiseptics such as sulphocarbolate compounds have been given in the feed, or water or slop. This no doubt aids in warding off the cholera, but our experience shows that this kind of treatment has no curative properties.

The serum treatment is the only scientific cure for hog cholera. Many state experiment stations are preparing this serum. Some of the biological houses have also taken up the preparation of the serum, but the demand has been so heavy this year that many herds have suffered the usual loss when attacked by this disease. The serum could not be obtained.

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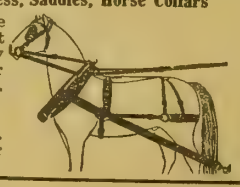

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ment of these plants and others established at experiment stations, as the serum road is the only one to the conservation of the pork industry.—B. F. Kaupp, Colorado Agricultural College.

DAIRYING AND THE SILO.

Those who have been dairying long will recognize the wisdom of the following suggestions by a practical dairyman: In the eastern states where dairying is more prevalent than it is in the central west, one very seldom finds a farm on which there is not a silo. This is due to the fact that the experience of practical dairy farmers as well as experiments carried on by the experiment stations prove conclusively that milk and butter-fat can be produced more profitably where a portion of the ration consists of properly made corn silage than on any other ration that can be produced.

The increasing value of farm lands in the corn belt indicates that dairy farming will be much more prevalent in the future than it has in the past. As this condition gradually comes about, silos and alfalfa will spring up on every farm. Given good cows, good alfalfa fields—small but well cared for—and milk and butter fat can be produced more largely and with greater profit than by any other method.

No combination of factors is more conducive to prosperity, wealth, fertile farms and good homes than are well bred dairy cattle, capacious silos and productive alfalfa fields.—N. W. Pacific Farmer.

BRISTLES.

Regularity in feeding fattening hogs is very important.

Hogs know to the minute when feeding time comes, and if not fed will fret off part of their previous gain.

One thing that can not be overlooked in the growing of pigs and the fattening of hogs is pure clean water for them to drink.

One successful feeder always gives his hogs all the clean water they will drink before he gives them their grain ration.

Constipation is very rare in a herd of fattening hogs that have all the clean water they will drink.

Pure air, pure water, clean food, and a clean place to sleep make hogs profitable.

Smaller pigs are kept stunted if left with the larger, stronger ones by being crowded from the feeding troughs.

It pays to grade pigs carefully. Put the smaller ones by themselves and give extra care.

If hogs become lousy they never do well. They should be dipped in a tank or thoroughly scrubbed with a disinfectant.

Cleanliness with hogs will prevent disease.

Systematic disinfection of the hog quarters should not be neglected even if there is no disease.

"An ounce of prevention" applies with great force in the hog quarters.

All imperfect fruit and vegetables should be fed to the hogs.

No animal on the farm will respond to kind treatment quicker than the hog. And kind treatment means a good deal in the accumulation of marketable meat.

Hogs often get crooked legs for lack of exercise.

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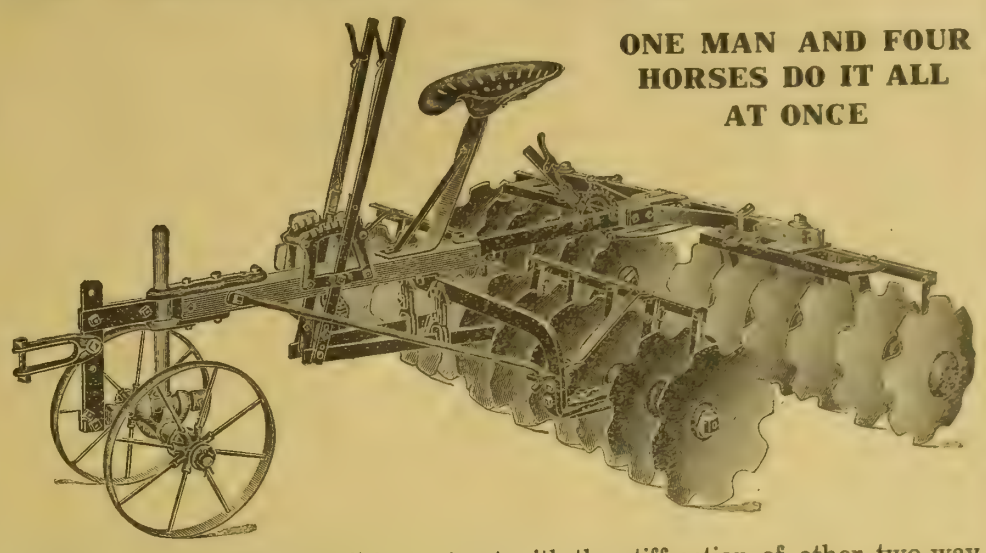

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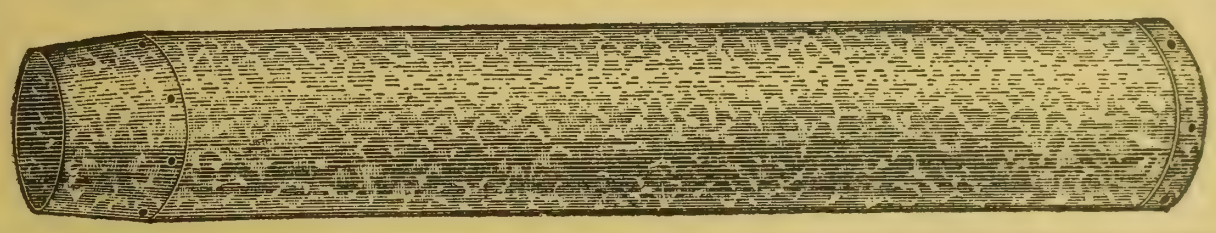

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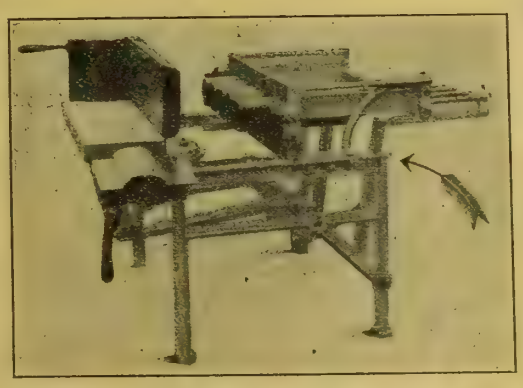

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This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

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COVER CROPS.

This is perhaps the time of the year when the planting of cover crops has least interest. It is, however, a good time to observe the orchards in which it has been tried. Those which were not supplied with an abundance of irrigating water will probably make a poor showing because of the long drouth which extended well towards the end of January. It cannot be denied that some growers are discouraged and have decided to supply soil fertility in some other way, but the question of humus is everlastingly before us. All the fertilizer that can be applied avails little if the mechanical condition of the soil does not further bacterial activity. The only means, other than green manure crops, of supplying humus to correct this condition, is stable manure, and it goes without saying that the supply in this state is inadequate.

Unfavorable as the season has been, there are some magnificent crops this year; one instance is in the Limoneira orchards at Santa Paula, Ventura county. Regarding conditions there Mr. Charles Collins Teague, superintendent, writes:

"I am a thorough believer in cover crops and believe that there is no way that we can supply humus so cheaply to the soil, and that we also get much added value in plant food.

"Our cover crop this year is looking the best that I have ever seen it, that is, in all of our lemon orchards where we had an opportunity to put the crop in early. In our walnut groves where we could not sow until late on account of the harvesting of the crop, our results are poor and the crop will not be good.

"If one has an abundant water supply, I see no reason why he cannot grow a good cover crop, regardless of rainfall conditions. I am becoming more and more convinced that it is extremely important, however, to sow the crop early so that it may get a good start before the cold winter nights begin. Wherever we have pursued this practice, we have invariably had good results.

"We have used, quite generally, vetch in our old lemon groves this year and fenugreek in the younger groves where the ground is not shaded. We have been forced to the conclusion that the vetch is best in old shaded groves and that one will get a better crop under those conditions."

CHUCAWALLA.

As well settled as California is no month passes but that filings are made on several thousand acres of government land in this state. The one land office in the city of Los Angeles receives filings aggregating 100,000 acres yearly. Sometimes, as was the case about a year ago when the merits of a little valley north of the Colorado desert in Riverside county, known as the Chucawalla Valley, became known, there was a genuine land rush. At present the greater part of the filings are being made in the Mojave desert near the line of the Santa Fe in northern San Bernardino county. Development in all these sections will come as capital unites with the settlers in irrigation projects.

The Chucawalla Irrigation Company is renewing its work since the signing of the bill granting it permission to construct a dam across the Colorado near Parker from which to develop power to lift water for the irrigation not only of Chucawalla Valley but a great portion of the Palo Verde. Mr. R. M. Teague, in charge of the Chucawalla development, has a corps of engineers investigating possibilities of dam construction, and already two sites have been examined and abandoned because of unsatisfactory soundings. This scheme contemplates placing water on nearly a quarter of a million acres, thereby adding much to the prosperity of that section of California.

BEEKEEPERS CONVENTION.

The California Beekeepers Convention in session in Los Angeles this week is attracting greater attention than for years. The principal discussions have to do with practical matters of the apiary, but legislation and co-operation are also big features. The work of the legislation committee has been accomplished largely outside of the general sessions and the bill desired has been passed by the state legislature. It is hoped that the question of co-operation, which will be dealt with at considerable length, will lead to more profitable marketing of the products of the apiaries. The Cultivator will quote at some length from addresses delivered in its next issue, and a large number of papers which are now in the hands of Secretary Shaffner will be used in the bee department of future Cultivators.

"EVERY DOUBTFUL ORANGE A CULL."

The last Florida Grower contains ample illustrations of a new packing house just opened at Winter Park. It certainly shows that Florida is adopting modern methods. Automatic carriers, chutes for empties, and other features which have been common for the last two or three years in California, have been adopted. In the grading room a large sign carries this legend: "Every doubtful orange is a Cull." With this before them the graders will not discuss in their minds very long as to disposition of doubtfuls.

ABOUT OURSELVES.

We may be pardoned reference to the special number of last week and the overflow of business. We hope our citrus growing sections found it of value and all others in the state of interest. We were disappointed, and so expressed ourselves on the cover page in that the business office had become insistent for space for its advertisers and crowded over until this issue some of the good things we had procured. Even yet, Mr. Mills' article on citrus growing in the North is held over.

Speaking of advertising, it is in order to refer to the fact that over 95 inches, or over seven columns, of advertising space was also crowded out of last week's issue. As it was, there were 83½ columns, or a total of 1127 inches of advertising. This may be of little interest to the general readers of The Cultivator, but it is assumed they have a certain interest in knowing the paper which commands the greatest attention from those who wish to reach the producers of California. The larger business houses are learning that the cheapest way to reach California producers is through the columns of The Cultivator. We ask comparison of its columns with those of any other agricultural paper on the Pacific Coast, for we know it will be to its credit.

The dedication of the Roosevelt dam in the Salt River Valley, Arizona, is to be on March 18th instead of March 10th as announced in a former issue.

CITRUS FRUIT GROWERS MEETING.

Messrs. Pease, Yokam and Koethen of the State Citrus Convention committee have arranged the program for the three day sessions at San Bernardino, beginning next Tuesday. The program is excellent and should attract a big attendance. The various features are:

Tuesday, March 7, 10 a. m.

Opening exercises, appointment of committees, etc.

Soils—Dr. C. B. Lipman.

Subsoils—E. L. Koethen.

1:30 p. m.

Maintaining Soil Fertility—F. L. Palmer, Pomona.

Fertilizers and Plant Feeding—J. H. Norton, Riverside.

Plant Food—E. Babcock, Riverside.

Discussion—Carroll E. Smith, Redlands.

Evening, 7:30.

Control of Citrus Fruit—Conducted by Prof. A. J. Cook, Claremont.

Withertip—E. O. Essig, Santa Paula.

Organized Protective Districts—E. J. Yokam, Highland; C. N. Johnson, Rialto.

Discussion—J. F. Smith, Pomona.

Wednesday, 9:30 a. m.

Citrus Fruits—A. D. Shammel, Riverside.

Discussion—Fred Reed, Riverside.

Sub-Tropical Fruits—Prof. C. F. Baker, Claremont.

Cover Crops—Dr. C. B. Lipman, University of California.

1:30 p. m.

Standardization—J. W. Jeffrey, State Comissioner of Horticulture.

Organized Fruit Packing—B. A. Woodford, Los Angeles.

Discussion—Isaac Jones, Etiwanda.

Evening, 7:30.

Research in Fruit Decay—G. Harold Powell, Los Angeles.

Blemishes of Oranges, Physical and Pathological—Dr. J. Eliot Coit, Whittier.

Thursday, 9:30 a. m.

Regenerating a Citrus Orchard—Prof. Ralph E. Smith, Whittier.

Water Conservation—Francis Cuttle, Riverside.

Horticultural Quarantine in the South—Frederick Maskew, Long Beach.

1:30 p. m.

Function of the Citrus Protective League—G. Harold Powell, Los Angeles.

Discussion—A. G. Kendall, San Bernardino; J. S. Edwards, Redlands.

Necessities of the Fruit Tariff—A. F. Call, Corona.

Discussion—W. G. Fraser, Riverside.

BERKSHIRE CUP.

The secretary of the American Berkshire Association, Mr. Frank S. Springer of Springfield, Ill., writes that for the purpose of encouraging breeders generally to exhibit their herds at the state fairs of 1911, the association offers a solid silver cup to the owner of the best herd of Berkshires, consisting of a boar and three sows under one year, at each state fair that provides a separate classification for Berkshires. Animals farrowed after September 1, 1910, will be considered eligible to compete for the prize.

Many of the Eastern states are concerned over the fact that this is the year for the appearance of the periodical cicada, or, in more homely language, the seventeen-year locust. The department of agriculture has issued Circular 132 as to the probable work of this pest during the coming year. It contains descriptions of the insect, together with charts showing distribution.

Agricultural News Notes of the Pacific Coast

Northern California

The Cloverdale Citrus Fair is in full swing this week.

The first butter scoring contest at the University farm at Davis occurred last week.

The planting of almonds at Durham, Butte county, will be very extensive this season.

The work on the new cannery at Newark, Alameda county, is proceeding, and completion is scheduled for April 1.

San Francisco dealers report great quantities of oleomargarine have been sold in this state within the last six months.

Truckee's Snow Carnival brought people from all of the northern valleys to enjoy sleighriding and snowballing.

Humboldt was treated to a thunder storm last week, during which one cow was killed and a barn destroyed by lightning.

The concrete work on the headgates of the Sacramento Irrigation Company's main canal above Hamilton City has been finished.

The lease of a 1000-acre hop ranch at Nord, Butte county, has been made by the American Hop and Barley Co. of Henry Fraser of Nord.

A rabbit drive was pulled off at Hartley Corners, Sutter county, which resulted in bagging 295, which were turned into the San Francisco market.

The Santa Rosa Republican says "The banner county of the great state of California" receives more than $12,000 per day from her shipping yards.

Sacramento county land owners are concerned because of the filling of creeks from hydraulic mining, and are urging the Anti-Debris Association to take action.

Property owners of the Yolo drainage district ask that the boundaries of the big district be extended and an appropriation made to commence reclamation of vast areas in Colusa, Sutter and Yolo counties.

The last pay day of the Humboldt county creameries showed the following prices: Capital, 35 cents; Central, 34½ cents; Grizzly Bluff, 35½ cents; Swift & Co., 35½ cents; Libby, McNeil & Libby, 35¼ cents; Sunset, 35 cents.

President J. J. Alves, of the Sonoma Berry Growers' Association, has completed arrangements with the California Fruit Growers' Association for the handling of the crop of the members of the association during the coming season.

The Progressive Grange at Healdsburg elected officers as follows: Master, A. E. Burnham; overseer, W. B. Whitney; lecturer, A. R. Galloway; steward, J. T. Donald; assistant steward, J. O. Hicks; chaplain. Martha Watson; treasurer, G. H. Brigham; secretary, Phoebe Enzenauer.

The Sutter Almond Growers Association recently met in Yuba City and elected the following directors: E. S. Norton, president; J. W. Ainsley, vice president; Richard Walton, H. A. Carpenter, and J. F. Ogden. The representative or delegate to represent this association in the State Almond Growers' Exchange, B. F. Walton, was reelected.

Central California

Large plantings of olives will be made near Lindsay, Tulare county.

The effort to have a revision of the water laws of this state is again being made.

The San Joaquin reached its highest point in many years after the recent rains.

The supervisors of Monterey county are making a hot fight against ground squirrels.

The recent storm brought the Merced river to its highest point recorded since 1863.

Elimination of a large tract of land from the Kern National Forest will throw it open to entry.

Watsonville apple shippers had a large and attractive exhibit at the Sacramento Citrus Fair.

Several large tracts have been purchased in Fresno which will be subdivided into small ranches.

Commissioner Schulz of Tulare county reports orange stock coming to that section much cleaner this year.

A meeting was recently held at Watsonville to boost the poultry business and encourage greater egg production.

The management of the Tulare Creamery is elated over the fact of winning first honors in the last butter scoring contest.

Raisin vending machines, invented and patented by a Fowler raisin grower, have been installed in many Eastern sections.

A mass meeting of raisin growers was recently held at Selma, Fresno county, to discuss the big protective holding association.

Supervisors of Tulare county have declared war upon the squirrel pest and have passed an ordinance making destruction compulsory.

Santa Cruz county has one section where Jack Frost gives some snappy days. One morning showed a temperature of 14. The place is Boulder Creek.

The J. K. Armsby Company, which had agreed to purchase the Kearney Estate raisins of the regents of the state University, has been released from its contract.

The Danish Co-operative Creamery Association at Fresno has remodeled or practically rebuilt its creamery. The output is over a million pounds of butter annually.

The local of the Farmers Union of Selma recently passed a resolution against the Raisin Day observation on the grounds that it is not intended to benefit the farmers.

The Farmers Educational Co-operative Union at Evergreen, Santa Clara county, now has a membership of over 100. The regular monthly meeting was held last Saturday.

The committee in charge of Raisin Day is offering prizes for the best suggestions for schemes to make the day more popular. The only restriction is that it shall not cost to exceed $2,500 to carry out.

The creamery industry of Tulare pays the farmers of that section $100,000 per month, or $1,200,000 per year. A considerable part of the butter made in Tulare creameries is shipped to Southern California.

Southern California

Thinning of sugar beets has already been begun at Huntington Beach.

Paso Robles section is proving an excellent almond producer.

The Oxnard sugar people recommend the planting of 20 pounds of beet seed to the acre.

The fight of the Antelope Valley settlers against the former fence law is waxing more fierce.

A Redlands packer insists that this seasons' decay of oranges is due largely to too hard a pack.

A conference of tree wardens of Southern California was held in Riverside Tuesday, February 28th.

Fifteen carloads of Limas were shipped from Ventura last week, going by water all the way to New York.

Friends of the new U. S. senator, John D. Works, assert that he will stand for protection on all California fruits.

The reclamation service has insisted on the removal of the piling across the Colorado at the Imperial Valley intake.

A Los Angeles concern has purchased a tract of land near Coachella. Wells will be sunk, lands cleared and subdivided.

A new irrigation company has been formed at Covina for the purpose of placing water upon a tract of land on South Citrus Avenue.

Twenty-four thousand trees of the El Cajon Valley, San Diego county, have been thoroughly fumigated during the last season.

Farmers of the Coachella Valley are discussing the possibility of securing waters of the Colorado by organizing under the Wright-Bridgford Act.

The management of the National Orange Show to be held at San Bernordino March 6-11 reports all space taken and promise of a big show.

Borings of the engineers for the Chucawalla dam have found it necessary to move farther up the Colorado in order to secure better foundations.

The new officers of the Kerman Creamery are: N. E. Carnine, president; Emil Jung, vice-president; H. Kressman; H. Wiese is superintendent.

The Bardsdale Heights Citrus Company has recently been formed with the following directors: George N. King, president; I. P. Browne, C. L. Sheldon, B. C. Hedrick and A. L. Shively, all of Santa Paula.

A. R. Rideout, of Whittier, Los Angeles county, has just shipped a carload of grafted walnut trees to the Los Angeles Suburban Home Company of San Fernando; 6,000 trees, mostly Chase walnuts, for $6,000.

The advantage of California as a cotton producer is proved by the fact that picking is only barely finished in the Imperial Valley. Total results are 5,500 bales, of a value of $385,000. Seed produced aggregates 2,750 tons.

The Pacific Land and Products Exposition to be held in Los Angeles March 18 to April 2 is the first of its kind to be held on the Pacific Coast. Over $50,000 has been subscribed for preliminary expense, and the claim is made that 200,000 Easterners will visit it.

The Coast

Timothy hay at Spokane is selling at $23 per ton.

The Oregon agricultural college has just issued its biennial report of 72 pages.

Farmers of Idaho are planning for a state fair to be held this year at Boise.

A farmer at Dallas, Oregon, boring for artesian water, struck a flow of oil.

Apple growers of North Yakima, Washington, have decided on standardizing.

Great numbers of laborers are on their way to the salmon canneries of Alaska.

Elk are dying in great numbers because of the deep snows near Bozeman, Montana.

The Arizona Cattle Growers Association held its annual meeting in Tucson February 13.

The State University of Oregon, lolated at Eugene, is gratified at a greatly increased attendance this year over last.

The state bureau of statistics of Washington is securing information as to advantages of grain on logged-off land.

The legislature of Washington reduces its levy for state road purposes, last year nearly a million, to about $500,000.

Plowing began earlier than usual near Walla Walla, Washington, some fields being turned as early as the middle of February.

The Hood River apple growers sent delegates to the Western Fruit Jobbers Convention at Sacramento in order to acquaint the fruit handlers with their fruit.

The Mindanao Horse Show and Live Stock Exhibit held early in February made a showing of a type of animal far in advance of those generally in use over the island.

The Judith Basin in Montana reports winter wheat in remarkably good condition, with flax ranking as second in importance in the state's agricultural products.

The Tri-state Convention of the Co-operative Union, meeting recently in Walla Walla, Washington, demanded parcels post and prohibition of gambling in futures of grain.

The Hawaiian Islands are investigating the feasibility of drying bananas. Banana chips find ready sale in Germany. The production so far is almost wholly in Jamaica.

Banana culture is being extended more every year in the Hawaiian Islands, and interest is now being manifested in the production of cloth from the fiber of the plant.

The Hood River Apple Growers Association has employed apple expert Lawrence, from the agricultural college, to visit various apple sections and give information as to best cultural methods.

Northern Idaho farmers recently met at the state university and discussed swine culture. Berks, Poland-Chinas and Durocs were the favorites, with Chester Whites showing many friends, though admitted subject to sunburn.

1911 SEED CATALOG

If your name is not on our list, please send us your address for a copy. It is a good one, well worth having; sent free and postpaid. We have secured the California agency of the

Prairie State Incubators

The best—bar none. First carload selling fast. Come in and see them—or send for Prairie State Catalog. We also have a carload of the

Baby Buckeyes
50-Egg Incubator for $7.00

Purchaser can operate it for forty days, and if it does not meet with his entire approval, it may be returned to us and the price paid will be promptly refunded. They go like hot cakes. If you cannot come in, send for a Buckeye Catalog. When the chicks are hatched, don't forget the old reliable

West Coast Chick Feed

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THE PHILO SYSTEM

Philo System Book and Poultry Review (one year) $1.00

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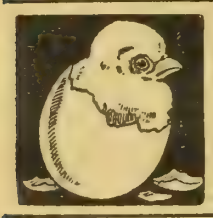
117 Miles Ave., Oakland, Cal., Nov. 12, 1910
Cycle Hatcher Co., Oakland, Cal.

Gentlemen: A year ago we started with the Philo System, and raised as fine a lot of White Orpington pullets as anyone would wish to see. The two machines we purchased of you last season have given excellent satisfaction. We shall probably need more this year, and shall use the Cycle machines in preference to a larger incubator. Yours truly, S. N. Haines

Send for "Poultry Profits." Mailed on request.

CYCLE HATCHER CO., OAKLAND, CAL.

Warehouse at Los Angeles, Cal. Address all correspondence to Oakland.



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A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Descriptive booklet of our stock and farm and recipe for mixing best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels.

On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

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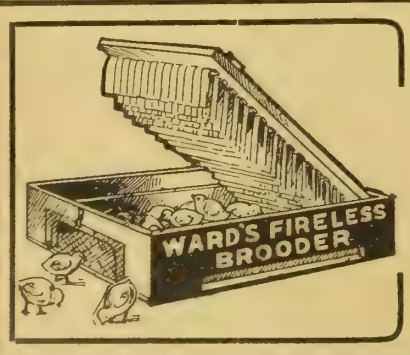

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The Arenberg Brooder Stove

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Practical Poultry Culture

RAISING CHICKENS FOR PROFIT.

By R. T. Lyans.

Nearly every one can raise chickens providing they have good sound minds and use good common sense, but how few know how to raise chickens for profit. Many people raise chickens for recreation and the pleasure to be derived from it, while others have chicken raising as their hobby. These people are among the wealthier class and consequently do not care for expense. Because of this fact they spend lots of money carelessly for valuable birds and fail to manage them properly to derive a profit. This is because of their one purpose in view, —pleasure. On the other hand the greatest number of chicken raisers in the country are in the business for the profit in it, solely, and because they do not take pleasure in their work they think the greatest profit to be derived in raising chickens comes to him or her who invests the smallest amount of capital and gives the least amount of labor to the business; who never buys a pure-bred male to improve the flock and who never thinks of the ration to feed a growing chick. The outcome of it all is that profit never comes to bless the owner. But the man who combines pleasure and profit is the man who will always succeed in the chicken business, which, by the way, is not a "get rich quick" business. To the man or woman who thinks differently the best proof is for that person to just try it once and see. A few years experience will soon bring out just how little one does know. Raising chickens is a vocation in itself and the one who raises chickens just for pastime can never realize much profit for them. Attention to business is one of the fundamental rules of success in any business, and it must apply here as well as anywhere else. Every little detail must be worked out individually, if not by experience directly, then indirectly it must be fathomed.

When we can learn by the experience of others and profit thereby it is not nearly so costly, and every idea gained can be put into operation with so much greater surety of its being a success. Then it naturally follows that one should read the best poultry literature obtainable. By this it is not to be inferred that one should raise chickens by a formula or any book method, because directions that might possibly be good for one breed of chickens, or chickens of one age, would not be good for others; or possibly two chickens of the same age and breed would need different care and feed because of their different individualities. Book learning is good but experience is much better because good books come from experience. Thus it is well to read of the experiences of others in books, papers and journals, and thereby get pointers and ideas from them which are practical and weighty, but care should be taken in putting into operation whole systems or methods of poultry raising described in literature because of the lack of experience in that particular system. The up-to-date poultry raiser is a subscriber to at least one or two good farm and poultry papers, and the result is that nearly every week he finds a few pointers that help to guide him over the ruts that lie along the pathway of the chicken raiser. For anyone just embarking in the business for the first time it is never advisable to invest too much capital at the beginning because of the fact that one does not know all the details which must be worked out later. It is a business that must be worked up gradually as any other business and the operator must grow up with the business. Success never comes in leaps and bounds but by persistence and patience, and so it is always well to go easy at first. Whether one is to make the poultry business a profitable one depends on the kind of care and the methods of management. If good care and management have been given and the business has proven a profitable one then it is wise to add more capital to the business.

Location.

One of the first things that the beginning poultry raiser has to look for is a location for the poultry plant. An ideal place for this is in an orchard with an eastern or southern slope to obtain plenty of sunshine; thus combining the fruit and poultry farms which has proven to be a happy combination, as the products of one builds up the other, and vice versa, and there is practically a double crop from the same farm, and the fertility that is added to the land by the chickens is no small figure, being easily worth at least one-fourth the feed bill, and consequently an allowance must be made for it when figuring out the profit or loss on the books. The best soil for chickens is a sandy loam which is always dry and provides a good place for them to scratch.

Egg Production.

Large hens do not as a rule produce as many eggs as smaller hens, but they produce larger eggs and just as many pounds perhaps in a given time. It would seem, however, when eggs sell by the dozen the small hen would be the best. This would be especially true if one were speaking of two hens of the same breed, but when comparing two different breeds it does not hold true, as just as good layers have been raised from some of the larger breeds as have been produced from the smaller ones. Any of the standard breeds are good if handled right. The hens should be kept in small flocks to get the best results. This rule will hold good in breeding any kind of livestock or poultry. Not over ten or twelve hens should be kept in the same pen. It is not necessary to keep a male bird in the pen if the eggs are not to be incubated. One of the best secrets of a large egg production is to get the hen that matures the earliest, thereby giving her a longer season to produce, and one that lays her eggs during the period when eggs command the highest price. This latter can be accomplished by selection of hens that lay well during the winter, and the winter layers are nearly always early matured fowls. But the matter of feed is perhaps the most important of all. While it is important and essential that the hen has a comfortable roosting place, a clean pen, fresh water, plenty of grit and oyster shell, and a good place to scratch, that is not all by any means, for she must have a large variety of feeds besides, such as wheat, oats, corn, and plenty of bulky food such as clover, alfalfa, and other grasses, and she should have whole wheat bran

60,000 "Queens" in the Contest

all along the line last year, and the Queen never fell behind. Friends, you will be interested in knowing about the uniform big hatches produced by the

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It is the dependable hatcher under *all* conditions, in *everybody's* hands.

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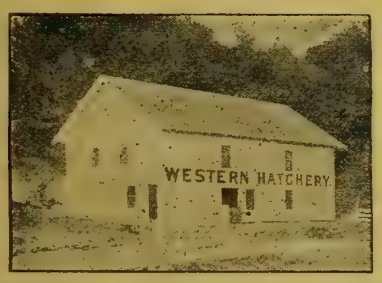
BABY CHICKS



Hatched from heavy laying stock of S. C. White Leghorn hens that have made Petaluma famous. Also baby chicks from selected S. C. Black Minorcas, Barred Plymouth Rocks and Rhode Island Reds. Send for price list.

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The World's Greatest Egg Producers—First, California State Fair, 1909. First, display pen; first, breeding pen; first, drake; first, duck and second, duck, at the Los Angeles Show, 1910. Eggs for hatching. White and Barred Rocks and White Minorcas. Eggs for sale in season. C. O. Winters, 5807 Washington Ave., Los Angeles, Cal. Phone, Sunset East 1197.

Hunter's Improved 1911 Brooder House Stove is the Petaluma sensation—economical, clean and perfectly safe. Write for free folder.

HUNTER BROODER STOVE CO., Petaluma, Cal.

F. E. Baldwin's White Leghorns

Winners from Seattle down 33 out of possible 35 prizes in 3 shows this season. Bred as layers first. Stock, any age. For sale at reasonable prices-Eggs $8 and $12, per 100. Settings $2 up. Send for New free folder and prices.

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S. C. Buff Orpingtons

Eggs for hatching, Utility stock (no culls), $1.50 per 15; special matings $5.00, $10.00, $15.00, $20.00 and $25.00 per 15; Bridgewater's famous strain—won for us first and second pens at late Los Angeles Show—$2.00 per egg. No baby chicks for sale. No visitors on Sunday.

J. J. DEAN, Moneta, California.

Eucalyptus

All varieties and sizes; extra hardy stock. "The finest trees I ever saw," is the verdict of all who see them. Write today for free booklet C on their culture, etc. Questions gladly answered.

LLOYD R. TAYLOR, Modesto, Cal.

before her at all times. Never starve a hen, as she is a machine and only works on full feed. If fed good clean food the hen should be giving you an egg every other day on an average, and if she fails to reach this mark it is time to begin the culling process and get rid of all the poor layers. Thus is seen the folly of investing too much capital at first before a good laying strain is established. Keep records of the hens so you can tell which are paying for their keep and yielding a profit besides. It is quite easy to do this when there are not too many hens in a pen. It will cost from $1.50 to $2.00 per hen to produce 12 to 16 dozen eggs which at an average price of twenty-five cents would bring three to four dollars per hen, showing a profit of $1.50 to $2.00 per hen, which is very good for egg production alone.

Broilers.

In selecting broilers one should select the larger hen which will lay a larger egg supplying more food material to the growing embryo and consequently producing a larger chick which will develop into a larger and earlier maturing bird which is preferable for the market. Such chicks consume an enormous amount of feed and they should be forced from the start to produce the best results. Corn must be fed in large amounts, as it is very difficult to fatten a growing chick. Good clean milk is a fine food for growing chicks and should be fed very liberally if obtainable.

Pure Bred Stock.

It does not cost any more to feed a pure-bred chicken than it does to feed a scrub, and there is much more pleasure and profit derived from raising the pure-bred fowl. Supposing for illustration, a $5.00 hen lays 50 eggs which when hatched grow into 50 $5.00 chickens, $250.00. It would take 5 $1.00 hens to lay 250 eggs which when hatched and grown would be worth the same amount. There would be five times the care and risk, and five times the cost in feed in the case of the 250 ordinary chickens with the same investment. The fact that all prosperous breeders of chickens have pure-bred stock is proof enough in their favor. Much could be said about line and cross breeding, and breeding for fancy and exhibition stock, but space will not permit here, and besides those are problems which the breeder must work out for himself, so let it be said in conclusion that to raise chickens for profit one must take an interest in his or her work, watch every little detail closely, and take advantage of every opportunity for improvement, culling out every bird that does not prove itself worthy of attention, and through carefulness, patience and perseverance your efforts will at last be crowned with success.

There is no green food that is equal to chopped onions, though they are too high in price to feed very often. If your fowls get to sneezing and show symptoms of cold, give them a lot of chopped onions, all they will eat, and the chances are that the cold will be cured.

Allow one bath pan for every twelve pairs of birds in the loft.

MEDITATIONS OF MAURICE O'REELYUS.

There's nothing (not even this observation) new under the sun. Take the chicken business, for an example. Adam kept a bunch of them on his ranch and we are invited to believe that Noah took a breeding pen to sea with him. "Chickens on a city lot" was practiced in Jerusalem in the first century of our era, for it is on record that St. Peter heard a rooster crow more than once in the same night and right in the business part of town. The Biblical reference to the hen gathering her brood under her wing does not preclude the supposition that some wise guy was running a fireless brooder in his back yard. And incubators! Why, at the time the silk industry was introduced into Europe—way back yonder before it got started in San Diego—eggs were hatched by the heat of manure. It is true they were silk worm eggs smuggled out of China, but "eggs is eggs." And when it comes to "Poultry for Profit," what was the matter with John Ducas Vataces, one of the emperors who helped to close out the Roman Epmire in the East? Listen to Gibbon: "And when Vataces presented to his empress a crown of diamonds and pearls, he informed her, with a smile, that this precious ornament arose from the sale of the eggs of his innumerable poultry."

He doesn't say whether they were cold storage or strictly fresh, candled or case count, but it is a safe bet they were not paid for in trade.—Escondido Times-Advocate.

The person who is enthusiastic over what his hens are doing is all right as a poultryman. He may not be familiar with fine points, but he is getting results. He is taking good care of his hens and that is of first importance.

It will pay every owner of a flock of poultry to sit down and figure out what can be done to lessen the amount of labor required daily. One will be surprised to find out how many useless steps are taken in the care of poultry on most places.

Don't mix in a few good birds with the culls when marketing, thereby expecting to get a better price. It works the other way every time.

As with other animals chickens must be induced to consume large quantities of food to become heavy producers.

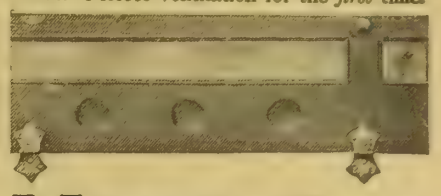
If you keep mongrel or crossed hens, buy a well built, vigorous male and see how much bigger, better layers and more uniform the chicks will be next summer.

The experienced poultryman breeds only from his best winter layers. It is then when prices are at their best, and profits are to be counted upon in the poultry business.

One important item in fattening fowls economically is to supply the food in a way that is easily digested.

More Inventions by Lee

Here's his new Incubator door all are talking about. Perfect ventilation for the *first* time.

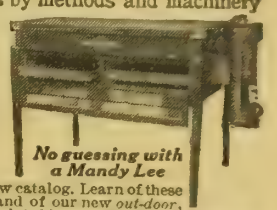


Mandy Lee Incubators

supply life-giving oxygen freely to the eggs and just as naturally draw off the poisonous gases. The most important step ever taken in incubator ventilation—neither above nor below, but *right at the eggs*—the correct principle, for the new Mandy Lee is making better hatches of *stronger* chicks than any other incubator in the world.

We Measure Everything

Heat—moisture—ventilation. You *guess* at nothing. If the eggs are good and you follow simple directions your work with a Mandy Lee is as nearly an absolute certainty as anything can be. There is no more reason why you should buy an incubator that regulates nothing but heat than for a farmer to continue to harvest his crops by methods and machinery used 100 years ago. Your success with poultry depends on your ability to select equipment that is *right*—that's what you *always* get from us.



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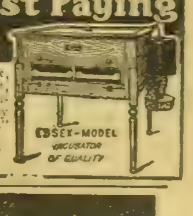

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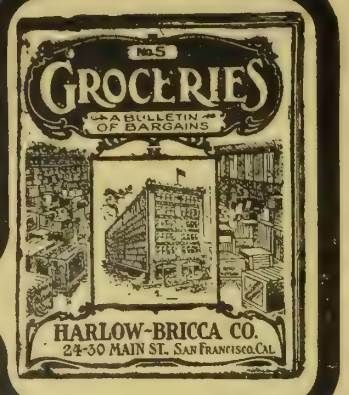

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Barred Rocks
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Is what we will sell during the year of 1911. Send today for 64-page book, "The Story of the Baby Chick." It's the finest book of its kind ever printed.

We sell all varieties listed in this ad. All are illustrated in our catalog. Tells prices, the way we ship chicks, hatching eggs, laying hens, pullets, cocks and cockerels, etc.

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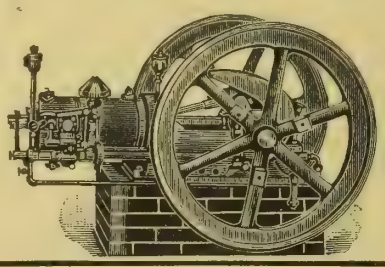
If so, see us in regard to Pumping Problems. We are headquarters for the Otto Gas Engine. The best engine made; Economical, Reliable.



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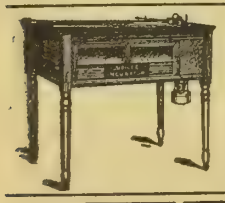

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Eggs for Hatching, January to June. Day Old Chicks, March to June.
PASADENA, CALIFORNIA.

PHENOMENAL STRAIN OF

S. C. R. I. REDS

These hens equal any breed for laying purposes on the Coast; this is their eighteenth month of steady laying, averaging higher in January 1911, than in January, 1910. Cup and ribbons to their credit.

Settings $2 and $5, by the hundred $6, $8 and $10.

"THE LUEDKE'S"

R. F. D. No. 1, ANAHEIM, CAL

Good ventilation is necessary for the health of fowls. See that the chicken house is large enough and has a free circulation of air these warm nights.

Regulate the number of hens to the size of the yard and house. Don't keep too many, but keep good ones, and then give them good care. That is the secret of success in poultry raising.

A GOOD RECORD.

I have often seen, in your columns, egg records for the year from different numbers of hens, and would like to give you my record and how I did it, as I would like to have some expert in the business comment upon it, for my betterment.

We have nine hens, Barred Rocks, which from February 15, 1910, to February 14, 1911, inclusive, laid 1,634 eggs, or five over 181 each. No hens were allowed to set, and as no sickness prevailed they were kept busy all the time. There was but one day in the year that no eggs were laid, lots of times nine were laid, and one day nine were laid in the nests and two on the dropping boards at night.

We feed as follows: One ounce wheat in the litter in the morning, one ounce Coulson's egg food at noon, and one ounce sprouted barley at night, per hen. The ounce of barley is weighed before sprouting, and the egg food is fed dry, sometimes reducing it half when a quart of sour milk is given or a half ounce of cracklings.

In addition to this, shells and sand are supplied at all times, with chopped alfalfa two or three times a day. On cold nights a little whole corn was fed, and on cold mornings a nice pan of hot water was provided for the biddies.

As we are new in the business, we should like to hear from someone who has a better plan of feeding and care in general.

Are we feeding enough? Is the kind and quality right?—E. B. Stone, Campbell.

* * *

A good record—an excellent record. The best answer to the questions as to feeding enough is Mr. Stone's own figures. We realize "the 200-egg hen" has been claimed so often that the 181-egg record of this pen doesn't look startling, but it is far above the average, and at low cost.

The best part of it is that the carefully kept record enables the immediate tracing of profit and loss.

It's a helpful letter. Let other poultry people give of their experience, and give a better ration.

A CHICKEN BOLD.

He was a fluffy yellow chick, not long
out of the shell,
But oh! the wondrous thing he did
you should have heard him tell.
When he was but a few days old, he
wandered off afar
Beyond the coop, without asking leave
of his mamma.

In truth, a daring soul was he, for
where a recent rain
Had left a pool he tumbled in—and
tumbled out again.
And though a small log lay across and
barred his way before,
He cried: "Oh, what a horrid hill!"
and tried to scramble o'er.

Quoth he, when back: "I flew so far
my head just fairly whirled;
I've climbed a mountain, sailed a sea
and been most round the world."
Such news, be sure, quite startled his
mamma and all her troupe,
But the traveler bold, that night, alas!
was nursed for chicken croup!

Prevent disease among the fowls rather than risk curing them. Keep the quarters clean and supply pure water.

Roup, chicken pox and sore head are caused by damp quarters. "An ounce of prevention is worth a pound of cure."

Color of the egg shell is important in meeting the demands of the market, but it has no relation to the nourishment in the egg. The white shell egg is as nutritious as the brown shell.

Do not keep more breeds of poultry than you can keep to breed in strict purity.

Coulson's

MADE IN PETALUMA

Special chick food

If nature hatches the egg, you should save the chick. And you can do it with Coulson's Special Chick Food—the greatest life-saver known in the chicken industry.

This food is the result of years of study to get just the right ingredients in a proper mixture to save the largest possible number out of every 100 chicks.

Coulson's Special Chick Food is an investment, not an expense. It pays big dividends by starting chicks on the road to profit for you. Costs about one cent a chick for four weeks' feeding.

Coulson's Growing Chick Food must be used after the first six weeks, to keep up the steady growth of the chicks up to three months, at which time they are old enough to use Coulson's Egg Food—the standard feed for laying hens.

At your dealer's or from us. Write for the interesting book, "Poultry Feeding for Profit." It's free.

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Poultry & Stock Food Co.
PETALUMA, CALIFORNIA

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Distributing Agents for Southern California.

"Chicks well hatched are half raised"

CHICKS

Strong, healthy chicks that are well hatched from vigorous utility breeding stock.

	Per 100
S. C. White Leghorns, best grade	$10.50
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S. C. Brown Leghorns	10.50
R. I. Reds	14.00
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In quantities of 300 and over, 50 cents per hundred less.

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Large, well rooted plants; best varieties; some with balled roots for distant shipment. Price moderate.

Large lots grown by contract.
Circular Free.

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Department of Agriculture Selection No. 160. An early maturing yellow flint corn that has produced 78 bushels shelled per acre. Will produce a fair crop with a minimum of water if planted early. Sold only in the ear. Price $3.00 per 100 pounds, smaller lots five cents per pound.

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NOTHING in the Agricultural Line pays better than a good Commercial Peach Orchard. BUY YOUR STOCK NOW while it is cheap and the season is favorable. Next year Stock might advance and you'll be wishing you had secured your trees this year and not only having a year start, but producing your necessary trees cheaper. We have an

Exceptionally Fine Lot of Peaches, viz:

Muirs, Lovells, Elbertas, Tuscan Cling, Orange Cling and Phillips Cling

All Money Makers for Drying, Shipping and Canning. All stock grown by ourselves, absolutely true to name and free from disease. We can supply the above stock in three grades:

4-6 ft. in lots of 50 Trees and over of One Kind.....$8 per 100
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We want to emphasize the fact that we do not buy any stock from Orientals, Amateurs and parties who grow trees one year, pumpkins the next. Our stock is of our own growing by experts who have devoted their lives to this business. Our trees are budded on

SALWAY PITS, the Strongest Growing Seed Stock

making our trees thrifty and well grown. Remember the first cost of a Tree Cuts no figure if you Get WHAT YOU BUY, and it is dear at any price, even as a gift, if it turns out UNTRUE TO NAME. Patronize a reliable Nursery. We have been pleasing our patrons for Twenty-one Years which, as a consequence has built up our business and made our firm the most reliable growers of TRUE to NAME NURSERY STOCK in the WEST.
WE CARRY A FULL LINE OF

Cherry, Apricot, Almond, Prune Trees

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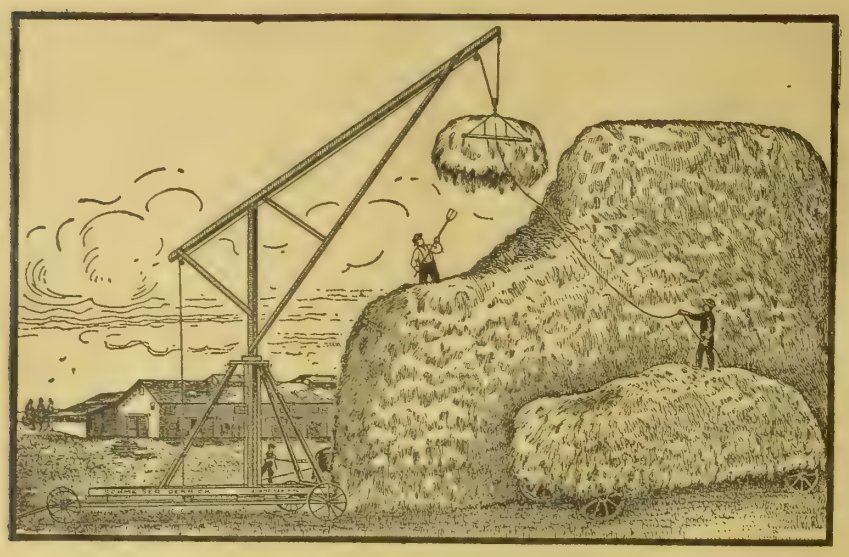

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——Equalizing Hitches——

WHAT ARE THEY?

Just a combination of Eveners that make every animal in a large team pull its share of the load and no more.

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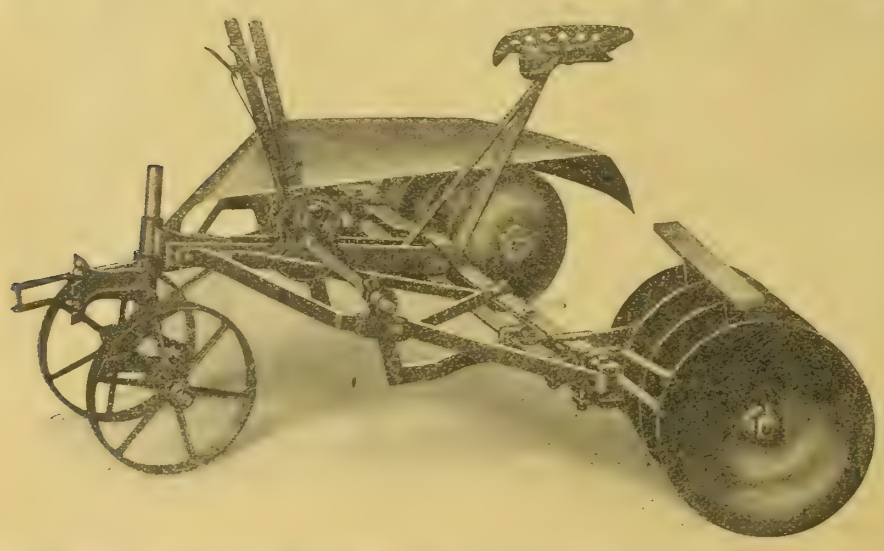

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Absolute lever action—no lost motion. Strong and Simple. One frame of proper size for working between rows or under trees.

Sunshine Spike Tooth Harrows, Single and Double Disc Harrows are the best made.

Write for full particulars.

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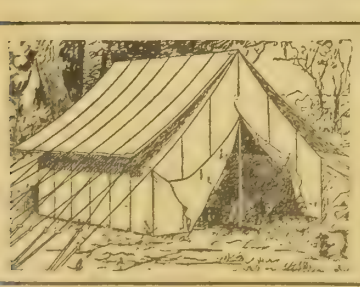

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Entomology and Bees

HOW A BEGINNER MAY DETECT FOUL BROOD.

Every one of us who has a swarm of bees is interested in keeping them in healthy, vigorous shape, so they will return the largest amount of honey. Foul brood is the only serious disease which affects our colonies, so that the man who understands the curing of this disease need fear little trouble from bee diseases. We are not troubled with the moths which work such havoc in the East, and the wintering problem never causes us the worry that the Eastern bee keeper becomes subject to.

Foul brood, however, is a serious menace, for I know of no way of preventing it entering my bee yards unless I personally inspect and care for all the bees within flight range of my bees. Naturally, this is a physical impossibility, and so the only feasible course for me to follow is to keep a sharp lookout among my own bees, and, whenever the disease appears, treat it at once, or as soon as suitable weather and honey flow conditions permit. Some destroy every hive that they find infected; this is a heavy loss, and more saving methods can be followed and be just as sure in the long run.

The disease is the dying of the young larvae just before or directly after the larvae has entered the pupa or metamorphic stage of development. The disease is caused by plantlike growths which develop from spores in the honey which has been fed to the young larvae or little white grubs. These spores quickly develop into these minute growths and multiply very rapidly when they find themselves in such a warm, congenial atmosphere, with an abundance of rich food in the shape of the soft body of the grub to feed upon.

Now, healthy larvae are always white, and have the full round worm shape before and for a short time after being sealed over by the bees, which is the beginning of the metamorphosis from the worm to the perfect bee. When the larva dies from the effects of the foul brood germs it sinks down onto the lower side of the cell in a brownish, ill-smelling mass, and by inserting a toothpick into the mass it will rope and stretch out, clinging to the end of the toothpick like a mass of glue. This is a sure test, and is really the only one to be depended upon, for sometimes the brood becomes chilled and dies, turning a little dark in color, but never getting such a deep color and never stretching out the way foul brood does. If but a very few cells are found, the hive should be marked and the entrance contracted to the very least space that the colony can stand.—Ranch and Range.

BEES ON SHARES.

Many a bee man gets a start with bees by renting bees from those who have more than they care to handle. The share given runs from one-fourth to one-half of the crop going to the owner. The half and half share is the most common rate paid, and when this basis is used the parties divide all expenses for supplies, location, rent, etc., between them; and, in dividing the crop secured, each takes half of the increase, wax and honey. Around Boulder this year our crop was nil, and a bee owner approached me with the question whether the man renting bees should not furnish half the sugar to feed those that needed feed for winter. This brings up a new point in renting bees that I have never had brought to my attention. I should say that the renter puts up his work against the caiptal invested by the owner in his bees, and, if there is a failure, the bee keeper loses his time, and the owner loses the income from his investment. Unless the bee keeper specifically guarantees the original number of colonies to the owner, I do not think anyone but the owner should put up the money to buy the feed for the bees, should they need it. The owner should stand all the loss that the bee keeper is not directly responsible for.—Ranch and Range.

GREAT NATURAL RESERVOIR.

The rock crust of the earth is a vast reservoir, more or less water-saturated, and the intelligent man will make a study of the natural conditions of his own farm if he would secure its best water development. Well watered farms, those which have a pure and ample supply in every field, are the most valuable, and with a little more basic knowledge than the owner may now possess, he may be able to very easily and cheaply bring about such an ideal condition.

The Hessian fly is so called from the fact that it was brought to this country in straw, used in 1776, when the Hessian cavalry was imported to fight the Americans. It made its first appearance on Staten Island, near the stables of the Hessian troops, and soon traveled over Connecticut, spreading throughout New England and the West at the rate of twenty miles a year.

Robbie ran into the sewing room and cried:

"Oh, mamma- There's a man in the nursery kissing Fraulein."

Mamma dropped her sewing and rushed for the stairway.

"April fool!" said Robbie gleefully. "It's only papa!"—Everybody's Magazine.

Bees on the Farm "Gleanings in Bee Culture" will help you get more pleasure and more profit from Bee keeping. 6 months trial subscription 25c. Book on Bees and Catalog of Supplies sent free.
THE A. I. ROOT COMPANY, Box 49, Medina, Ohio

Heider Eveners

A Great Invention. Made for 2, 3, 4, 5 or 6 horses. The **HEIDER** 4-horse Plow Evener works four horses abreast on gang, sulky or disc plow, one horse in furrow, three on land. Works free, no side draft, all horses pull equal. We make clevises to attach our Eveners to all plows. **HEIDER** 3-horse Wagon Evener for wagon, manure spreader, grain drill or any other implement with pole. **GO TO YOUR DEALER**—if he can't supply you—don't accept any other. Write us for catalog and we will tell you where to get them. We also make Wagon Doubletrees, Singletrees, Neck Yokes, etc. Insist on getting **HEIDER'S** if you want the best in **EVENERS.**

Ask Your Dealer.

HEIDER MFG. CO., 152 ***Main Street*** **CARROLL, IOWA.**

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Horticultural Law.

Is it possible to prevent land owners from allowing morning glory and other noxious weeds to go to seed? There are instances where threshing machines carry seed from farm to farm because the morning glory is allowed to come up in the grain. If there is a law against allowing this, who should be appealed to for enforcement?—Subscriber, San Luis Obispo.

Apply to your county commissioner. According to the last information we had, your county had not yet appointed such commissioner. If this has not been done every farmer and fruit grower should urge immediate action. The county's loss from the scattering of noxious seeds and pests far more than covers the cost of maintaining the commission.

Barley for Chickens.

Is there any safe way to feed whole barley to chickens, by soaking it, for instance?—J. B. L., Kingriver.

We have heard of whole barley, rolled barley, and soaked barley all being fed to poultry and never heard of its being unsafe under any of these conditions. It is claimed by many that soaking until it sprouts is the way to secure greatest good from barley feed. The sprouting requires but a few days and is well worth trial. Some think it better even with rolled barley to soak before feeding.

Drying Off Cow.

I saw in one of your issues not long ago, "To dry up a cow milk about half of the milk out at each milking." Don't do it. It is one of the worst things a man could do especially for a young cow, to get her in the habit of holding up her milk. The proper way is to let the udder become full and quite feverish, then milk it all out and apply camphor diluted with alcohol. That will dry her at once.

And for treatment of bloat. Don't use a hose or bother with one. Use a trocar or knife and it will give instant relief.—Subscriber, Highland.

Walnuts Not Filling.

I have ten acres of 18-year-old soft-shelled walnut seedlings which last year bore eight tons of nuts, but the meats were not so well filled out as they should have been. Soil is light loam, very deep. Plenty of water. Vetch sowed last winter made fairly good growth and was plowed under in March with 3000 pounds of superphosphate. Applied black eye bean straw heavily the last four years, and at present land has a crop of vetch growing on it. It has never had any nitrate of soda or potash. Would it be best to try some of each, and how much?—Subscriber, Fillmore.

This question is a hard one but is likely a shortness of fertility, as well as short supply of water at the time the nuts were filling.

There was considerable complaint of light walnuts last year and the cause has not been determined in many cases. This soil being a light loam it is possible that it has not a sufficient supply of plant food and as we know the soil all over California needs phosphorus it will be well to continue putting on superphosphate at the rate of 300 to 400 pounds per acre, broadcasting it and plowing under at the time the green manure crop is turned under. If the trees are not making a good growth, with dark green leaves, it would be well to apply three pounds of nitrate of soda per tree, covering all the ground, about April 1st, if the plowing has been done; if not plowed, the nitrate can be put on when the plowing is done. Then make another application of nitrate of soda, two pounds to the tree, six weeks later.

Be sure the irrigation is well done and that the trees never want for moisture, but do not put on water enough to leach out the nitrate of soda. This can be determined by digging down in the soil and finding where the water goes. The soil should be wet to about four feet deep 24 hours after the water has stopped running, but should not go farther in that time, as the nitrate will go on below the roots and be lost. The fertilizers that have been supplied are of the best, provided there has always been sufficient moisture and the bean straw has been cut down with a disk harrow, set straight, so the rough material would decay readily. The vetch should be plowed under before the straw begins to harden.—J. B. N.

"Up a Stump."

In your issue of February 9th you referred to the possible cure or prevention of chlorosis by use of lime. Now, according to Circular 27 issued in October '06 by the University of California, as I interpret it, lime may be the cause of mottle leaf. Which is right?—Subscriber, Highland.

This question, like many others relating to soil chemistry and physics, is worthy of far wider discussion than can be given in these columns, and is one on which there is great difference of opinion and lack of absolute knowledge. The article appearing in The Cultivator of some weeks ago by Dr. Snowden maintains that chlorosis is usually caused by excess of magnesia over lime. If Dr. Snowden is right, the addition of lime will prove beneficial. Hilgard in "Soils," says: "In general it is best that lime should exceed magnesia in amount." We hope to have more extended discussion of this question in the columns of The Cultivator.

Nitrate of Soda.

How much nitrate of soda will an orange tree stand at one application? Will it absorb all the good from ten pounds applied at one time?—Subscriber, Highland.

We would surely make three applications of the ten pounds. Without excessive irrigation or rains it possibly would not be lost if all applied at once, but by far the safer plan would be to make three-pound applications.

Red Spider on Almonds.

At what time and how should I treat almond trees which have been defoliated in past years by red spider?—Subscriber.

This inquiry was referred to Mr. J. P. Dargitz, manager of the California Almond Growers Exchange, and he writes: "Replying to your inquiry in regard to the handling of almond trees to prevent the depredations of the red spider, will say as far as our experience goes the red spider is dormant and harmless except in hot weather, but wherever it is present in hot weather it will do its work and will multiply rapidly. There is one remedy which is par excellence, and

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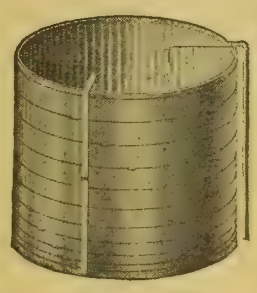

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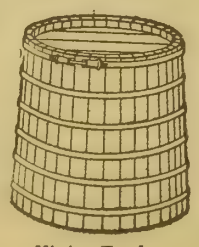
Water Tank

that is the fumes of sulphur evaporated by the hot sun. The treatment wherever the red spider is present is to blow fine sulphur among the trees; the finer it is the more rapidly it will evaporate in the heat of the sun, and the fumes from this evaporation will kill the spider. Twenty to twenty-five pounds of sulphur together with a like amount of lime dust per acre will be a very good treatment, the dose repeated in one week if necessary. This treatment will very thoroughly control the red spider and it is not expensive. Common dust spraying machines are very effective and economical in the matter of scattering this dust among the trees. The effect of the red spider will be noticeable in hot weather by the leaves turning yellow; first a very pale green, then a light yellow. Whenever the dark green begins to fade out of the foliage lose no time in getting the sulphur scattered through the trees."

Food Value of Sorghum.

What is the value of sorghum as a milk producer compared with alfalfa; also the best way to feed, whether to cut at or before maturity.—Subscriber, Hynes.

Sorghum is not intended to supercede alfalfa, but to supplement it as a feed. It is grown on land that is used for winter growth of grain hay, and fed green to secure its greatest value for milk cows. The cutting should begin when the first swelling of the sheath of the head shows. Green sorghum contains 79.4 water; protein 1.3; crude fiber 6.1; nitrogen free extract 11.6. Green alfalfa contains 71.8 per cent water; protein 4.8; crude fiber 7.4; nitrogen free extract 12.3. Sorghum should be cut at this same period of maturity when made into hay as the stalks grow very coarse and woody when the heads are developed and are not relished by the cows.—M. E. S.

Stringy Milk.

I have a cow that has been fresh since June, 1910. She seems perfectly well, but after the cream has stood a while after being separated it becomes slimy or stringy.—Subscriber, Lodi.

The usual cause of stringy milk is bacterial and comes from outside of the cow. If you are certain it is from the cow give her a dose of epsom salts, one pound, and one tablespoonful of ground ginger. Give this in a large quantity of water. If you have never drenched a cow better have some one to show you how so as not to get it into her lungs. A simple remedy for this is to give a teaspoonful of bisulphide of soda in the grain fed and it is easier for a woman to do than to drench the animal. Give this soda every day until the trouble stops. This is taking it for granted that you are sure that the trouble comes from the cow. Personally I should look for it outside the animal and begin by washing the cow's udder and teats in water containing a teaspoonful of creolin to the quart and dry them carefully before milking. I would whitewash the stall in which she stands and clean out the earth, putting in fresh soil in the stall if it is a dirt floor. Then I should go over with a strong sal soda water all the pails that are used in milking and everything in use about the milk. After using the hot sal soda water, rinse in hot water containing lime, and finally leave the pails stand with water containing a tablespoonful of lime water until ready to use. The bacterial growths are minute and often a cow stands in a pool of water containing a slimy growth and brings them into the milk in that way; sometimes they seem to come from the air and develop in the crevices of the milk vessels. The formation can be checked by heating the milk to 90 degrees before setting it in pans in a cool place. It is sometimes checked by keeping the milk while setting a little warmer, say at sixty degrees all the time the cream is rising on it.—M. E. S.

Jersey-Holstein.

If figures are available I would like to know on an average which of the breeds, Jersey or Holstein, produces the most butterfat for feed consumed. —Subscriber.

This question is not to be answered as no figures are available. One may have an opinion founded on observation that the cows that can convert the most roughage into milk are valuable to the general dairyman while the man nearer sources of supply of concentrated foods will find the cow that requires that the most profitable. The fact is that if we look over the food consumed in making any of the official tests of the different breeds the amount fed is far above the dairyman's ration. Eighteen to thirty pounds of grain has been given as amount consumed. This feed has often been as high as two pounds of oil cake meal, say bean meal and fully half of the heaviest of the concentrates. The question must solve itself for the individual man by the question which feeds are cheapest for me? —M. E. S.

Palomino for Pollination.

I wish to ask through your columns whether M. E. S. considers Palomino better than Black Morocco to help pollination in the case of shy bearing. The Black Morocco is in bloom nearly all the time. I wish to try something in this line upon the Almeria grape and would be pleased to get all the information I can.—G. W. A., Stockton.

The question of using the Palomino grape as a pollenizer for the Muscat turns on the fact that both are white grapes and that the Palomino has a dry pollen that rises and spreads better in damp weather than the more waxy pollen of the Muscat. As to the Almeria I do not know that they need this pollination. In none of the standard works is the Morocco given as a free producer of dry pollen. It is the quality of the pollen that makes it valuable. I will pass this question up to my chief, Prof. Bioletti, for answer.—M. E. S.

Dogs.

Please give addresses of breders of cocker spaniels and collies. — Subscriber, Dinuba.

We are unable to give names of breeders of these dogs and will ask subscribers who know of them to inform us.

Pruning Emperors.

Please give method of pruning Emperor grape vines.—Subscriber, Ione.

I fear it will be too late to help you this season. Raise one or two of the canes to the top of a tall stake, one driven a foot into the ground and standing five feet above it. The two top leaders will reach that height probably. If they do not tie them up as high as they will go, cut back the other spurs and all the side laterals to two buds as nearly as possible. While we prefer only one trunk still many of the vines pruned as yours were in the early days have two and a few have three stems. At the top of the stake form a head for the vine and cut the spurs lower down each season to two buds, or sometimes to

one, but keep them going around the stake in a circle, not pointing out at angles. By always cutting the top bud pointing around in the right direction this result can be secured. The crown at the top of the stake is usually cut to three buds on the last season's growth and soon forms large clusters of spurs. The tendency of the lower spurs is to die back; when they do this we let them go though we prefer to hold them as long as possible, as they tend to check the enormous growing of the tops.—M. E. S.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Bladder Trouble.

My colt, in an effort to urinate, will lift one and then the other hind limb, and after a short delay, produce a fairly free flow of milk-white urine. Otherwise the colt is in good condition.—Subscriber, Livingston.

The color and turbidity of urine varies greatly in healthy horses depending upon the character of the food consumed—green foods increase turbidity and the urine may assume a sulphur-white color, due to the presence of lime salts. Retention of the urine in the bladder also favors precipitation of the solids. This colt evinces pain in the act of urinating, and doubtless retains the urine overtime to avoid the painful experience. Such a condition may result in the formation of stone in the bladder. Have some person experienced in manipulation of the bladder through the rectum to force out the urine and examine the empty bladder for stone. Wash the sheath and remove accumulated filth from the end of the external urinary organ, then oil the parts with sweet oil. Give gentian, saltpeter and belladonna in doses of two drachms each, three times daily for four days; skip four days and repeat.—F. G. M.

Swelling.

A swelling appeared under the jaw of my bull, extended down the neck to include the brisket and the under surface of the body. He became poor and died after lingering three or four weeks. Please give the disease and remedy.—Subscriber, Brawley.

In all probability the trouble here was caused by some pointed foreign body wandering through the flesh and interfering with the circulation. Occasionally a cactus thorn, sharp piece of wire or similar object lodges in the flesh near the base of the tongue or along the gullet and, should a large blood vessel be involved and obstructed by its progress, the swelling would be extensive. An examination of the body after death is the only means of learning the exact cause in such cases.—F. G. M.

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway. Los Angeles.

Overflow Damage.

A ditch carrying winter flood water runs across the lands of A, B, C, D, and E. A in doing some grading takes down the left bank of ditch to such a degree that it will not contain the water when high, the water breaking over and flowing across the fields of B, C, D and E, causing damage. B, C, D and E call on C and offer to go with him and remedy the thing, but A refuses either to offer help or allow the others, B. C. D and E to go on his property and fix it themselves. What can be done? Ditch has been there from time immemorial. —Subscriber, San Luis Obispo.

A has no right to permit the flood waters to damage either of the others by diverting it from its natural channel, and either of them may bring an action against him for damages, and to restrain the turning of the water from its natural course.—E. L. P.

Lessor's Rights.

A owns a piece of land, B rents it for cash rent, B pays half down Oct. 26, 1910, and gets receipt. Now A sells it to C. Can C hold the grain or can B get the value of the crop from C in case C holds the crop, or can B make A pay him the crop's value?—Subscriber, Lindsay.

Growing crops pass with the title to the land and become the property of the purchaser of the land, unless reserved by the grantor. The purchaser of the land takes the same free from any lease made by the seller, unless the lease was a matter of record, or had been brought to the notice of the purchaser. The tenant, in case the purchaser is an innocent purchaser for value, having had no notice, by record or otherwise, of the lease, and in case the purchaser refuses to recognize the lease, has an action for damages against the landlord who has violated his lease and terminated the tenancy contrary to its terms, and the tenant may recover the rent paid as well as his damages.—E. L. P.

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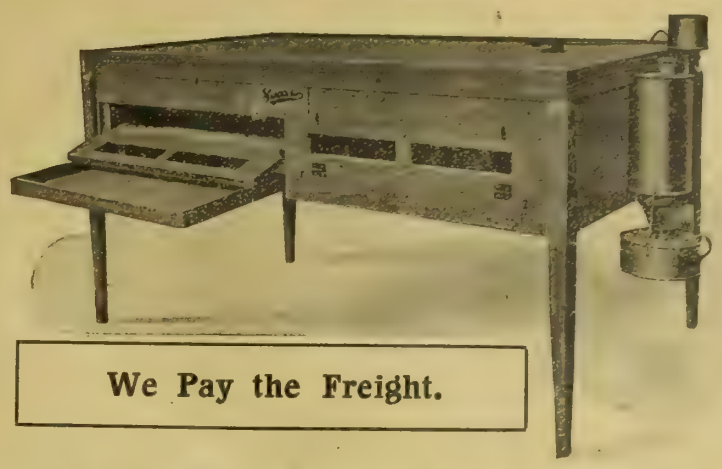

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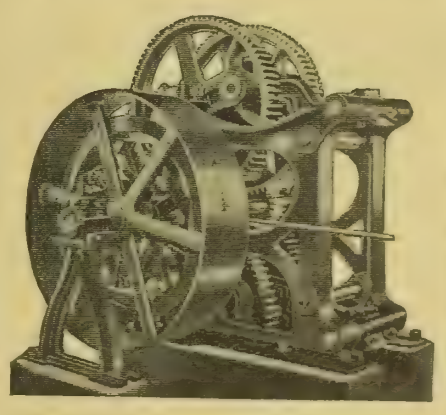

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Irrigation and Forestry

LIGHT BURNING.

A meeting of foresters and others interested in the preservation of timber and watersheds was held recently in San Francisco. A permanent fire protective organization was proposed. The object of this association would be to provide an efficient patrol of the state forests during the dry season by hired officials, preferably trained foresters, and to establish an available fire fighting force which could be operated economically in any portion of the state.

One of the most ardent champions of such an organization for California is D. P. Simons, a prominent lumberman of Washington, who makes his home in Los Gatos. Several such associations have recently been formed in Montana, Idaho, Washington and Oregon and the spread of these associations during the last four years is regarded as a good indication of their success.

In order to determine whether the so-called light burning method is applicable to conditions in the National forests of California and to find out its effect upon forest reproduction a thorough study has just been made by the forest service of the holdings of the Diamond Match Company, whose land adjoins the Lassen National Forest. The company has been light burning its land for a number of years, with the primary object of insuring the company's merchantable timber.

As a result of this investigation the U. S. forest service has announced that it could never adopt the light burning system as a method of fire protection. This system, it is claimed, does not aim at complete protection and does not attempt to protect the young forest growth. The young trees, many of them as high as thirty years old, are, according to the government experts, killed by the light burning and constitute a worse fire menace than before the land was burned over. Owing to the fires in question it is said that the chaparral and brush is encroaching on the forest growth in the company's holdings. The cost of the light burning operations, according to the government investigations, runs as high as 50 cents or more an acre. The government maintains that the forests cannot be maintained if the young growth is not preserved.

CARICA PAYAYA (Papaw).

The dried juice of the papaw fruit is at present one of the most appreciated medicinal substances. The actual demand for this article exceeds the production by 100 per cent and even more. This is most probably due to the fact that the papaw is nowhere cultivated on a large scale or rather that it has never been made the subject of special cultivation.

In the face of the usefulness of the papaw for medicinal purposes it seems strange that the chances offered by the cultivation of that plant have never been realized until now.

May be that the climatic conditions required by the papaw are answerable for the neglect on the part of agriculturists in tropical countries. A few drops of water are sufficient to spoil the juice of the papaw when in preparation for the market, a process which must take place in the open air, and as nearly all the tropical zones where the plant thrives are suffering from an over-abundance of rain, growers of papaws would be in constant fear of sustaining losses.

The country where the cultivation of the papaw would really be a lucrative industry is Peru, or rather the coast region of Peru, where rain is practically unknown.

The water needed for irrigation purposes is provided for by numberless rivers and rivulets descending from the nearby range of mountains, the Andes, as well as by artesian wells. Therefore, in the coast region of Peru, the juice of the papaw could not possibly be ruined by rain. In fact, this tract of land is an ideal place for the cultivation of this valuable fruit, and it can be pretended, without exaggeration, that no other enterprise can possibly offer more inducements and less risks to an eventual investor of small capital than a plantation of papaw.

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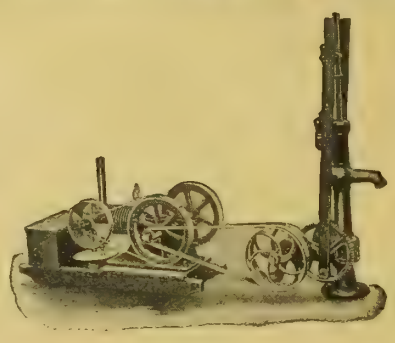

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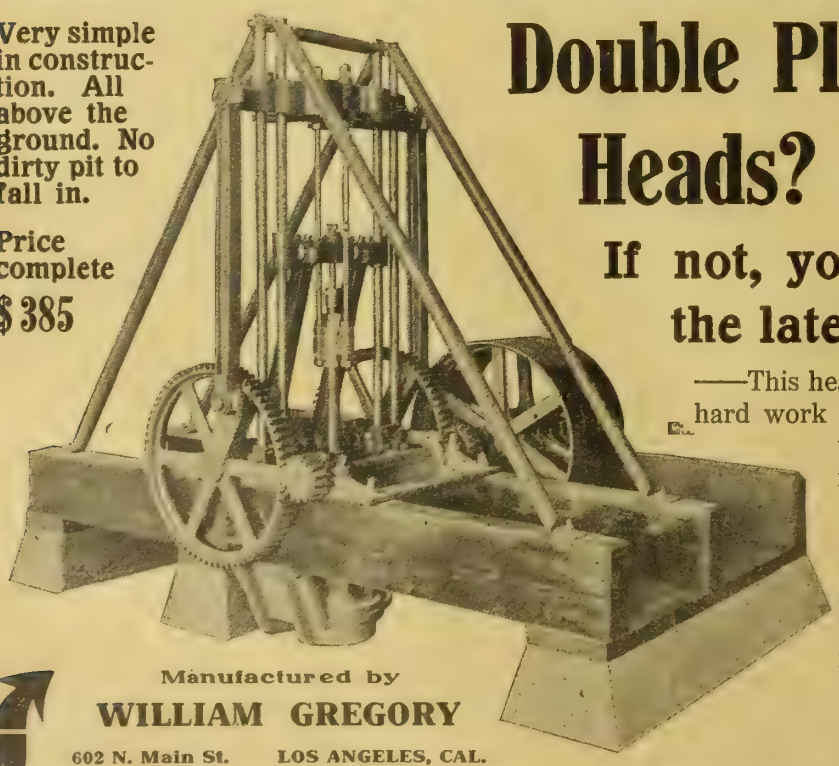

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WANTED—A PURE FABRIC LAW.

After a struggle covering seventeen years, we succeeded in securing a national pure food law. Since that time we are not obliged to eat maple syrup made out of glucose. We can at least be reasonably certain that the food we eat is what it pretends to be. It has driven a great many arrant scoundrels out of business; and while, like all other laws, it falls short in its execution, nevertheless a movement to repeal this law would drive every congressman who voted for its repeal out of office.

We are in about as great need of a pure fabric law as we were of a pure food law. The necessity for it is being urged in congress, and we hope it will be enacted before seventeen years pass by. We would like to know, for example, whether we are buying all wool, part cotton, or worse still, part shoddy. Many of our readers remember buying an overcoat, and, after wearing it a few years, seeing the good wife rip the lining from the bottom and shake out the shoddy that had collected. Now this shoddy is simply old, worn-out wool. It may be composed of the cast-off clouts of the Bedouins of the desert, or gathered up from the lazar houses of Europe, and ground up and put in the cloth to make it seem heavy.

Many years ago the shepherds of the plains of the Mississippi valley struck a bargain with the woolen manufacturers, the net result of which was that the shepherds were to have high duties on raw wool and the manufacturers high duties on foreign goods, and the same duty whether it was all wool or only part. The manufacturer at once began to substitute cotton and shoddy for part of the wool, because it was cheaper; and the sheep men innocently buy the adulterated goods. Ten years ago, according to the census report, the manufacturers of woolen and mixed goods used 75,000,000 pounds of cotton and 68,000,000 pounds of shoddy, and of course sold much of it for pure wool.

What is needed now is simply the requirement that the manufacturers shall be decently honest and brand their goods for what they are. If they are all wool, let them say so; if part cotton, say what per cent; if part shoddy, what proportion. Let the buyer know just what he is buying. This is honesty; anything short of it is fraud.

In this bargain of the sheep men with the protectionists the sheep men have got the worst end of it. They do get some little benefit, however, even if it was a wretchedly bad bargain; but the man who does not have any sheep is simply deceived and fleeced, and can not help himself unless congress passes a pure fabric law and compels cloth and clothing to be sold for what it is.

A really all-wool garment, unless imported, is one of the hardest things to find in the United States today; and when you do buy an imported garment you pay about twice the price for which you could purchase it on the other side. Two years ago, before we went to Great Britain, we went to a tailor and had an all-wool business suit made of imported goods, and it cost forty-five dollars. (The only objection we have to it is that we are afraid we shall not live long enough to wear it out.) We took this suit to a tailor in Belfast and one in Dublin, and asked what they could duplicate it for. The Belfast tailor offered to duplicate it for twenty dollars, and the Dublin man for twenty-two and a half. We could have bought a suit made of American goods that looked as good as the imported one for less than forty-five dollars; but it would have been worn out before this, because it would have been mixed with either cotton or shoddy. While over there we bought an overcoat for fifteen dollars that would have cost us at least forty dollars any place in the United States. This holds true, though perhaps not to the same extent, even across the line in Canada. As we were coming home through that country we got in touch with a high protectionist from New York in Montreal, who claimed to have made the expenses of the trip in the lower price he had paid for clothing he bought while there.

Our woolen interests no doubt need some protection, and should have it, but our plea now is that they be compelled to be honest and say whether their goods are made of all wool, or part wool; if part cotton, how much; and if part shoddy, how much. No business can permanently prosper unless it is conducted honestly; and our plea is for honesty, whether in selling food or clothing or grain or anything else. Let the people have a square deal.—Wallace's Farmer.

PLAY AND RECREATION THE SALVATION OF A NATION.

Play and recreation are as essential to the proper development of man as is work. Work alone with no allowance for unproductive effort, prevents the normal growth of the body and a sweet-spirited mental development. Real hard work is absolutely necessary to perform our function in this world, but work alone sours the individual. Proper alternatives of work and play make middle-aged people young and old people sympathetic with the children.

A nation's or a community's decay is in part shown by the absence of play at school, and games and pastimes at home. The father who makes cornstalk fiddles, little water wheels, whirligigs, spool tops, and hot-air paper spirals to hang over the old cook stove, is getting pretty close to the "happy corner" in the home; and the mother who plays "I Spy," and "Fly away Jack, Fly away Jill" with spool labels, and who assists with doll dressing and taffy pulling, helps to add to the word "mother" much that will make it a dearer word in the home.

The teacher who enters into the games at school makes his school a more potent factor for good citizenship. Character will be developed in truth telling, a respect for the rights of others, the performance of duty, and an obedience to the will of the many. No new-fangled nor greatly modified games are needed—just common, old-fashioned "two or three cornered cat," "fox and geese," prisoner's or dare base," and others requiring much action, that have been handed down for generations or perhaps for centuries.

Let us help to keep the old young and the young gay by prolonging the pleasures of youth as far as possible. Mind and body will be plastic and "thoughts of youth will be long, long thoughts."—A. B. G., in Ohio Ag. Col. Extension Bulletin.

"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gang-plow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

BOESCH LAMP COMPANY

ESTABLISHED 1869. INCORPORATED 1892.

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Not too Light
But Just Right

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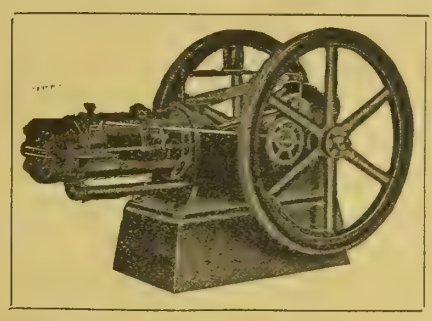

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951-955 No. Main St., Los Angeles, Cal.

STOVER Distillate Engine

Our 1 H. P. engine end Pump Jack to take place of windmill costs only $98.00. It will interest you all. Do away with the the windmill.

We install complete pumping plants. Get our prices.

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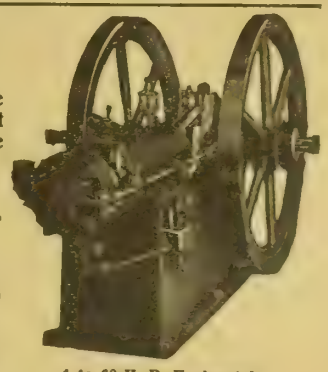

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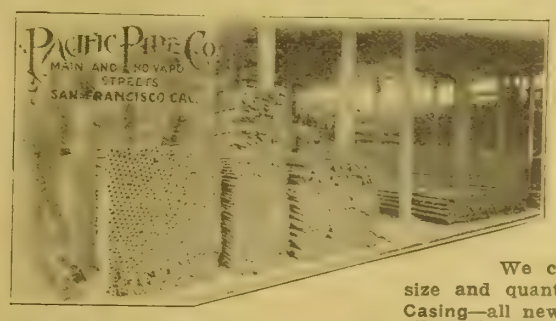

Save Money By Buying This Good Second-Hand Pipe

We can supply you with any size and quantity of Standard Pipe or Casing—all new threads and couplings—all stock guaranteed first-class.

If thinking of buying any kind of pipe, your best interests will be served by writing us for prices and particulars.

PACIFIC PIPE CO., Main and Howard Streets, SAN FRANCISCO.

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Extra fine draft stallion. He combines the world's two greatest draft breeds. Sire is an Imported English Shire, weighing 2100 pounds, one of the best of this great breed on the Pacific Coast. Dam is a very fine, pure bred Percheron. This colt will be 3 years old in May, weighs 1750 pounds now, in ordinary condition. He will weigh 2100 or 2200 pounds at maturity. He has good, heavy bone, splendid conformation, excellent color, style and action, and is a horse that will please the most critical. Price very reasonable. Write for particulars. Geo. A. Smith, Corcoran, Cal.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

Polled Jerseys—Breeders names of Chas. S. Hatfield, Secy., Springfield, Ohio.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L448 Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Farms Wanted—Don't pay commissions. We find you direct buyer. Write, describing property, naming lowest price. We help buyers locate desirable properties free. American Investment Association, 12 Palace, Minneapolis, Minn.

Wanted—One thousand seedling orange trees from three-fourths to one inch in diameter, sour stock preferred. John S. Adams, R. R. 2, Box 20, Pomona, Cal.

MACHINERY.

For Sale—Windmills, pumps, engines, piping, brass cylinders, guaranteed 1st class. Wagons, buggies, harness, plows, scrapers, power feed cutter, fruit crusher, 2 H. P. Hurst orchard sprayer, windlass, 20 H. P. hoist, sundries too numerous to mention.

8 ft. Aermotor windmill complete with tank and pump at $59 on cars.

2 H. P. engine, jack, pump and pipe complete, $89 on cars.

5 H. P. Pumping Plant.

Special Sale—last chance—must move next week, 5 H. P. Stearns engine and jack, 5-inch pump, belting, engine house, 6000 tank and 24-ft. stand, $235. This is complete plant and running now, engine alone cost $225 new. Don't write in two weeks from now and expect a snap like this. Bring an engineer and examine it.

Tanks.

50,000 gal. tank and stand, 10,000 gal. tank and 34 ft. stand, fine cover $90, only used one year, 2,000 gal. $19.50, and many other sizes.

5-ton brand new parts for mowers and rakes, such as knives, guards, sickle guards, connection rods, 100 complete sets rake teeth. Will sell at 50 per cent off wholesale price. For real bargains and good material see Demmitt Co., upstairs, 120 N Main St., Los Angeles.

For Sale—One No. 3 Ames pump, 8 in. cylinder, $250; one Fairbanks-Morse 22 H.P. engine, $450. Also for a short time only I offer a 45 H.P. White & Middleton engine, air starter, for $700. 1½ miles north of Olive, ¾ mile south of Richfield. I. H. Gulick, Olive, Cal.

For Sale—25 H.P. Fairbanks-Morse gas engine, just as good as new, only much cheaper. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—11 H.P. White & Middleton gas engine, in fine condition. Overstocked on this size, so will not refuse reasonable cash offer. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—A practically new No. 2 Sharples Separator. Snap. C. P. Dandy, 421 Wilcox Bldg., Los Angeles.

TURKEYS.

Mammoth White Holland Turkey Eggs for hatching, $5.00 per 13 eggs. Extra large and thrifty stock, not related. Toms weighed 26 lbs. at 7 months. Light Brahma eggs $3.00 per 15; Barred Rock eggs $2.00 per 15. A. H. Blakely, Ontario, Cal.

For Sale—Thoroughbred Mammoth Bronze Turkey hens of large size and fine markings; also eggs for hatching. Mrs. Nellie Hart, Holtville, Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

For Sale—Have three young Bronze Turkey Toms left, all grand birds. Your flock will be greatly improved by securing one. Mrs. A. C. Wisegarver, San Fernando, Cal.

FARM LANDS FOR SALE.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars, call or address Paxton, 612 Lankershim Bldg., Los Angeles.

For Sale—No exchange—43½ acres near Baldwin Park, 17 miles east Los Angeles; good orange and walnut district; 20 acres now set to alfalfa, balance grain. New six-room California house, windmill, etc.; 40 shares good water stock, good roads, blvd. passes the ranch, close to electric and steam lines. Price $450 per acre; ½ cash. Joseph Coleman, owner, 108 E. 1st, Long Beach, Cal.

For Sale—$125 per acre, 160-acre ranch in Owens River Valley, 2 miles from county seat. 12 acres Stayman Winesap apples, 50 acres alfalfa, 60 acres farming, balance pasture. Entire ranch soil suitable for apples and pears or farming and alfalfa. 100 inches water continuous flow, non-assessable. Would consider one-half exchange in Southern California. Address Owner, Box 52, Independence, Cal.

24 Acres in the Famous "Orland Project," 18 acres alfalfa, 6 acres bearing oranges; all irrigated by the U. S. Government; Orland's best soil; small residence, barn, dairy-house, etc.; right in town, and will double in value in a short time; worth $12,000 now if cut into city lots. Will sell for $8,000 for a short time. Address owner, J. Vance Wilt, Box 71, Orland, Cal.

If You Want a Fine Home, No. 1, rich, level land, close to best market in the state, best climate, where irrigation is not required, write me. I have a few 80 and 160-acre tracts at $10 per acre. Also a fine 160-acre relinquishment for $500, if taken quickly. Wm. T. Mantz, Pattiway, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale—815 acres in San Luis Obispo County. A typical dairy ranch. Plenty of wood, water, irrigable land, buildings, fenced and cross fenced. Orchards, vineyards, oranges, lemons and walnuts do exceedingly well here. Forty acres of land suitable for these. Price $21 per acre. For further particulars apply to Mrs. F. A. Clink, Pozo, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

Cuba—Most productive soil. Delightful and healthful climate. Ample rainfall. Cheapest transportation facilities to the world's greatest markets. Particulars free. Sanderson, 13 Palace Building, Minneapolis.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

MISCELLANEOUS

For Sale—About 200 lbs. Sweet Potato seed, $3.00 per 100 lbs. J. W. Anderson, 3 miles south of El Monte, Cal.

45c brings you freedom from mites and other vermin, and consequent profits and peace of mind. Send right now to John S. Siebert, Box 835, San Diego, Cal., for full illustrated directions to make Siebert's Sanitary Roost and Dropping Board (No stamps).

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

For Sale—White Muscovy, Indian Runner and Pekin duck eggs. Also fine Buff Orpington and White Leghorn eggs. Mrs. Ungerland, Route 2, Box 300, Los Angeles. Phone Boyle 8080.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

Ancona Eggs for Hatching—Extra good stock. Eggs, $2.50 and $2.00 per setting of 15. Also White Mammoth Pekin Duck eggs $1.00 for eleven. C. S. Norton, Corning, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Eggs for Hatching—$1.00 per 15; $5.00 per 100. Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons. Stamped envelope or cash with order. L. W. Neilsen, R. R. 2, Box A1, Petaluma, Cal.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

For Sale—Imperial White Pekin duck eggs, $1.00 per setting. Incubator lots, $7.00 per hundred. T. H. Hanson, Petaluma, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Indian Runner, Muscovy and Buff Orpington Ducks.—Stock and Eggs. Rabbits and Guinea Pigs. Book on rabbits. Price list free. Caldwell & Co., R. D. 3, Los Angeles, Cal.

Minorcas, White and Black—Get my mating list before ordering eggs. Quality and prices both attractive. L. C. Buhl, Pomona, Cal.

Thoroughbred Light Brahma eggs for hatching, $2.00 per 15. L. C. Oakland, Chula Vista, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Crystal and Pearl White Orpingtons—Eggs from mature birds direct from Kellerstrass and Byers farms. Settings $5.00 per 15, fertility guaranteed. Also some very choice cockerels. Address B. Striner, Glendale, or phone Sunset Glendale 4363.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

Eggs for Hatching—Duckwing Leghorn, Buff Orpington and Black Minorcas. H. R. Leek, Escalona Ranch, Santa Cruz, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

CHICKENS FOR SALE.

Cook Strain White Orpingtons—"The Real Thing," where Kellerstrass and all other breeders had to go to get the pure blooded Orpingtons. The Standard Poultry Yards has them direct from Cook Brothers, Scotch Plains, N. J. Note report of late San Diego Show: "C. A. Loud, all awards White Orpingtons." Eggs and baby chicks for sale. Also Northrup heavy weight S. C. Black Minorcas. Send for folder. C. A. Loud & Bro., San Diego, Cal.

White Minorca Beauties and Prize Winners —Black Minorcas, 1st prize winners; Black Spanish, prize winners; Blue Andalusians, 1st and 2nd prize winners; White Rocks, 1st prize winners, Fischel Strain; Buff Leghorns that are buff; Black Orpington prize winners. White Indian Runner Ducks won 1st prize in two shows and silver cup special for best ducks, any breed in show. Eggs from all the above $1.50 per 13, $5.00 per 50. No stock for sale. Fine exhibition Bronze Turkey stock, eggs $2.50 per 13. Enclose stamps for reply. Mrs. N. E. Rose, 706 E. Walnut St., Santa Ana, Cal.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

S. C. White Leghorn Eggs—Eggs for hatching from stock bred for beauty and duty. All our birds are especially bred for heavy egg production as well as fancy qualities. Every egg is especially selected for hatching. Prices very reasonable. Place your orders now for future delivery. Geo. A. Smith, Corcoran, Cal.

Barred Plymouth Rocks—The short road to success is by purchasing eggs for hatching from "Vodden," with fifteen years' experience in breeding and mating Barred Rocks exclusively. Pairs, trios and pens mated for best results. C. H. Vodden, Los Gatos, Cal.

Very Fine Strain Barred Rocks, R. I. Reds S. C. Black and White Minorcas, White Leghorn chicks and eggs. A few splendid cockerels. Prices reduced Feb. 1st. All pure bloods. Also, I have a few cases No. 1, home-canned peaches for table use to sell. R. B. Sherman, Newcastle, Cal.

For Sale—Pure bred White Cochin Bantams, very fine, excellent layers. $1.50 per pair. Cockerels 75c, F. O. B. Fillmore. Address Ona King, Fillmore, Ventura Co., Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Barred Plymouth Rocks hatched to order at $12 per 100. P. L. Simpson, Orland, Cal.

White Orpingtons—High grade stock. Heavy layers. Eggs $5.00 per 15; $25.00 per 100. Day-old chicks 75c each. H. E. Dickinson, R. D. 1, Napa, Cal.

Baby Chicks—Order now from R. I. Reds (Thompkins strain). S. C. Black Minorcas (Northrup strain). White Minorcas, Buff and White Leghorns. Eggs for hatching. C. U. Chamberlin, Los Gatos, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Buff Orpington and Buff Leghorns for Sale —Eggs $1.00 per 15 or $5.00 for 100. Order early. Satisfaction guaranteed. Mrs. F. E. Turner, Visalia, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Barred Rocks exclusively. Eggs from best matings $1.50 and $3.00 for 15, incubator lots $3.00 to $6.00 per 100. Prices right. G. L. Hawley, Madera, Cal.

R. I. Reds—Phenomenal strain. See display ad, this issue, poultry department. The Luedkes, Anaheim, Cal., R. D. 1.

For Sale—Thoroughbred White Rock, Rhode Island Red and Buff Orpingtons. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

S. C. Brown Leghorn cockerels. .Eggs $3.50 per 50 or $7 per 100, $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

S. C. Rhode Island Reds—Laying hens for sale. Eggs $1.50 per 15, $6.00 per 100. L. Haynes, Madera, Cal.

Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

NURSERY STOCK.

For Sale—Fine plants Asparagus Plumosus, two years old, $40 per 1,000. Also Springeri sane agi, $20 per 1,000. L. J. Goodman, R. F. D. 1, Box 22, Los Angeles, Cal.

Special prices on Tilton apricot, apples, Salway peaches, Satsuma plums, lemons, Navel and Valencia oranges, seedling walnuts. A fine general stock to offer. Anything in nursery line. Get my prices. A. R. Marshall's Nurseries, Cor. 3rd & Bush Sts., Santa Ana, Cal. Box 64.

Rocky Ford Cantaloupe Seed—We have a limited amount of genuine Rocky Ford, Netted Gem, Cantaloupe Seed. This seed was personally selected by the late George W. Swink from melons grown on new ground and is particularly choice. Price of No. 1 seed $1.00 per pound; price of No. 2 seed 75c per pound. Address Estate of Geo. W. Swink, Rocky Ford, Colo.

Planters and Nurserymen, attention! .Fine, thrifty fruit trees, our own home grown peach, plum and apricot. Prices right. Call and see them at 738 South Spring, or write C. A. Douglas, 912 East 46th St., Los Angeles, Cal.

For Quick Sale—The finest lot of oranges, Washington Navels and Valencias; also Eureka Lemon Trees, ⅝ and up, ever grown in Southern California, at low prices in large lots; also 500 small Acacias at 8c; 500 Phoenix Palms at 15c; 500 Strawberry Guavas at 8c and 500 Eucalyptus Robusta and Rostrata out of 4-in. pots at 7c. All No. 1 stock. Act quick, enclosing check if you want these snaps. Address H. L. Bauer & Son, 737 So. Spring St., Los Angeles, Cal.

NURSERY STOCK.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

Strawberry Plants—Fine ones. A No. 1. Dollar and Jessies $3.00 per 1,000. Special prices on larger orders, or to the trade. J A. Powell. R. D. 1. Box 1. Ripon. Cal

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

Grafted Walnuts, all kinds. Grafted Giant paper shell pecans, Walnut scions and grafting wax. Elberta peach, Grand Duke plum in quantity. General Nursery stock, all kinds. Tribble Bros., Elk Grove, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

TREES.

Trees and Sour Orange Seed bed stock for sale—Freight prepaid to any part of State. Peaches, Muirs, Lovells, Elbertas, Tuscan, Phillips, Orange and McDavitts clings, first class trees 5 to 7 ft. at 12c. Apricots, Tilton, Royal and Peach trees 4 to 6 ft. at 18c. Plums, Burbank, Satsuma, Kelsey, Wickson, Cherry and Peach 5 to 7 ft. at 15e. Prunes, Sugar, French, Tragedy, 5 to 7 ft. at 15c. S. E. Courtney, Rose Lawn, Hanford, Cal.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Ballou's Nursery, 728 East Orange Grove Ave., Pasadena, Cal.

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

DOGS

For Sale—Two beautiful pure Spitz male pups, very small breed, $10 each. Pure Buff Leghorn eggs. Mrs. Geo. H. Andrews, San Luis Obispo, Cal.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks —White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S FOWL WHITE FARM, Moorpark, Cal

Business

BABY CHICKS.

The season is on for baby chicks. It's going to be a big season, too. You will want to place your order early so as to secure the number you require and of the quality you want. It is important that you give this matter prompt attention. There are a number of reliable chicken hatcheries advertising in the Cultivator and an examination of our columns will give you the best places to buy your stock. All of our advertisers are thoroughly reliable and you can depend on getting a square deal from any of them.

The demand for poultry and eggs is increasing steadily and bids fair to continue right along. You would do well to get in line for some of the good poultry and egg orders. You can add to your income by placing a few hundred chicks on your place, and with but little expense and trouble.

HAY DERRICK.

Now is the time to think about your haying facilities and consider the best method of stacking hay. Hand labor is expensive and slow. To leave hay unstacked is a waste; therefore the thoughtful farmer will search diligently for an improved method that he may stack his hay better and quicker.

In this connection we call special attention to the derrick made by the Schmeiser Manufacturing Company, of Davis, Cal. It is the most convenient and practical method we have ever seen for quickly transferring hay from the wagon to the stack. It can be carried from place to place and one man with it can do the work of four men with the old style pitch fork. Besides this use, it will be found constantly convenient on the farm, and once you have it, you would never be without it. It is economy to have this derrick, and those who are expecting to handle hay this coming season should get in touch with the manufacturer at once. A postal will bring full information. Special attention will be given to inquirers who mention the Cultivator.

IN THE MATTER OF SPRAY.

When you buy your spray you want the best on the market. An inferior spray will cost more than a better grade as you will have to use a greater quantity or spray a greater number of times. It is to your advantage to get the most reliable to be had.

The Ortho Lime-Sulphur Solution gives perfect satisfaction. It is carefully and scientifically compounded and put up in steel drums, so there can be no waste. This preparation is made by the California Spray Chemical Company of Watsonville. You would do well to write for their descriptive circular and learn the good points of this spray. A mention of the Cultivator in this connection will bring you an immediate reply.

FIRELESS BROODERS.

This is a modern and very successful invention. It does away with the danger of fire, gives the chicks sufficient warmth and insures a healthy, vigorous growth. Every chick raiser should have a fireless brooder. It will save time and money. The Ward Fireless Brooder, sold by the Coulson Poultry and Stock Food Company of Petaluma, has been found very successful. It is well built, strong and durable and will last indefinitely.

You can get a descriptive circular free with price quotations if you mention the California Cultivator. It would be a good plan to find out about the brooders.

BROODER STOVES.

This is the season when you should be thinking of your little chicks and preparing to keep them warm and comfortable. A brooder stove is of great benefit in the matter of heating and you cannot raise chicks unless you give them sufficient warmth.

Good stoves are made by H. F. Arenberg and the Hunter Brooder Stove Company, both of Petaluma. It will be worth your while to write for descriptive circular and prices. Mention the Cultivator.

ORCHARD HARNESS.

Everything has its place and certain kinds of harness are made for special purposes. The H. C. Shaw Company of Stockton makes a specialty of harness which is particularly suited for orchard and vineyard work. It is light, strong, well made and will give lasting service. The price is low, when you consider the quality, and those desiring a good harness should write for circular and prices. Mention the Cultivator and a catalogue will be forthcoming at once.

SWEET POTATO PLANTS.

Thousands—yes, millions—of sweet potato plants may be seen at the grounds of W. W. Burford at Glendale, Los Angeles county. He has nine varieties of regular sweet potato plants, besides yams in variety. All told, he can supply over a million and a half of plants for this season.

The Hurst Manufacturing Company makes a full line of sprayers, including man power, potato and orchard sprayers, barrel sprayers, two-wheel and four-wheel sprayers. Readers of this paper should certainly write to the Hurst Manufacturing Company, 1413 North Street, Canton, Ohio, for a copy of their sprayer catalog. They have also issued a very handsome Spraying Guide, giving new formulas, and upon request, they will send you free a copy of this most dependable guide. The spraying season will soon be here, and it is well not to wait, but to write at once.

Placer county growers will plant 10,000 fruit trees.

General Household Notes

FREDDY'S MISFORTUNE.

Freddy Simpson—he ain't never had a lickin' in his life;
Not even when he broke th' blade o' his pa's bran'-new knife,
An' cut th' parlor carpet, an' made gouges in th' floor,
An' whittled his in-nishuls, too, right on their big front door.
You see, his ma opposes any punishment like that—
Why, she just reasoned with him when he spoiled his pa's new hat.

Huh! Walter Perkins told him how his pa would take a switch
An' whip him so th' places for a day or so would itch!
An' I told Freddy Simpson 'bout th' lickin's that I get—
So hard sometimes I'd ruther stand up for my meals than set.
An' Oscar Jones an' Rufus an' Bob an' Freckles Smith,
They said they'd take th' lickin's rather than be reasoned with.
Us boys, we got to tellin' Freddy how th' whippin's feel,
An' how your pa whacks harder when you wriggle 'round an' squeal,
An' how you holler to him, "I won't do it any more!"
An' how you just don't do it, long as you keep feelin 'sore.
An' we got Freddy Simpson to believe it isn't fair
Fer his folks jest to reason—when th' reasons never scare.

So Freddy Simpson started out today to be real bad,
An' played some tricks at breakfast till his pa was awful mad
An' started out to reason—but Fred kept a-makin' noise,
An' said, "Why don't you lick me like the others does their boys?"
An' so his pa he licked him, an' now Freddy says his ma
Spent all th' mornin' reasonin' about it to his pa.

—Wilbur D. Nesbit, in Harper's Magazine.

LOVE THAT LASTS.

By Mabel Craft Deering.

The court room was crowded; the sickly odor of second-hand air fought with the mustiness of the damp stone corridor every time the swinging door opened. The prisoners filed into the cage-like dock, hand manacled to hand, and peered through the iron netting, like animals in the zoo, near feeding time. Only, instead of being splendid beasts, these animals were underfed, with misshapen heads—abortive attempts of tired nature to produce a man. The crisp-voiced little judge sentenced one after another, his carefully balanced periods received stoically, with dropped jaws and flabby lips, though once or twice the sound of weeping came from some woman in the crowded room. On these occasions the bailiff rapped sharply for silence.

The last man to be sentenced was a blind beggar. His face was pitted with smallpox, not a ray of light penetrated his sunken lids—calamity had wreaked her worst upon him. Small wonder that he cared neither for God nor man! Sometimes he crazed himself with alcohol and staggered along the street in his helpless blindness; sometimes he swore savagely when passersby jostled him, then whiningly offered for sale a package of English lavender. He had been up for numberless misdemeanors before, but this time it was something more serious—he had stolen something worth while. Other judges had been lenient with him—he seemed to owe so little to society that one could expect but little in return. This offense, however, could not be overlooked and he had just been sentenced to two years in the penitentiary. He took his doom quietly; it meant two years of plentiful food and warm housing.

Suddenly a spasm of feeling passed across his scarred and savage face. He stood up and felt his way to the iron screen that protected the dock, turning his sightless eyes to the courtroom. He could feel the warm breath of its fetid atmosphere against his face.

"I've got a dog," he said," clearing his voice, "a dog that will have no home unless somebody'll take it. It won't whine if it don't get its food reg'lar, and it don't object to a kick or two; it would feel kina lonesome without them, I guess"—this with the shadow of an evil smile. "It's lame" —he was raising his voice desperately above the shuffling of feet, for the crowd was filing out, "but it can lead all right, and sometimes (he swallowed a lump in his throat) when folks see it limp they feel sorry for it and throw me a nickel or a dime." He was shouting now because of the increasing noise in the courtroom. "It ain't no thoroughbred, but it's as good as a meal ticket, and it's a right good friend in need. Oh, won't somebody take my dog?"

The voice was a cry now, and the scarred face gradually humanized, while the judge remembered that man was made in the image of his God.

The beggar stopped suddenly, for the courtroom was empty. A deputy sheriff touched him on the shoulder, and he turned to go, cursing bitterly. A chair in the warmest corner of the courtroom, nearest the stove, grated as it was pushed back, and a thin-faced boy in a ragged suit stepped up to the screen and stared at the beggar.

"I'll take your dorg," he said.

The beggar gave the boy the number of his room, forgot to thank him, and went back to the county jail. The next day he crossed the bay to commence his term.

Two years of happiness pass like a dream. In prison the blind beggar missed some things which had given him physical satisfaction in the days of his freedom. He had had more to eat, and his meals had been more regular, but he had missed the whisky, he had longed for the smell of lavender, for which an occasional whiff of mignonette or sweet pea from the prison garden did not compensate, and, above all, he wanted his dog. Why had he not asked the name of the owner of the thin, boyish voice? Why had he not begged for an occasional line with news of his only friend? The boy, of course, did not even remember the blind man's name; perhaps he had tired of the dog and had turned it out for the pound man or to be a waif in the streets, to live from scrap heaps and to be kicked by others than those who had the right. When he thought of these things the scarred face darkened and the convict swore beneath his breath, while his heart hardened a little more in the only soft place left within it.

The doors of the state prison open every Monday morning, and a certain number of yellow-faced men, in cheap new suits and clumsily-made, creaking shoes, come out into the sunlight. Once in a great while there is a woman among them, but usually ten or a

ARE YOU ONE OF THEM?

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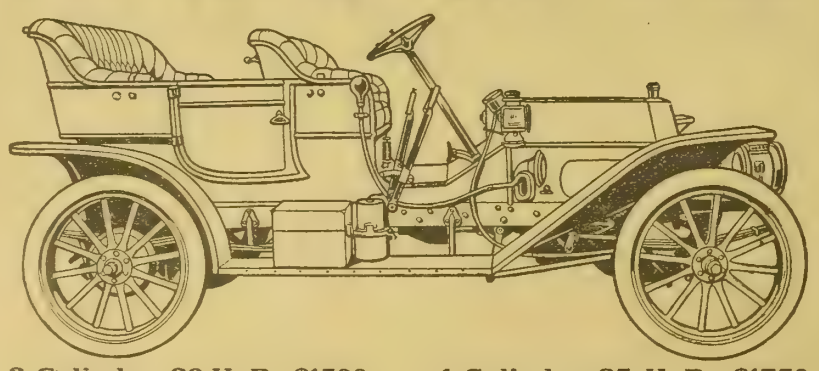

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dozen men shamble out during the day to make a new beginning in the world, with five dollars in their pockets and a prison record behind them.

The heavy stones of the prison gates are flanked by a rough rail fence, and along the fence every Monday morning is a straggling row of figures waiting for the weekly egress. It is a strange company that gathers there before the sun begins to wage his daily war upon the lichens of the gray stone wall. To prevent criminals from herding together, they are released one at a time during the day, and so the crowd of "rail-birds" comes early. There are mothers and sweethearts and wives—especially wives; sometimes a respectable-looking man comes to extend the right hand of fellowship to a blood-brother gone wrong; sometimes a sweet face under a poke bonnet is waiting to persuade some friendless one to enter a prisoners' home.

On this particular gray Monday morning, almost two years from the time when the blind man had made his first and last public speech, a thin, ragged boy sat on the rail fence, holding by a string a dog that limped. Dog and boy had crossed the bay on the first boat, and by and by others joined them. There were women with strong, severe faces—the expression that a hardened burglar, just released, called the "I-want-to-do-something-for-somebody" look; next to the boy with the dog was a little woman crying softly into a baby's neck, and beyond was an evil-faced Fagin come to win recruits for his business in the city, whose smoky mantle could be seen just beyond the blue bay; but the boy with the dog saw none of these. He was watching the big gates, and he started every time the iron door clanged; but the man for whom he waited did not come. Perhaps he had died, thought the boy to himself; perhaps he had lost his credits, as, on each stroke of the clock, as the hours passed, a prison-bleached convict emerged.

The little dog whimpered, licked his lame leg, and made a bed for himself in the dust. Twelve strokes chimed from the big prison clock that has kept tally of so much wretchedness. As the last stroke died away, the gates opened and a man came out. The doors of the prison locked like jaws behind him, and he stood helpless, turning his sightless eyes to right and left. Suddenly a dog threw itself against his knee with a whine of joy; it jumped up and licked his hand, and rubbed its rough yellow coat in an ecstasy against the man's trouser leg. The beggar cried like a baby as he rubbed the dog he had lamed in a drunken spree, and the boy with the thin face and the ragged coat-sleeve went up to the pair with the ghost of a smile on his lips.

"Here's yer dorg," he said, simply.

They sat in the baggage car together on the way to the city, since the conductor refused the dog a place in the passenger coach, and they found a room where no objection was raised to a blind beggar, a lame dog and a thin boy who wished to live together. One sells lavender, and one sells papers at morning and at night, and sometimes, when the day's earnings have been slender, the beggar sends the boy after beer, and, while he is gone, gives his own share of meat to the limping dog—ashamed to have his little partner know of his soft-heartedness. As for the boy, he shares his own portion right under the beggar's sightless eyes.

Sometimes a fierce pang of jealousy stabs the boy's heart at the dog's demonstration of fondness for the other, and sometimes, when the beggar finds the dog curled at his companion's feet, an ugly scowl still further disfigures the evil countenance, but the dog, uncannily wise, knows when to thrust a moist tongue into a hand and when to rub his head against an unfriendly sleeve. With the unconsciousness of a child, he binds them not only together, but to all the goodness in their world. He only knows that he loves them both.

What was the promise to the peacemakers—that they should see God?—Mabel Craft Deering, in Sunset Magazine.

AROUND THE KITCHEN.

The small brushes that can be bought for a trifle are a great help in the kitchen, as they are excellent for washing glassware having uneven surfaces, and the dirt can be removed much more quickly and effectively from potatoes, turnips and other such vegetables with a brush than simply by washing in water.

Add a little sugar to any bought stove polish and mix with soap suds, and to make the stove shine, add a few drops of turpentine and a little coffee, as the coffee will make the polish last much longer than when mixed in any other way. The best way to clean and brighten the oilcloth on the floor is to first wipe it up with a damp cloth and then go over it with sweet milk in which a little sugar is dissolved. Put a tablespoonful of white sugar in half a cup of milk and place on the back of the stove until the sugar is all melted, then it is ready to use when the floor is perfectly dry.

Here is an excellent recipe for pie crust for just one pie. Take one cup of chilled and sifted flour and chop two tablespoonfuls of cold lard through the flour and mix quickly with three tablespoonfuls of ice water and roll

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The mauufacturers of Pioneer Roofing have published a 32-page booklet, which is effectively illustrated. The booklet is both interesting and instructive. It tells how to lay roofing—and what weight or thickness of roofing is best suited to the various kinds of buildings. The booklet and samples of roofing will be mailed free upon request.

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When writing to CULTIVATOR advertisers **BE SURE** to say where you saw their advertisement. It will cost you nothing and **MAY** do you some good.

out quickly and you will have a flaky, rich crust. To make good and quick icing, take as much powdered sugar as is needed, and add a little sweet milk at a time, stirring constantly until the icing is just right to spread on the cake, and when the mixture breaks it is ready for use, then it can be flavored and plenty of chopped nuts stirred in if wanted. A pinch of cream of tartar will make the white of an egg beat quicker, and when making a cake use half lard and half butter and the cake will be lighter and whiter.

To save steps, have a large tray placed near the sink and place the dishes on the tray as they are washed and dried, then they are ready to carry to the dining room or pantry. If the pantry floor and shelves are uncovered, keep them white and clean by scrubbing them with hot borax suds and use this suds for scouring the kitchen tables and floors, and they can be kept white with very little labor; and there is nothing better or daintier than uncovered shelves, tables and floors when they are kept nicely scrubbed. Fine dishes can be kept shining by washing them in borax water without soap, as soap spoils the polish and glaze on nice dishes, and the silver in everyday use can be kept bright and shining by washing through the borax water and then polishing with a piece of soft cloth or chamois leather.—M. A. H.

STAINS UNDER THE NAILS.

There are various preparations sold by manicures to remove stains under the finger nails. With careful laws, most of these can be relied upon; but if there is any doubt about a special preparation, substitute lemon juice.

As a stain remover it is excellent, and the woman who keeps half a lemon on the stationary washstand where she washes her hands rarely will have to blush for the unsightliness of her nails.

Oxalic acid is also good, but is injurious to some skins. It should be applied with a bit of cotton on the end of an orangewood stick. In using the lemon, the tips of the fingers can be rubbed into a section of it. Later, rinse well with clear water.

Stains on the sides of the fingers are quickly removed with a moist pumice stone. This is invaluable to get off the first blotches after preserving, painting or doing any disfiguring work. In cases where the skin under the nails has roughened, a little powdered pumice can be moistened with lemon juice and applied with an orangewood stick.

Never scrape away a stain; it roughens both cuticle and nail, and becomes a dirt catcher rather than dirt remover.

Soaking the tips of the fingers in olive oil will help to keep the skin about the nail in good condition.—Herald.

Hotel customs throughout the world are varied. A hotel in France is on wheels, and turns so that any room can be given sunlight. Regulations governing the length of bed-sheets have been made in certain states. Probably the most unique custom prevails in Tempe, a town in the Salt River Valley, Arizona. Here the proprietor refunds the hotel charges to all his patrons on any day the sun does not shine. At first this seems benevolent, but on looking into the matter we find that he has been called upon to remit to his guests only once in the last five years. Guaranteeing sunshine is an original feature.

Handy Tools for Unhandy Places

E. C. SIMMONS KEEN KUTTER TRADE MARK U.S.A.

A hard job is made easier by a handy tool. A man in a narrow trench digs more ditch with a well-balanced, properly-angled Keen Kutter shovel than he possibly could with one less perfectly fitted to its job.

KEEN KUTTER
Farming Tools

fit everyday farming conditions. In other words—whatever the purpose for which you need a hand farming tool—a "Keen Kutter" will fill it *best.*

Buy your forks, hoes, rakes, shovels, spades, garden forks, manure hooks, potato hooks, scythes, ditch tools and corn knives under the Keen Kutter trademark. It means absolute satisfaction, or money back.

Keen Kutter Drain Cleaners.
Blade one piece highest grade crucible steel, oil tempered, hardened and polished. Beveled for either pulling or pushing, six foot selected Northern ash handle. A very useful tool.

"The Recollection of Quality Remains Long After the price is Forgotten."
Trademark Registered. —E. C. SIMMONS.

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MAKE YOUR SOIL PRODUCE *MORE* MONEY

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Buy NOW for your Spring Application

NITRATE OF SODA, TANKAGE, BLOOD, BONE MEAL
BONE FLOUR, NITRATE OF LIME, GYPSUM,
GUANO, SULPHATE POTASH, ETC.

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906-910 East Third St. LOS ANGELES,
SELLERS FOR

General Fertilizer Association

Warehouses in every Principal Town in the Citrus Belt.

MEXICAN LAND

States of Sonora and Sinaloa

Tracts of all sizes at low prices.

We have several tracts of from 1000 acres up, at first cost. These would make ideal small colonies, for parties who contemplate co-operating in purchasing land in Mexico. They are fine soil, good water conditions, and close to the railroad. We can save you subdividers' costs and profits if you and your friends can handle one of these tracts. They are suitable for anything from general farming to fine fruit and vegetable raising.

Our Santa Teresa de La Concordia subdivision, near Hermosillo, the capital city of Sonora, is delta soil, and is watered by the flood water irrigation system, corn, bean, garbanzo, and cotton land, $5.00 and $10.00 per acre, easy terms, 160-acre tracts. Fine river bottom silt soil, in the State of Sinaloa, with gravity or shallow well water for irrigation. Prices in small tracts, $12.00 up an acre, according to location and improvements.

Arrange to join one of our excursions which we are sending down at frequent intervals. Write us for free illustrated booklets and bulletin of prices.

BEN W. McCLOSKEY & CO.

700 Union Trust Buildin LOS ANGELES, CAL.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 1, 1911.

Butter.

Heavy receipts and lighter demand are weakening the butter market, and a 3½-cent decline is noted. Receipts, 40,000 to 50,000 pounds daily.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	30
Firsts	28
Ladles	22
Country	18

Cheese.

Local	16½@17
Oregon Daisy	16½@17½
Domestic Swiss	20
Imported Swiss	32

Eggs and Poultry.

Eggs firm at present quotations, which are much under last week.

Paying price f. o. b. Los Angeles is:

Local ranch candled	24
Case count buying price	20
Northern	18@22
Eastern	22

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	17@19
Roosters	10
Broilers	27
Fryers	28
Roasters	21
Turkeys	15@24
Ducks	20
Geese	17
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	5.00
Lambs, per head	3.75@4.25
Wethers, shorn	5.00

Potatoes.

Wholesale prices are:

Highlands	2.10@2.25
Salinas	2.50
Watsonville	2.35
Nevadas	2.00@2.10
Oregon, Early Rose	2.00@2.25
Northern Early Rose	2.00
Lompoc	2.50
Idaho Rurals	1.90@2.00
White Rose, local	2.25
Colorados	1.90@2.00
Sweets, yellow, cental	4.00
Sweets, white	2.50

Onions.

Wholesale quotations:

Oregons	2.75@3.00
Australian browns	2.50@2.75
Nevadas	2.75@3.00
Utah	3.00
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Asparagus, lb	40
Beets, sack	90
Brussels sprouts	10
Bell peppers, lb	15@20
Green chilis	15@20
Cucumbers, doz	1.00@2.25
Cabbage, sack	75@85
Celery, crate	2.50
Cauliflower, crate	1.75@2.00
Carrots, sack	90
Egg plant, lb	15
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@1.25
Oyster plant, doz	40
Peas, lb	10@12
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Radishes, doz. bunches	20@25
Rhubarb, Crim. Winter, box	1.25
Spinach, doz	20@25
Squash, Hubbard	2½@3½
Tomatoes, crate	1.50
Tomatoes, Mexican	1.65@1.75
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.25@2.25
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.25
Tangerines	1.35
Limes, per 100	1.25@1.50

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.20
Spitzenbergs	1.75@2.50
Jonathans	2.25@2.35
Greenings	1.25@1.50
Pearmains	1.25@1.50
Newtown Pippins	1.25@1.75
Bananas	4@4½
Pineapples	8
Pears, lb	5@6
Bartletts, lb	8@10
Winter Nelis	2.50@2.75
Strawberries	15

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evap. Apples, fancy, lb	12@12½
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	8½@12
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.50
Black eyes	7.00
Pinks	6.25
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Bayous	4.75@5.00
Lentils	6.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb, new	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10½
Extracted light amber	9
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, Feb. 28, 1911.

Butter.

Butter is firm at a cent lower price than last week. Buyers are rather slow in buying, hoping for further decline.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	25
California firsts	23
Seconds	22½

Cheese.

California flats, new	12@14½
Cal. Y. America, fy, new	15@16
Oregon fancy	13½

Eggs and Poultry.

Eggs are still declining, and receipts are very heavy, and the market is not strong. The Petaluma exchange is quoting 18½ cents.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	19½
Firsts	18½
Seconds	18
Hens, doz	5.00@10.00
Fryers, doz	6.00@6.50
Ducks	6.00@10.00
Broilers	3.00@4.50
Roosters, doz	5.00@9.00
Turkeys	18@20
Geese	2.00@2.50
Pigeons	1.50@2.50
Squabs	3.00@4.00

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	5@6½
Hogs	6@8½
Milk lambs, unshorn	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4½@5

Potatoes.

Wholesale market quotations:

River White, cwt	1.50@1.85
Salinas Burbanks, cwt	2.15@2.25
Oregon Burbanks, cwt	1.75@2.00
Lompocs	2.25
Early Rose	1.65@1.85
Sweets, ctl	5.00

Onions.

Onions, California, sack	2.15@2.25
Onions, Oregons	2.25@2.40

Vegetables.

Wholesale quotations:

Asparagus	50@75
Cabbage, cwt	65
Carrots	75
Cucumbers, hothouse, doz	1.00@1.50
Celery, crate	50@2.00
Bell peppers	10@12½
Chili peppers, lb	5@8
Egg plant, lb	10@15
Peas, lb	5@15
Summer squash, box	1.50@1.75
Rhubarb, lb	5@7
Tomatoes	1.75@2.00
Turnips	65
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.25
Grapefruit, seedless	1.75@2.50
Grapefruit, seedlings	1.75@2.25
Lemons	1.25@3.25
Limes, Mexican	6.00@7.00
Tangerines	50@1.25

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Belleflowers	1.15@1.25
Newtowns	1.15@1.40
Spitzenberg	1.75@2.50
Bananas, Hawaiian	75@1.25
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 10@11c; Apricots, 10¾@13c; do, Moorparks, 14c; Peaches, 6@7¼c, with premium of ⅛@¼c on Muirs; Prunes, bulk basis, 6¾@7¼c; Figs, 5¾@7c for White, and 5@5½c for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1.00. Seeded, per pkg.—Fancy, No. 16, 5¾@6c; Choice, No. 16, 5½c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5c; do, 3-crown, 4⅜@4½c; do, 2-crown, 4@4⅛c. Dried Grapes, 3c. Seedless—Muscatels, 4c; Sultanas, 4¾@5c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13¼
Almonds, '10 Nonp	15
Almonds, '10 I X L	14
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.00
Pink	5.65
Black eyes	5.50@5.60
Small white	3.50
Large white	3.50
Kidneys	6.25
Garbanzos	3.00
Bayou	4.80
Horse beans	2.50
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	18@21
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner & Miller say: Arrivals for the week ending today amount to 4,167 tons, as against 3,791 tons last week, and 2,350 tons the preceding week.

There is no doubt in the opinion of the trade but what large stocks of hay will have to be carried over into the next season, as it will be a physical impossibility to dispose of the large stocks on hand prior to the harvesting of the new crop. There has been practically no export demand, and coastwise shipments are very light.

Alfalfa is in large supply and more difficult to dispose of.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Wheat, No. 1	1.32½@1.37½
Barley, fancy	1.13¾
Barley, good to choice	1.10@1.12½
Barley, poor to fair	1.07½@1.10
Oats, white	1.45@1.50
Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00@18.00
Bran, ton	24.00@26.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Ground barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	32.00@35.00
Oil cake, ton	40.50@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	25.00@26.00

Citrus Fruit Market

LOS ANGELES, March 1, 1911.

The prices on oranges are very sat-

isfactory. The shipments running close to the 200 mark means that the market is absorbing great quantities of fruit. This is aided partly by the shortage of apples and the fact that good grade oranges are being sold generally in the markets by the peck and half bushel at prices lower than the best apples. With the continuing of these conditions it is hoped this year's production will be absorbed at satisfactory prices. Icing has begun with many shipments, and decay is much less noticeable than a few weeks ago.

A slight lowering is noted on Mediterranean lemons, but Californias are holding fully up to earlier winter quotations. Picking is continuing in the groves, much of the winter fruit being shipped, while the late fall cuts are being held.

Shipments.

Total shipments of oranges to date since November 1, 11,455 cars, of lemons 1,478 cars, making a total of citrus fruits of 12,933 cars. To same date last year: Oranges 8,113, lemons 1,485, or a total of citrus fruits of 9,598 cars.

LOS ANGELES, Monday, Feb. 27.—Nine cars navels sold here today. Market more active—better feeling.

NAVELS—	No. Boxes.	Avge.
Half Moon, xf, R G O A	396	1.62½
Bronco, xf, W Amer F	396	1.57½
Red Raven, P & L River	384	1.57½
Premium, Or, B F Co	262	1.27½
Second grade in car	134	.....
Herald, xc, W A F Co	408	1.25
Sunrise	352	1.25
Second grade in car	56	.....
United, fy, from Placentia	384	1.25
Sky Blue	284	1.15
Second grade in car	112	.....
Lone Palm, xc, G & W	352	1.10
Second grade in car	46	.....

Discount on all second grades and small off sizes, 25c box.

NEW YORK, Monday, Feb. 27.—Forty-three cars navels and five cars lemons sold. Market strong on navels and lemons. Weather fair.

NAVELS—	Avge.
Titus Ranch, fy, S M G P A	2.50
El Toreador, Sd	2.40
Swastika, iced L V W, Brown	2.05
Sunset, iced	2.35
Elephant, Or, Elephant Orchard	2.80
Blue Banner, iced, Sutherland F	2.60
Green Banner, iced, Sutherland	2.35
Valle Vista, iced, Sd	2.20
Camellia, iced, Red M O Dis	2.40
Redlands, Best, iced, xf, Red M O	2.45
Sultan, iced, xf, Red Mo	2.50
Camellia, xf, Red M O Dis	2.35
Ideal, High Prot Assn	2.45
Mt Harrison, fy, imp, Sewell	2.65
Euclid, Or, Growers F Co	2.80
Uplander, Or, Growers F Co	2.50
Old Mission, fy, Chapman	2.50
Old Mission, ch, Chapman	2.35
Golden Eagle, Sd, Chapman	2.15
Diamond A	2.55
Sierra Celeste, W T Michael	2.55
Sierra Nuggets	2.40
Ideal, High Prot F Assn	2.55
Delicious, High Prot F Assn	2.55
Regent, Sd, Growers F Co	2.65
Regina, ch, Growers F Co	2.50
Regent, Sd, Growers F Co	2.65
Orchard, imp, Or, National O Co	3.00
Standard, imp, Sd, National O Co	2.45
Orchard, Or, National O Co	2.55
Aurora, fy, E Peycke Co	2.10
Rose, xf, Red O G Assn	2.50
Half Moon, xf, Red M Dis	2.45
Golden Cross, imp, National O	2.95
Red X, National O	2.45
Gold Buckle, R H, E High	2.90
Victoria, A H Ex	2.75
Lincoln, A H Ex	2.50
Glendora Heights, fy, A C G, Glen	2.70
Homer, Q C, Corona	2.50
Pinnacle, O K Ex	2.70
Gold Buckle, R H, E High	2.55
Lochinvar, R H, E High	2.55
Kennilworth, imp, A H, Riv	2.80
Peasant, imp, A H, Riv	2.70
Kennilwood, A H, Riv	2.80
Peasant, A H, Riv	2.50
Royal Knight, R H, E High	2.55
Blue Seal, A C G Ex	2.60
Red Shield, A C G Ex	2.55
Blue Globe, imp, Riv Ex, Riv	3.05
Red Globe, imp, Riv Ex, Riv	2.65
Jameson, imp, Q C, Corona	2.75
Justrite, imp, Corona	2.55
Uncle Sam, Riv Ex, Riv	2.55
La Mesa, imp, Riv Ex	3.05
Golden Rule, imp, Riv Ex	2.75
La Mesa, Riv Ex, Riv	2.80
Homer, Q C, Corona	2.55
Camel, Q C, Corona	2.50
Stork, S A Ex	2.45
Pointer, A C G Ex	2.60
Hunter, A C G Ex	2.40
Possum, A C G Ex	2.35
Camel, Q C, Corona	2.40
Red Shield, imp, A C G Ex	2.65
Pointer, A C G Ex	2.10
La Paloma	2.50
Gavilan, Riv Ex	2.40
Braeside, Riv Ex	2.15
Pointer, A C G Ex	2.20

LEMONS—Linda Vista, $3.20; Marguerite, $2.90; Sunrise, $2.65; Limoneira, selected, $3.30; Pet, $3.25; Greyhound, $3.00; San Fernando Rey, $3.25; Tunnel, $3.00.

ST. LOUIS, Monday, Feb. 27.—Cool, clear. Market weak on large sizes navels; steady on lemons. Seven cars navels and one car lemons sold.

NAVELS—	Avge.
Searchlight, S S, Orange	1.70
Teal, Covina Ex	2.05
Belt, R H, E High	2.20
Palomar, Loveless F Co	2.00
Hunter, A C G, Glendora	2.00
Lone Palm, xc, G & W	2.15
Dulce, Sd, Randolph F Co	1.70
Butterfly, Covina Ex	2.25
Lochinvar, R H, E High	2.40
Log Cabin, Loveless F Co	2.20
Pointer, A C G, Glendora	2.30
Beach, Sd, McG & W	2.15
Anchor, ch, Randolph F	1.75

LEMONS—Hillside Gem, Loveless F Co, Escondido, $3.35; Bridal Veil, V C Ex, Fillmore, $3.35; White Cross, $3.35; Loma, $2.45; White Cross Lemonettes, $3.35.

BOSTON, Monday, Feb. 27.—Twenty-one cars sold. Fair, warm. Market strong and higher, both oranges and lemons.

NAVELS—	Avge.
Glendora Heights, x ch, A C G	2.35
Laurel, Q C, Corona	2.90
Princess, Q C, Corona	2.65
John Alden, S B, High	2.60
Sierra Vista, A H, Riv	3.00
Peasant, A H, Riv	2.55
Gold Buckle, R H, E High	3.05
Pointer, A C G, Azusa	2.60
Eagle, A F, Alles	2.50
Orchard, Or, National O Co	2.95
Hawarden, Hawarden C A	2.80
Redlands Best, xf, M O Dis	2.60
Standard, Sd, National O Co	2.35
Pinnacle, O K Ex	2.90
Laurel, Q C, Corona	2.85
Golden Bar, S B, High	2.70
Pine Cone, S B, High	2.90
Kennilworth, A H, Riv	2.80
Queen Bee, Q C, Corona	2.80
Lochinvar, R H, E High	2.80
Sweetheart, A F, Alles	2.75
Alpha, xf, R Henderson	3.25
Elephant, Or, Elephant Or	2.90
Elk, R Henderson	2.75
Arch, ch, Hawarden C A	2.65

LEMONS—Lotengo, fy, Sparr F Co, $3.80; Del Oro, ch, $3.55; X X X, S T, Leffingwell, $3.90; E E E, $3.70.

TANGERINES, HALVES — Bear boxes, $2.15.

BLOODS, HALVES—Laurel, $1.60.

PITTSBURG, Monday, Feb. 27.—Fifteen cars sold. Market steady on oranges and lemons. Favorable weather.

NAVELS—	Avge.
Naralimo, Or, Sparr F Co	2.45
Hibiscus, Sweetwater F Co B	1.75
Liberty, Escondido F Growers	1.75
Parrot, S A Ex	2.10
Red C, Covina Ex	1.95
Butterfly, Covina Ex	1.75
Castle, Riv Ex, Riv	1.90
Glendora Heights, xc, A C G, Glen	2.25
Parrot, S A Ex	2.35
Del Oro, ch, Sparr F Co	2.10
Liberty, imp, Escondido F G	1.85
Hunter, A C G, Azusa	1.35
Blue Label, A C G, Charter O	1.75
Golden, Riv Ex, Riv	2.10
Glendora Heights, fy, A C G	2.60
Jasmine, D M, Duarte	2.25

LEMONS—Mountain Crest, S A Ex, $2.90; Primrose, D M, Duarte, $3.10.

TANGERINES, HALVES—Liberty, $1.65; Glendora Heights, xf, $1.70.

PHILADELPHIA, Monday, Feb. 27.—Ten cars navels, four mixed cars and one car lemons sold. Twenty-one cars Floridas sold. Oranges, $1.25@3.50, average $2.05; grapefruit, 80c@$2.60, average, $1.60; tangerines, $1.70@2.55, average $2.25. Market unchanged.

NAVELS—	Avge.
Carmencita, S T, Fullerton	2.15
Cosmos, S B, Yerkes S	2.10
Stag, A C G, Glendora	2.65
Possum, A C G, Charter O	2.15
Colombo, S T, Fullerton	2.20
Native Sons, ch, King F Co	2.35
Salt Lake, Sd, King F Co	2.05
Beach, Sd, G & W	2.20
Venus, xc, E Peycke Co	2.15
Canna, S B, Yerkes S	2.30
Pico, S T, Whittier	2.00
Pointer, A C G, Glen	2.45
Carmencita, S T, Fullerton	2.30
Alhambra, S T, E Alh	2.35
Salt Lake, Sd, King F Co	2.15
Lone Palm, xc, G & W	2.30
Mars, xc, E Peycke Co	2.20
Cove, Sd, E Peycke	2.00

TANGERINES, HALVES — Stag, $1.35; Dancy, $1.30.

MANDARINS, HALVES — Stag, $1.25.

LEMONS—Upland Czar, Or, Upland M O Assn, $3.00.

CINCINNATI, Monday, Feb. 27.—Cool. Market strong on small sizes, weak on large size navels. Steady on lemons. Six cars navels, one lemons and five Floridas sold. Florida Brights and Russets, $1.40@2.25.

NAVELS—	Avge.
Mother Colony, S T, Anaheim	2.35
Airship, Fillmore C A	1.85
Golden, Riv Ex	1.90
Camellia, xf, M O Dis	2.50
Pico, S T, Whittier	2.10
Oriole, Fillmore Cit	1.70
Clover, xc, Red O G A	2.35

LEMONS—Commercial, A H Prenda, $1.85.

CLEVELAND, Monday, Feb. 27.—Six cars navels, three cars lemons and two mixed cars sold. Unchanged on navels, lower on lemons. Cold; predicted colder.

NAVELS—	Avge.
Trail, A C G, Lamanda P	2.35
Parrot, S A Ex	2.35
Royal Knight, R H, Redlands	2.45
Parrot, S A Ex	2.35
Belt, R H, E High	2.20
Billiken, Riv Ex	2.25
Tiger, S B, Colton	2.25
Herald, xc, W American F	2.30
Canon, A C G, Lamanda P	2.10
Hawk, S A Ex	2.10
Newsboy, R H, Red	1.95
Lochinvar, R H, E High	2.50
Uncle Sam, Riv Pach	2.40
Pond Lily, Riv Ex Pach	2.00
Floral, S B, Colton	2.10

LEMONS—Pet, S A Ex, $3.30; Greyhound, $3.00; Pup, $2.95; Belt, R H, E High, $3.05; Prairie Chicken, A H Prenda, $2.50; Floral, S B, Colton, $1.90; Touchdown, $2.55; Freedom, $2.05.

TANGERINES, HALVES — Tiger, $1.70.

CHICAGO, Monday, Feb. 27.—Lemons continue easy, trade is just fair, and offerings are good. Boxes, California fancy 300s, $3.50; 360s, $3.25; off sizes, $3.00; extra fancy, $3.75.

Oranges—Navels from California are selling very well when they are fancy. There is plenty of stock offered, and the market rules about steady. Boxes, navels, California fancy 96s, $2.50; 126s, $2.50; smaller sizes outside in rather a small way, $1.75@2.25; orchard run, $2.00@2.25.

TEETH OF THE HORSE.

The teeth of horses present many peculiarities. In the normal mouths the rows of molars slightly diverge from front to rear and the upper rows are a little wider than the lower rows. The crown surfaces or "tables" as they are properly known, are slanting; the upper rows slant inward and the lower rows outward.

These planes are thus in opposition, yet in perfect harmony, for by this arrangement they facilitate the lateral and semi-circular movement during mastication.

Now, in the wear of the teeth improper development, such as unequal hardness and incorrect position, cause the tables to become uneven, the slanting surface forming too much of an angle, thus giving rise to conditions known as "shear-like mouth" and "sharp mouth." Again, the teeth being of unequal hardness, some of them are worn down sooner than others, thus forming an uneven surface or "step-formed mouth."

Such conditions as these give rise to improper mastication, "dainty" eating, and dropping the food from the mouth, thus causing poor digestion, and loss of condition and general health. For example, it will be noticed that the animal is chewing slowly and cautiously, holding the head to one side as if in great pain. At times he will merely taste his food, or abstain from eating any at all, unless it be of the softest kind of food.

These symptoms are certain indications of bad teeth, and the animal should be attended to without delay. Under the direction of a veterinarian these sharp edges can be filed down, the long projections cut off, and in this way it is possible to again shape the tables into normal position, such as nature intended they should be. A little care and attention to the teeth will work wonders in keeping the horse in condition to do the work which he is intended to do.—Portland Oregonian.

GOOD PEACH GROUND.

Soil for peach growing should be a good warm, sandy loam type. It is a mistake to plant peach trees in soil containing too large a per cent of nitrogen. The trees grow vigorously but rarely yield enough fruit to more than pay the expense of production. —Exchange.

WORTH ITS WEIGHT IN GOLD.

The Clipper Lawn Mower is one which will kill all the weeds in your lawns. If you keep all the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass becomes thick and the weeds disappear. It is a fine mower and information about it, including a long line of letters of commendation, will be sent if subscribers will write Clipper Lawn Mower Co., Dixon, Illinois.

ESSEX CATALOGUE.

The annual catalogue of the Robert Essex Incubator Co., of Buffalo, N. Y., is a finely printed 64-page book filled with illustrations. Everything which has to do with the poultry business is catalogued. Of course the principal features have to do with the excellent incubators and brooders of the Essex Co.

APPLE POINTS.

A neat little booklet of 16 pages is "Apple Points," on the cover of which is the statement, "Virtue lies in application thereof. A few things for those who want to know." It is issued by the Lewiston, Clarkston Improvement Company of Clarkston, Wash. It is filled with well written matter upon the apple cultural conditions and possibilities of Washington and Idaho, which is near Lewiston.

FIX UP YOUR FENCE.

Now is a good time to repair your fence or put in a new one. A good wire fence will add beauty to your place besides giving you durability which will more than compensate for any additional cost you may pay.

The California Anchor Fence Company of Stockton makes a specialty of supplying wire fences of all kinds and it would be a good plan to get in touch with this company and see what it has to offer in the line of fencing suitable to your needs. Perhaps it can be of material aid to you, and we are sure you will secure full value for your money. Mention the Cultivator and you will receive prompt and courteous treatment.

Hop growers of the Sacramento valley met last week at Sacramento.

Before you buy a Cream Separator See and try a DE LAVAL

IS THERE ANY DOUBT IN YOUR MIND as to which cream separator will give you the most satisfactory service, and be the most economical for you to buy?

Here is a proposition that should interest you.

Ask our nearest agent to bring a DE LAVAL out to your house and set it up for you. (If you don't know the DE LAVAL agent drop us a line and we will give you his name and address.) Try out any other separator you wish alongside of it. Give them both a fair, honest trial. Then buy the machine that

Skims the cleanest
Turns the easiest
Is easiest to wash
Is best constructed

If there is any doubt in your mind when you make this test as to the comparative skimming of the two machines, take a sample of skim-milk from each separator and send it to your State Experiment Station. They will tell you which sample contains the most butterfat.

We sell thousands and thousands of cream separators every year upon just such tests.

We don't hesitate to ask you to make such a test because we know the DE LAVAL will skim cleaner and give you better service than any machine on the market. That's why we are perfectly willing to let you try it out alongside of any "would-be" competitive machine ever built. Our willingness to have you make such a test should mean more to you than volumes of printed claims.

Give your cows a square deal. Be fair to yourself. If there is any one farm machine that should be of the very best possible construction it is the cream separator. It is used oftener than any piece of farm machinery—730 times a year—and the very best machine that you can buy will be far the cheapest in the end. You have always heard the DE LAVAL spoken of as a high-grade machine. All DE LAVAL users are DE LAVAL "boosters," because it always "makes good."

DE LAVAL cream separators are made in all sizes and capacities, from a 135-lb. an hour machine that sells for $35 to a $1350-lb. machine that sells for $160.

DE LAVALS are made to run by hand, or can be furnished with attachments for operation by various kinds of power.

We have agents in almost every locality who will be glad to set the machine up for you and give you a free trial, and we have an arrangement with our agents whereby a purchaser, if he desires, may make a partial payment at time of purchase, and pay the balance on easy terms covering a period of twelve months.

If you are interested in the purchase of a cream separator, be sure to write for our new catalog which illustrates and describes in detail the features which have made the DE LAVAL the universal favorite among dairymen all over the world.

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DE LAVAL

Cream Separators

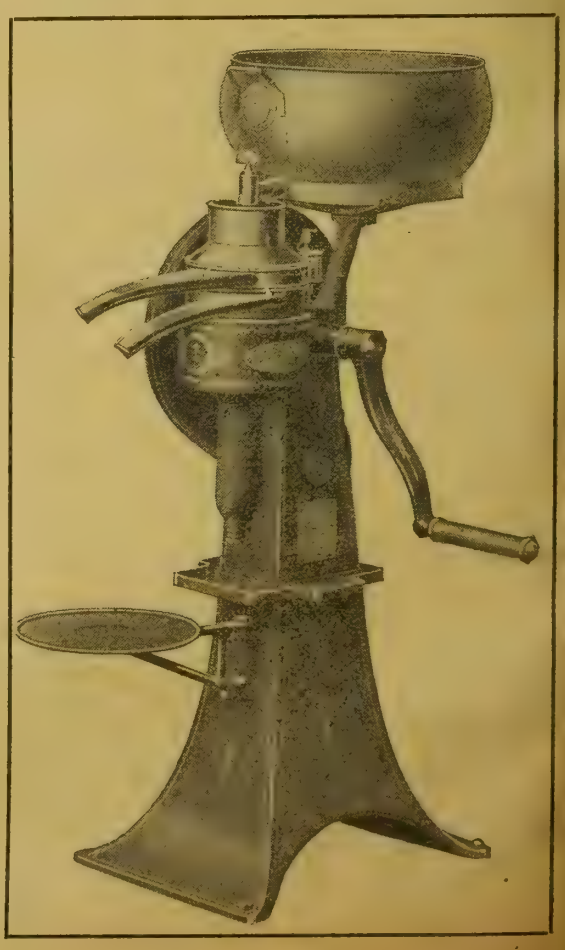
Ten years ago there were a dozen different makes of creamery or factory separators in use. Today over 98 per cent of the world's creameries use DE LAVAL separators exclusively.

It means a difference of several thousand dollars a year whether a DE LAVAL or some other make of separator is used in a creamery.

Exactly the same differences exist, on a smaller scale, in the use of farm separators. Owing to the fact, however, that most farm users do not keep as accurate records as the creamerymen, they do not appreciate just what the difference between a good and a poor separator means to them in dollars and cents. Nine times out of ten the farmer can't tell whether or not he is wasting $50 to $100 a year in quantity and quality of product through the use of an inferior cream separator.

Now, if you were in need of legal advice, you would go to a lawyer. If you were sick you would consult a doctor. If you had the toothache you would call on a dentist. Why? Because these men are all specialists in their line, and you rely upon their judgment and skill. When it comes to buying a separator why not profit by the experience of the creameryman? His experience qualifies him to advise you correctly. He knows which separator will give you the best service and be the most economical for you to buy. That's why 98 per cent of the world's creameries use the DE LAVAL exclusively.

There can be no better recommendation for the DE LAVAL than the fact that the men who make the separation of milk a business use the DE LAVAL to the practical exclusion of all other makes.



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California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES MARCH 9, 1911 SAN FRANCISCO

WATER BUFFALO IN THE PHILIPPINE ISLANDS.

WATER BUFFALO.

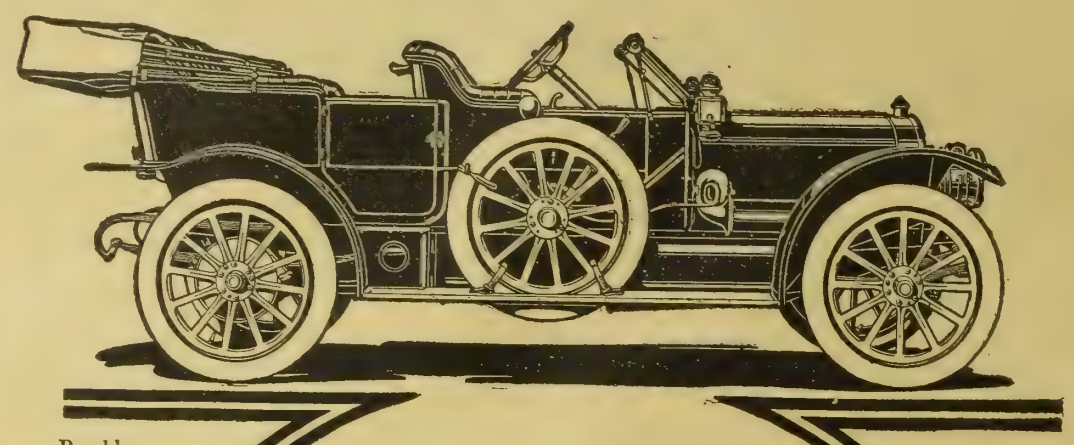
Probably the most valuable animal in the Philippines is the water buffalo, called on the island carabao, or, more technically and correctly, "bubalus bufalus." This animal is used for practically all the purposes for which a horse is used in this country, not only doing all the draft work on the plantations but carrying or drawing the family to the Sunday cock fights. It is immensely strong, being able to pull more than a horse, and in addition, is valued for its milk, flesh, horns and hide. From an American standpoint it has one serious failing, it demands repeated baths; an hour to two hours of steady work will exhaust it so that it must be allowed to go into a pool of water where, if not deep enough to cover it, it throws water over its body, and in the course of time is ready for another hour's work. In temper it is sometimes savage and gave some exciting experiences to strangers who came in with the American occupation. Ungainly and bulky as the brute is, its movements, especially when angry, are rapid, and inexperienced Americans attempting to handle it have furnished some laughable incidents and have sometimes been seriously injured.

In draft work the buffalos are attached to the load by traces connecting with a yoke of bent bamboo, the draft coming against the shoulders. They are controlled by a cord fastened to a ring in the nose or sometimes simply around the horns. In working the rice fields the animal is thoroughly at home and plods along through the flooded fields perfectly happy. During the last years of Spanish control these valuable animals were greatly reduced in numbers by surra, rinderpest and foot and mouth disease, and though the natives knew that they were dying with fearful rapidity, they took no steps to prevent the spread of these diseases. Since the American occupation intelligent study of these troubles has been made and great numbers of the animals introduced from China. The price ranges from 100 to 150 pesos, or from $50 to $75. Regarding the animal and its history Bailey's Cyclopedia says:

"The water buffalo is the largest of the bovidae, measuring, in the larger breeds, up to six and one-half feet in height at the shoulder, and ten feet in length from the muzzle to the base of the tail; body well rounded and large of girth; withers sharp and elevated; shoulders well formed; hind quarters less well developed; thighs thin; head comparatively small; muzzle large and carried well forward; limbs short and massive; horns large and much flattened, or somewhat triangular toward the base, deeply ringed, directed backward or downward, finally curving upward or inward and becoming scimiter shaped, usually very long, sometimes attaining the length of five to six feet; tail short, reaching to the hocks; skin a very dark bluish or grayish black, rarely brownish or grayish dingy white, thinly covered with coarse black hair; hair on the forehead and knees more dense; young calves well covered with brown hair all over. The color of the water buffalo is not unlike that of the elephant, and their motions are similar; the resemblance is so striking that a casual view of a moving herd of buffalos suggests a roving band of elephants.

"There is no doubt that the domestic breeds originated from the wild buffalo of India, but when domestication began, or at what periods these animals first appeared in the countries where they are now common, is doubtful. It is said that they were introduced into Italy in the sixth century and into Egypt some time prior to this period. They were in the Philippines when those islands were first visited by the Spaniards; further than this, little is known of their origin or history."

Rambler Motor Cars



Rambler
Sixty-four

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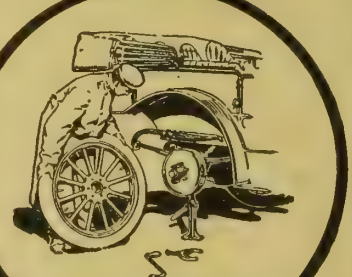

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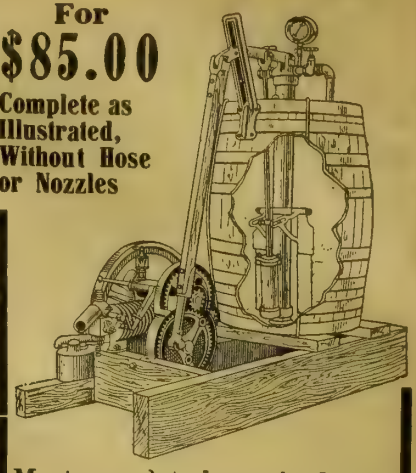

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20,000 feet	1¼-inch Standard, at	5c	per foot
30,000 feet	1½-inch Standard, at	6c	per foot
50,000 feet	2-inch Standard, at	8½c	per foot
10,000 feet	2½-inch Standard, at	15c	per foot
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20,000 feet	5⅝-inch Casing, at	32c	per foot
30,000 feet	4-inch Casing, at	19c	per foot
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20,000 feet	3¼-inch Casing, at	15c	per foot
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20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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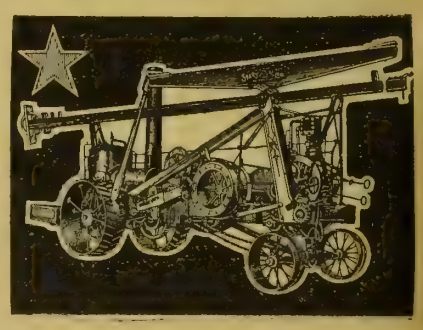

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California Cultivator

Vol. XXXVI. No. 10. LOS ANGELES: THURSDAY, MARCH 9, 1911 One Dollar the Year

Twenty First Annual Session State Bee Keepers Assn.

A Well Attended Convention of Apiarists at Los Angeles. New Bee Inspection Bill Before State Legislators Endorsed. Co-operation Discussed And Many Practical Working Suggestions Made.

For the twenty-first time the bee keepers of California gathered in annual session in the Chamber of Commerce rooms in the city of Los Angeles on Monday evening, February 27th. President Burdick presided and Secretary Shaffner kept the records. The attendance at this opening session filled the hall to overflowing, and every session until the gavel fell at adjournment saw practically every chair in the room occupied. It was regarded the most successful session ever held by the organization. The greater number of delegates were from south of the Tehachapi, but representatives were present from the San Joaquin Valley and from the Northern California Bee Keepers Association.

The greater part of the program was given over to matters of apiary management, but the greatest interest centered on two other features, legislation and marketing. There was much discussion of the present apiary law and the amendments, which are being pressed by members of the association. Co-operative marketing was given an impetus which it is predicted will lead to definite action. A committee consisting of Messrs. J. W. Ferree of Newhall; M. H. Mendleson of Ventura, and Prof. Ralph H. Benton of the State Normal School at Los Angeles, was appointed to investigate as to the advisability of a co-operative movement and, if deemed advisable, to formulate a general plan of local organization, the same to be reported to the executive committee for more definite action.

Co-operation.

This step was taken following an address by Mr. J. B. Neff of Anaheim on co-operative marketing. Mr. Neff remarked that he had no fault to find with brokers and dealers personally; it was simply a question of securing the most money for his product without increasing the cost to the consumer. He felt it would be an error to create an organization which should assume to reduce production and boost prices. The manufacturer, the wholesaler, and the commission man joins his fellows in the same calling, and if no definite organization exists, a "gentlemen's understanding" prevails. The producer too often manifests his independence and insists on handling his own business, possibly to the detriment of his neighbor, and his neighbor to his. Especially in California where the producer has to look for markets at great distances, should there be an understanding to enable distribution of the product to the greatest advantage of the industry. Mr. Neff instanced the difference in prices to producer and to consumer of raisins, which in bulk cost the consumer eight to ten cents, while the grower receives two and a half to three. All dried fruits, and in fact, practically all products, show the same difference. One forceful illustration used by Mr. Neff was that given by one speaker in Congress, that a bushel of wheat which brings the farmer 90 cents and retails for $3.45 when made into bread at five cents a loaf, brings $37.50 when served in a good restaurant. Potatoes worth 30 cents a bushel in North Dakota served "hashed brown" bring an advance of 450 per cent. Honey is no exception. Of course the great success of the California Fruit Exchange was referred to and held up as an object lesson for the bee keepers. The Walnut Association and its successful handling of its business was also mentioned, but Mr. Neff granted that the walnut product was more easily handled under co-operation than would be probable in the case of the apiarists. One embarrassing feature for the honey organization is the fact that the production is not uniform; one year it may be as low as a million pounds and the next ten million, or in tons, vary from five hundred to five thousand. The average for the state is probably five million pounds at the average price of five cents to the producer. Mr. Neff entered into details of the formation of an organization, even to the detailed expense; for instance, on a 300-ton basis, or $30,000 worth of business, the association should not incur expense to exceed $3000. Of course, it is assumed that a greater tonnage could be handled if the organization is perfected.

Legislation.

In the matter of legislation Mr. Ferree reported for the legislative committee that the bill had been formulated and submitted to the executive committee; also to a committee appointed from other associations which do not affiliate with the state association. The bill had been placed in the hands of Assemblyman Lamb and had passed the Assembly, but was held up in the Senate because of dissatisfaction on the part of some northern apiarists. Mr. Richter from the State University, was present and represented the northern interests. The point at issue in the matter was the provision in the bill calling for the appointment of inspectors to enforce the law from a list to be furnished by the State Association. Some of the northern delegates present at the convention appreciated the situation and went to their northern homes with determination to aid in the passage of the bill as presented. It is probable that an effort will be made to extend the usefulness of the state association and make it representative of every section of the state. Any beekeeper may become a member upon payment of $1.00 dues and thus become a factor in controlling matters which are of vital interest to the entire industry. Upon this point the legislative committee consisting of Messrs. Ferree, Mendleson and Burton, submitted a report of the action of the committee and later formulated a statement for the agricultural committee of the Senate, from which we quote:

"We believe the bill to be framed in the interest of the whole bee keeping public of the state, and to be one vitally connected with the production and future development of the honey industry of California. The State Bee Keepers Association is a corporate body composed of honey producers from all parts of the state of California, and includes some in its membership whose bee keeping interests are wider even than the state of California. Anyone actually engaged in apiculture may become a member upon the payment of the required dues, and so far as we know in all its history of some twenty years, no honey producer has ever been denied the privileges of joining our association.

"With the growing alfalfa districts in some of the interior valleys, the bee keeping industry has greatly expanded in recent years. In some of these newer and remoter districts, as well as in the older bee keeping communities of the state, local district and county bee keepers associations have sprung up, such as the corporate body known as the Imperial Valley Bee Keepers Association, the Tulare County Bee Keepers Association, the California Central Coast Bee Keepers Association, and the Los Angeles and Orange County Bee Keepers Clubs. Many members of these avowedly local organizations are individually members of the State Bee Keepers Association, which in turn is in affiliation with the National Bee Keepers Association, an organization of some four or five thousand honey producers scattered all over America. Some of these local organizations are in affiliation directly with the national organization. Some of them are affiliated with our state association and send delegates to the annual convention. A year ago, at the request of certain of these district associations, notably the Northern California Bee Keepers Association, steps were taken to bring about a closer affiliation, and at that time certain amendments to our constitution were presented, looking toward closer identification between local bodies and the state association. These changes in our constitution have been passed upon at the recent convention of the state association, and now local associations may come into the state association as a body upon payment of small dues per member, less than the regular dues of membership in our association.

"We have put forth every effort to extend the influence and significance of organized effort among honey producers throughout our state, and our state association is destined, we believe, to grow and become more and more a channel of benefit representative of and in the interest of the whole bee keeping public of the state of California."

Black Brood.

The question of black brood and its possible control was discussed at some length. Louis Sinn of Reedley and Prof. Benton, who made extensive investigations in the black brood section, both made addresses along that line. Prof. Benton referred to the effort to establish a quarantine line which had failed because all counties did not unite. He questioned in any case the prevention by this means of its advance, which is at the rate of about 20 miles annually toward the south, because of the fact that in many sections swarms of wild bees are established so as to make a continuous line down the state.

The program as given in a recent Cultivator, was followed closely during the three-day session and many excellent addresses made. From these The Cultivator has a large number stored away which will give good things to the bee keeper readers for months to come. We regret that we cannot give more space to a number of them in this issue, but as a starter and an indication of what is to come we give the following which were selected by the executive committee as being particularly timely.

The officers were re-elected as follows: B. G. Burdick, Redlands, president; A. B. Shaffner, secretary. These two and J. W. Ferree of Newhall, M. H. Mendleson of Ventura and Ralph Benton constitute the executive committee.

BUILDING UP BEES FOR THE HONEY FLOW.

By J. W. Kalfus.

The first thing necessary to the successful building up of a colony of bees is to have a good queen. It does not pay to fool with a poor queen, and it has been my practice, of late, to commence the building up process by supplying a young queen the previous season. About the end of the honey flow I requeen one-half of my colonies each year, so by that method I do not have any queens in my apiary over two years old. Of course, there are some queens that will do good work in their third year, but generally speaking, I do not think it pays to keep them over two years. When I make my first examination of the bees in the spring, I pay particular attention to each queen, and when I find one that I am satisfied will not fill her hive with brood and keep it so, I pinch her head at once. If the

(Continued on Page 298.)

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NEEDS OF THE CITRUS INDUSTRY.

At the recent banquet of the Los Angeles Chamber of Commerce, G. Harold Powell made an address in which he touched upon the magnitude and the needs of the citrus industry of the state. From report of his address in a daily paper we quote:

"At least $10,000,000 should be added to the net annual value of California orange and lemon crops as a result of the investigation into the insect pests and diseases and the hidden troubles that affect our groves. The average annual yield of our groves as a whole is low—not over one-third of a carload of fruit an acre. The yield of the better-cared for groves varies from two-thirds of a car to more than a carload an acre. The low yield is largely due to lack of understanding of the factors that enter into production and which can be solved only by a group of highly trained investigators working together.

Enormous Citrus Crop.

"Between 45,000 and 50,000 carloads of fruit will be shipped this year to all parts of the United States and Canada and to other countries. The revenue to the state will amount to $35,000,000 or $40,000,000, of which $15,000,000 to $17,000,000 will be paid for transportation. We take tremendous pride in the fact that California leads all other states in the union in the value of her petroleum products. We feel equally exalted in contemplating the rise of the citrus fruit industry.

"The crop this year will equal the total value of the petroleum products, and may exceed it by several million dollars during the present year. It will be as large as the total value of the wines, raisins and table grape crops, nearly twice as large as the values of the forest products, larger than the combined value of grain, grass and alfalfa crops, and three times the value of the dairy products of the state. California produces about one-eighth of the lemons and two-thirds of the world's supply of oranges."

Mr. Powell pointed out the difficulties met with in the citrus industry. He stated that California growers pay their labor two to four times as much as the labor is paid in the fruit producing countries of Europe. He further declared that it costs growers here three times as much to place their fruit before the consumer as it does the Italian and Spanish citrus fruit grower. Continuing, Mr. Powell said:

Tariff Is Necessary.

"In the face of this enormous competition, the higher cost of labor and of transportation, this $175,000,000 industry could not have developed, nor could it exist on a permanent basis if the government did not partially equalize the cost of production and of transportation by a tariff duty. The tariff gives us a fair chance to meet the foreign producer in our own markets. We must preserve the tariff duty, but we must depend mainly on our own efforts to forge ahead and win the future supremacy in the world's commerce of citrus fruits. We must adjust our differences, if we have any. We must raise the standard of the individual work of the grower, the packer, and of every one connected with the industry. We must adopt better agricultural methods. We must prevent the losses that occur from bad handling of the fruit. We must lower the cost of transportation. We must strengthen the bonds that hold our growers together. We must increase the consumption of our product and open new markets. We must gain an insight into the conditions of the industry in other countries. We must have regard for public opinion and play a square, open, business game. We must give a more practical meaning to the word 'corporation.'"

Mr. Powell spoke of the need of stronger agricultural institutions in California. He declared that California did not only need more investigation into the citrus industry, but the states should develop agricultural high schools, short courses and training schools that have a direct relation to the citrus industry. As an example of the work of an efficient organization in building up the agricultural resources of a state or country, he told of the Farmers' Co-operative Demonstration Work in the South.

Urges Citrus By-Products.

Mr. Powell stated that it is not unreasonable to expect that the American people can be led by skillful advertising and careful distribution to use twice the number of lemons that are consumed at the present time. He also pointed out that there is a big opportunity for developing a citrus by-product business of large proportion.

"We import from Italy," he said, "over a million dollars worth of citrate of lime, lemon oil and other by-products into which the low grades of fruit are converted. The efforts to develop the by-product business in California have so far not been successful. The crop has been too small and of too high grade to furnish a steady supply of low grade fruit. It has been impossible to do with the high-priced labor in California what the Italian industry with low-priced labor has accomplished. But the opportunity lies before us and as the industry grows larger the lower grades of fruit will need to be converted into oil, citric acid, lemon juice, marmalade, and other orange and lemon products. Some genius will yet devise mechanical methods of doing what the foreign hand labor now accomplishes."

ORANGES IN NORTHERN CALIFORNIA.

By J. W. Mills, Marysville.

The last two years have again fully demonstrated that the orange is perfectly at home in Northern and Central California. Last year was an exceptionally cold season, and this year, while we have had cold weather almost continually, no damage has occurred to even seed bed orange stock grown in the open garden with no protection whatever. In Marysville is a bougainvillea growing on the outside of an open porch, having made a growth of eight or nine feet last summer. Only a few inches of the tender growth is frosted. This indicates that we are in at least a citrus belt, though we fear that in most seasons spring would find the bougainvillea numbered among the failures. However, the fact that the winter of 1910-

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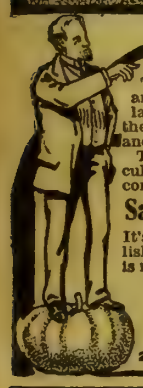

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11 was one of the coldest on record, and lemon and pomelo buds of the previous summer's growth went through without injury, and with no protection whatever, would indicate that we need not worry about the frost problem.

We are now speaking particularly of that part of the valley lying below the foothills and from 60 to 100 feet above sea level. Here, our ridge land is a deep sandy loam, a chocolate or red colored soil clear down to water, which lies from fifteen to eighteen feet below the surface. An unlimited supply can be obtained at 60 to 100 feet deep, which makes the water proposition a simple one.

The fact that we have the soil, climate and abundance of cheap water, coupled with early maturity of the fruit, gives orange culture a promising outlook for this part of the state. We know that our trees look well, that the fruit looks and tastes good, and we know that water and frost are the least of our troubles, while black scale is not able to withstand the dry summer heat. Black scale has been introduced here many times, but one season completely annihilated it. Orange culture is slowly coming with us, but some day we will be counted among the heavy producers.

Lemons will perhaps be grown in very limited areas, as the climate seems to tend to the maturing of the crop in the fall.

PARCELS POST VERSUS EXPRESS.

It certainly begins to look as if the express companies were coming in for their share of the attention which the public has been bestowing on the trusts and the railroads and the insurance companies and the rest of the big combinations. It was quite outside the possibilities that the magazines, in their search for more and more readable copy about "big business," would much longer neglect such a whopping big business as that which the express companies control. The attack has begun, and already the companies have been found guilty of making an awful lot of money. A writer in the current American Magazine gives some figures that would have looked impressive even in Brother Thomas W. Lawson's articles on "Frenzied Finance" and "The System."

It seems to be pretty clear, in point of fact, that the express business in this country has been extraordinarily profitable; that it has also been extraordinarily free from governmental regulation and supervision; and that it has likewise been extraordinarily free from government competition. In this last feature of the situation is probably to be found the main significance of the present increasing interest in the express companies' affairs. Be that as it may, the demand for the parcels post is certainly getting audible. Shippers generally are in favor of it. So are the department stores in the big cities, particularly the correspondence stores. So are a great many consumers, particularly those who live in small places or in the country. The retailers in the small places are opposed to it—naturally; and doubtless there are some other interests against it—including the express companies themselves. Evidently there is here enough material for another big politico-economic controversy. But the country can stand it. Democracy thrives on such divisions.—Harper's Weekly.

A good flow of water is being secured on lands in need of irrigation near Temecula, San Diego county.

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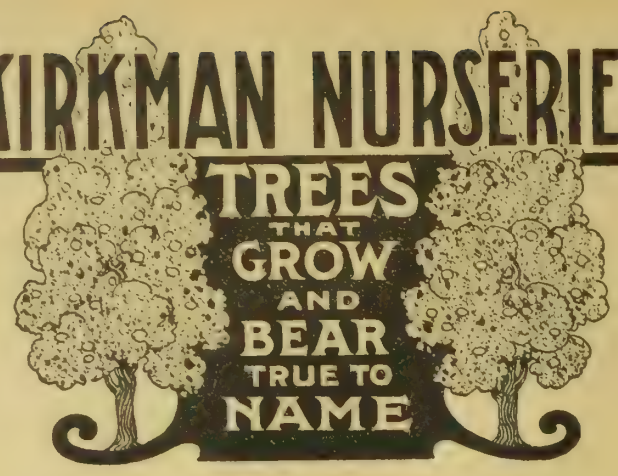

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SHIP BETTER FRUIT.

Financial loss because of shipment of inferior fruit, fresh, canned and cured, should be and is an incentive toward a better practice. The fresh fruit shippers of the north have learned the lesson, and profited much by it last season. The citrus growers of the south have learned it most fully, and have profited by it for several years. The cured fruit people are not necessarily slower, but the lesson has not been brought home to them so forcibly.

The following indicates that one little section of Europe has occasion to kick about dried fruits. It is plain enough that the wayfaring man should profit by it.

The first letter is from the commercial body at Amsterdam, or, to be more exact, it is from the "Head Direction" of the "Nederlandsche Vereeniging voor den handel in Gedroogde Zuidruchten en aanverwante Artikelen." It is to the consul of the Netherlands at San Francisco, and is as follows:

"The Head-Direction of our association takes herewith the liberty to address itself to you in regard to the following: Every year at the beginning of the season, on our markets of Amsterdam and Rotterdam, the points in question, or differences, are raised as to what is to be understood by the various qualities of apricots, prunes and other California dried fruits. This difficulty presents itself as well with the shipments of exporters of your district as with the transactions between importers here in these kinds of goods. These differences could greatly be overcome if certain conditions or stipulations were made uniform as to what should in fact be delivered and accepted.

"For the above reason our Directors would be pleased to hear from you if there exists perhaps in your city an association which would undertake the task to furnish us the different 'type-samples' of the first fruits of the season as they appear on the market, and to forward samples to, and for account of, this association, and packed in such a way that said samples would keep their condition for a month or two. As soon as the regular shipments would arrive here, samples could be taken therefrom and compared with the 'type-samples' in our possession."

This letter, with the following, was sent to State Horticultural Commissioner J. W. Jeffrey, and by him presented to the last State Fruit Growers Convention as an inducement for further standardization. The consul wrote Mr. Jeffrey:

"I appeal to you for suggestions as to how to proceed in a matter that is very important to the fruit industry of California. The Netherland importers of California dried fruits suffer so often losses by the delivery of inferior goods when the purchase called for the first quality that they have formed a protective association in the hope to save themselves from future losses of the same kind. This association asks me to make inquiry if there is any authority or commercial body in California that can secure the standardizing of exported dried fruits. If there is not, this trade is liable with time to be diverted to other similar fruit-producing countries, such as Brazil and Argentine, and others where the experience of European importers is as favorable as that with California has been often unhappy and disappointing. As my government has called this matter to my attention, it is evident that it may decide to take measures for the protection of its home and colonial importers and people against the losses that arise from these causes. Some firms have lost so heavily as to disincline them to try further importations."

From Mr. Jeffrey's letter to California dried fruit producers we quote:

"The situation that at present confronts us is the threatened loss to our dried fruit producers of many of the best European markets, and this is due solely to the lack of standard qualities in the dried fruits handled by our exporters. The failure of California to authentically grade and sample fruits to the European trade is turning the attention of that trade to other districts, such as Argentina and Brazil. There is really no time to lose, for they have formed, in these commercial centers, protective associations to put an end to the abuses in the dried fruit exportations from this state. These consumers have no desire to boycott our products, but would prefer to buy from their old sources of supply. The Netherland importers of American dried fruits claim that they have sustained all the losses they care to submit to, and, through the Netherland Association for the Commerce of Dried Fruits, propose to protect themselves. I have been asked by this association if there is any way by which they 'can secure the standardization of California exported prunes, peaches, apricots and other dried fruits.'

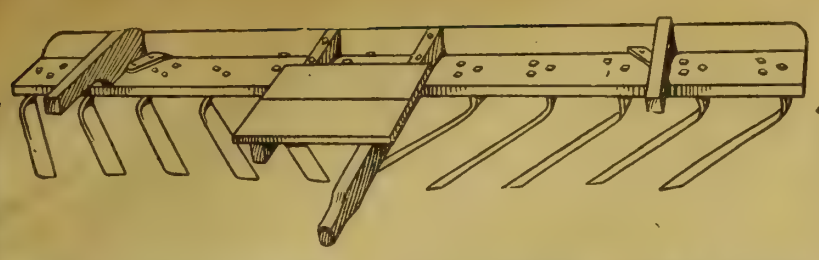
"As the need for improvement in our domestic dried fruit trade is equally imperative, the subject becomes so great that it cannot be handled without the aid of all the producers and shippers of these products joining in a wide movement to rectify the evils complained of by the consumers. I am, therefore, writing you asking that a concerted movement be started among all interested in dried fruits that shall place the trade upon a safer and more profitable basis. If the conditions and stipulations under which our fruit goes out are uniform, a great improvement is sure to follow."

BARREN HILL NURSERY.

Errors will happen and we regret them and resolve to reduce them in the future. Regarding one in the issue of March 2d, Mr. G. W. Phelps of Los Angeles writes:

In your issue of the 2nd inst. in "The Life History of a Great Walnut Tree" you say: "The nuts were obtained from France by the late Felix Gillett, the Baron Hill nurseryman of Nevada."

There are but two errors in this as far as I know. Felix Gillett was the Barren Hill nurseryman of Nevada county, California. With this correction I might safely close this note, but a sincere admiration for the men who have assisted in making California what it is horticulturally, begets the desire to see them get all the credit due them, for too often that is about all they receive for their years of labor and experimentation. It was "Barren" Hill in reality on which Mr.



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We have Killefer Cyclone Weeders of all sizes on hand. This is a most effective tool for keeping down the growth of weeds after rains or irrigating on orchard, beet, bean or grain land. Guaranteed to do twice the work with the same team of any other tool. As the knives overlap each other, it is impossible to leave anything in their course.

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While designed more especially for field use, is now becoming a favorite among orchardists where deep cultivation is desired.

This is the strongest chisel tooth cultivator on the market, and we guarantee it to give absolute satisfaction. We make special hard steel chisel points that will outwear all others. This is a good cultivator for bean or beet culture.

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Our "Jumbo" is built for deep, heavy work. Shin point and land slide are made of hard steel, and the entire construction is designed to stand all kinds of hard usage. You cannot buy a better tool for breaking subsoil hardpan in orchards.

We have made a careful study of the requirements along this line and know from actual experience that this plow will do the work that is required of it.

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Mr. Grower:

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The trees will caliper ⅝ inch one inch above the bud, and carry the Germain guarantee of true to name. Write for price.

700 CAMPHOR TREES.—A splendid lot of symmetrical trees, 6 to 9 feet high, in five-gallon cans. They are fine evergreens for yard and street and will be sold cheap.

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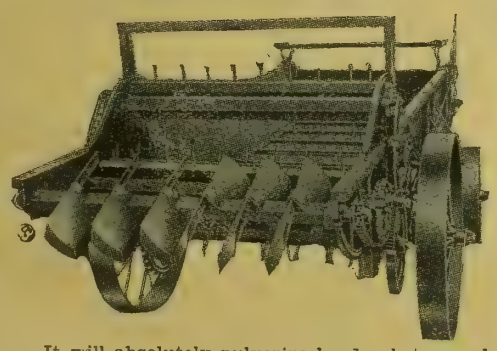

Just the thing that every farmer and orchardist has been looking for for years—a real Manure Spreader—not simply an unloader. That is why the

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Why? Because:

It will absolutely pulverize hard substances better. Gives wider and evener spreading of any class of fertilizer. Less weight. Lighter draft. Absolutely gearless, no cogs or bevel gears. Its simplicity insures less breakage. Low down and easy to load. Only perfect endless conveyor that cannot race or slip, and needs no cranking back for re-loading. Better construction and longer life. Strongest wheels, both front and rear tracking with standard wagons. Load evenly carried on both axles. Double cylinders with Pointed Teeth, preventing choking and bunching, and the Widest Range of Feed.

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Gillett conducted his experiments—a piece of land hydraulicked to the bedrock in one of the oldest mining camps in the state—one as hallowed in loving memories and the romance of early American occupation as was any corner of the wide expanses covered by the truly saintly Junipero Serra, rich in the Spanish-American romance of an earlier period—Grass Valley.

Anxious to learn something of the advanced culture of the walnut, years ago, I made a trip to see Mr. Gillett and the Barren Hill nursery. It was a visit I remember with much pleasure, and one that left a lasting impression which is my only excuse for asking a correction.

GOVERNMENT REGULATES FRUIT PRODUCTION.

The Greek currant is really a small grape. It has been grown in Greece since earliest times, and since the failure of the French vineyards in 1880 it is an important commercial product. The history of this business gives one of the most striking illustrations of an attempt by government to regulate a private industry. Under the stimulus of high prices the Greeks planted heavily and glutted the market. Strange to say little effort was made to increase the demand for the fruit. The government came in with an effort to cut off production. It forced each exporter to deposit in the government stores 10 to 15 per cent of exports. These were sold by the government for wine making. When the money from these sales reached a considerable figure the growers demanded their share. A currant bank was established in 1889, with a capital of $750,000, required by law to make loans in money or its equivalent in sulphur. Growers accepted this plan and increased production to 180,000 tons. The 15 per cent retention was raised to 20 per cent, but even this proved insufficient to control and keep up prices. Then the Greek government arranged with the currant bank to guarantee growers a fixed minimum price for currants. A loan was made to finance this scheme. This guaranteed price proved higher than the market price. The growers got the money and the bank had the fruit—and a loss of $400,000. Then they raised the retention amount to 35 per cent.

In 1905 "The Privileged Company" was organized with a 20-year charter. This company may retain 35 per cent of the crop, a heavy tax on new areas put in currants and control of tariff and taxes on grapes. It is to guarantee fixed prices for currants. For concessions it has the right to collect $2.60 a ton on all currants raised, and it may have about 60 per cent of all the currants retained for its own use. There have been two great crops in succession which have nearly swamped this company. In 1910 a law was passed which aims to induce growers to pull out part of their vineyards. They are paid a fixed price for each quarter acre uprooted.

All this will seem like a curious way to do business in this country, where the tendency is to increase production and keep on planting. Imagine Oregon or Washington passing laws to induce apple growers to cut down their orchards so as to shut off the output. The tendency here is to get out and find new markets for the goods. All these efforts to establish prices by law by trying to control production are likely to break down. No doubt the world would consume twice the volume of Greek currants if the Greeks would start a campaign like that of the Apple Consumers' League.—Rural New Yorker.

TREES

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Plums Prunes
Limes Lemons
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This is a big favorite in the East and has proven a success here. It often produces pods six inches in length, tender and absolutely stringless. Very early. Packet 10 cents. Pound 35c postpaid.

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It is the earliest producer of all, and shows a wonderful resistance to frost. Compact bush, fruit smooth, even sized and finely colored, firm flesh. Packet 10 cents. Ounce 50 cents.

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Garden and Field Crops

SMALL FRUITS BETWEEN ROWS.

By Q. A. Lobingier.

Is it wise to plant strawberries or other small fruits in the young growing orchard? If it is done, how should the soil be handled so as to keep in good condition for the trees? Is the use of the quantity of irrigation water required in growing small fruits detrimental to the young growing orchard? These questions were submitted to Mr. Lobingier and he answers:

Within certain limits it is entirely safe to plant strawberries and other small fruits in a young orchard. I think, however, I should bar out the blackberry. I have seen a single row of blackberries between young orange trees, the latter 24 feet between rows, rob the trees so that they were years in recovering their accustomed vigor and strength. The mistake almost invariably made is in planting too close to the trees. The small fruits remain from two to three years and no calculation is made for the expansion of the trees, with the result that often in a single season there is not sufficient room left between the small fruits for cultivation. This is the more important because of the fact that the cultivation can only be done the one way and is therefore more difficult, and if room has not been allowed for this cultivation, it becomes almost impossible to do it properly. It has been suggested that a row or two of the small fruits might be destroyed as the trees expand, but the average man will not do this.

If plenty of room has been allowed, the handling of the soil should be, so far as the trees are concerned, simply as if the small fruits were not there and you meant to cultivate your orchard the one way only. For young growing trees the amount of water needed for the small fruits will be no detriment. For bearing trees, however, it is quite another matter, as it is possible to greatly injure the quality of the fruit by too much water. Some years ago I knew of strawberries being grown between peach trees in San Diego county. Both crops were fair to look upon, but the peaches would not bear handling to the station, the juice literally ran out through the boxes.

I never advise this plan of growing in orchard small fruits if it is possible to avoid it. It will prove more satisfactory to grow each by itself, and a whole lot easier done.

But there are hundreds of cases where one's whole possession is planted to orchard and it is necessary to have some income from the land before the orchard comes into bearing. In such cases the next best thing for the orchard is to be liberal in the allowance of land for cultivation next to the trees.

FERTILIZATION OF STRAWBERRIES.

One of the heaviest crops of strawberries I ever knew raised was grown on land that had been stuffed with barnyard manure, a heavy coat again being applied just before the plants were set in the spring. There is another side to the story, however. The plants overran everything so that where the fruit was not picked every day there was heavy loss from soft or rotten fruit.

I am afraid, too, that the destruction of plants by the larvae of the May beetle, or "grub worm," is greatly increased by the use of barnyard manure, even though it is applied green in winter. Certain it is I lost a fourth of one fine bed last fall, the sandy part of the bed being absolutely full of these pests, though on heavy soil they seldom trouble.

We have to manure strawberries heavily, and the question is how to avoid the worms and also injury due to the great increase of weeds and soft fruit due to the application of fertilizers applied the spring the plants are to bear.

I have found three methods highly successful. One is to manure heavily and cultivate to other crops any land that is to be used for strawberries. This should be done for two, or better, three successive years previous to setting. One of our most successful growers raised onions on strawberry ground. Sometimes he sets the plants so far apart between rows as to raise a crop of opions between the strawberry plants. I always apply at least 800 pounds of high-grade potato fertilizer per acre on land that has been thus cropped, no other manure being applied the year the strawberry plants are set. I always harrow in the fertilizer after the ground is plowed.

I think the best method, however, is to plow under a good coat of hen manure in the spring, then harrow in the fertilizer. Sward ground must be cultivated to other crops one year at least before it is fit for strawberries in any case.

Another favorite method for very hot, dry soil is to apply a heavy coat of meadow muck instead of the hen manure. The muck should be got out the year before so as to allow frost to sweeten it. After plowing it in deep a good coat of fertilizer such as mentioned above should be applied. I never grew better vines and seldom better fruit than that raised on land spread with muck. I do this simply because I cannot raise early berries on heavy soil nor grass on light soil.

Thus far I cannot see any good but lots of harm in the application of nitrogenous fertilizers the spring the plants are to fruit. Last year I used nitrate of soda at the rate of 100 pounds per acre, applied in May. I got an immense crop of sorrel, lots of strawberry vines and fruit soft enough to suck through a quill. When I have tried ordinary fertilizers in the spring they were, I think, just throwi away.—Green's Fruit Grower.

EVE WOULD NOT REPENT.

What do California melon growers think of this? It was written by an admirer of "down South." Plainly, he never ate California melons:

"The true Southern watermelon is a boon apart, and not to be mentioned with commoner things. It is chief of this world's luxuries, king by grace of God over all the fruits of the earth. When one has tasted it he knows what the angels eat. It was not a Southern watermelon that Eve took. We know it because she repented."

The Tulare county horticultural commission war has been declared ended, and the bills as presented by Commissioner Schulz ordered paid.

Home Grounds Beautiful

PRESERVE CALIFORNIA TREES.

Professor Jepson in "Trees of California," says:

"The landscape as a whole is a valuable asset and should be made especially safe from spoliation within park boundaries. Even beyond park boundaries heedless and needless marring of the scenery ought not to be permitted. Of course agriculture, manufacture and the like must inevitably modify landscapes. In some cases it is, however, quite possible to mitigate the destructive effects of civilized occupation and yet not interfere with the orderly progress of our civilization.

"An illustration may be given to show one way in which the original character of the landscape may in great part be preserved. The beauty of the interior and some coast valleys is very laregly due to the presence of the scattered groves of the valley or weeping oak. These splendid trees give the valley floors a distinction which is entirely lacking to them when the oaks are cut away to make room for orchards and gardens. It is however, quite possible to offset largely the effects of this removal by using the valley oak on the main and cross roads as a roadside tree, particularly by planting at irregular intervals. A few owners of roadside frontage have made such plantings and there must be numerous others, permanent land owners, who at nominal expense would be glad to help restore, where destroyed, the park-like beauty of the California valleys."

PRUNING ORNAMENTAL TREES.

Of all the injuries from which trees suffer, the best authorities say that improper pruning is the most disastrous.

There are many species (such as the oak, which need practically no prunning or trimming except the removal of dead wood. Generally speaking, coniferous and broad-leaved evergreens, such as the magnolia and pittosporum, should never be trimmed, nor ornamental evergreen shrubs. Strictly ornamental trees like the araucaria and Indian cedar should never be pruned. The leaves of palm trees should never be cut until perfectly dead. Only when the leaves are ready to fall is the trunk fully developed, and cutting them before makes an unsymmetrical and easily diseased tree.

Shade trees sometimes need to have their lower branches removed. But it is better to attend to this when the tree is very young, as when a well developed tree is suddenly pruned up five or ten feet it is apt to result in death. In the case of those trees which need pruning or trimming, it is better to do a little each year than all at once.

The prevailing custom of "topping" or to be more exact, "pollarding" of the tree, stunts it and makes many dangerous wounds.

Some of the reasons for pruning given by the best authorities are the following: To rid the tree of all dead and diseased branches and those which cross and chafe each other. To make the top less heavy, so that the tree can withstand a heavy wind (as in the case of the soft maple). To introduce more light and air into the tree. (It is said that a skillful operator can remove at least one-third of the branches of a tree in such a manner that the casual observer will not know that any pruning has been done.) To restore equilibrium between root and branches, by removing some of the live wood.

In general, the proper time to prune is before the sap begins to flow.

The operation of pruning should begin at the top of the tree. It is very necessary to use a sharp saw, and make a smooth, clean cut, close to the trunk of the tree.

A wound more than one and one-half inches in diameter should be dressed with a thick coat of lead paint, or coal tar (preferably the former). This is to prevent decay, and the entrance of insect pests into the wound while it is healing.

Bruised bark should be treated in the same manner. When wounds are old, the decayed surface should first be removed.

The filling of cavities largely made by unskillful pruning, is a profession by itself. Tree surgery, as it is generally termed, is yet in its infancy, but no doubt many fine trees have already been saved by this means.—San Jose Mercury.

RAISING HARDY PLANTS FOR SALE.

Kate V. Saint-Maur in Woman's Home Companion for March claims that the ambitious country woman can add materially to her income by raising the old-time hardy plants for sale among city people with whom the revival of "Grandma's Garden" has become a craze.

Mrs. Saint-Maur says:

"There is such an endless variety of perennial plants that it is impossible to grow them all; in fact, it would be very foolish to try to do so. Select the best known and most popular kinds, and have some of different sizes, so that you can make up selections for beds. Hollyhocks, foxgloves, golden glow, monk's hood all range from three and a half to five feet in height. After them come phlox, larkspur, false dragon's head, Canterbury bells and bergamot. A step lower are bleeding heart, columbine, leopard's bane, asters, sweet williams and wallflowers. Still lower are Iceland poppies, Japanese primroses, wake robin and pansies.

"The first year it would add to your profit to grow a few of the annual varieties in the hotbed collection: Hollyhocks, sweet sultans, sweet tobacco, asters, wallflowers, mignonette and salvia. Among the perennials which will flower the first season if seed is sown in boxes or hotbeds, are monk's hood (which is one of the most charming of the tall blue flowers and comes also in white, and blue-white mixed); larkspur; Chinese bellflower (large bell-shaped flowers of steel blue, white and violet); heliotrope and marshmallows (pink, rose color, white with crimson spots, and golden yellow with maroon centers)—these are amongst the most valuable of the first-year bloomers, for they flower all through the summer. Three of the most fragrant annuals are sweet tobacco, sweet sultan and mignonette.

"Sweet williams are such old favorites, and are so multicolored that I have always been thankful that they flowered the first season. Meadowsweet—or goat's beard, as it is often called—is white and fragrant."

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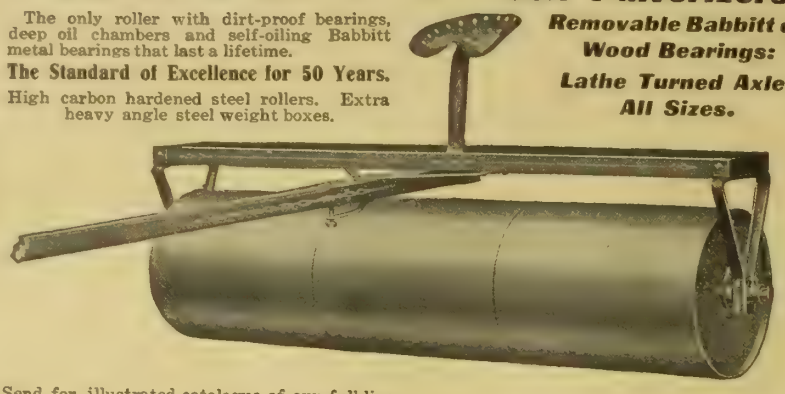

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(Continued from Page 291.)

colony is strong enough, I give them another queen at once, provided I have one, and if not, I unite them with some other colony. When I find a queen that is somewhat doubtful, I leave her alone for awhile to see what she will do, and if she does not come up to what I think she should, I decapitate her. On the first examination I mark all colonies that are weak or of medium strength so I will know just the ones to look after later. I also see how much honey each one has, and any that does not have plenty, I also mark, also those that have more than they need, so I can tell at a glance where to go for a comb when needed. I have tried putting weak colonies over strong ones, as described by the late E. W. Alexander, of New York, but in this have been only partially successful. When it works, it is a big success, but when it fails it is about as successful a failure as anything I know of. I expect to try it more in the future in the hope that I may make more of a success of it than in the past. As the season advances and the strongest colonies become strong enough to spare some brood, or are likely to swarm, I take brood from them and help the medium colonies. I do not give any to the weak ones until later on, for fear a cold spell might come and the brood become chilled, on account of not having enough bees to protect it. As the weather becomes warmer, the weak ones can be built up very rapidly with brood from other colonies.

In regard to stimulative feeding in the spring, will say that I have practiced it only a very little, and, generally speaking, I do not think it pays, provided, of course, the hives are rich in stores. Should any be lacking in this respect, I think it certainly pays to feed them a small amount of syrup daily, until they are getting a little more than their daily needs from the field. Of course, locality makes a great deal of difference, but I think all bee keepers agree that all hives should be left heavy with honey in the fall. This is done not only to prevent starvation during winter, but to enable the bees to breed up rapidly in the spring. I think there is such a thing as erring on the safe side, and allowing the hives to become honey-bound so that the queen has not sufficient room to lay. In such cases, some of the combs should be removed and replaced with empty ones. I use excluders on my hives and produce extracted honey only, and it has been my practice to remove them at the end of the flow and not put them on again until just before the flow opens up. This allows the queen to use both stories for breeding, giving her a much larger brood nest than if confined to the lower story, and also tends to keep down swarming. When I start to extracting, the brood in the upper story is all sealed, and is not thrown out by the motion of the extractor, as would be the case if unsealed. I have tried uncapping the honey—scratching the surface of the combs—to stimulate breeding, but am not sure that it does any good. I am convinced, however, that it does not pay to manipulate colonies unnecessarily, and I believe we should handle them as little as is consistent with their needs. It should be the aim of every bee keeper to produce the largest amount of honey per colony possible. To do this, we should have large, powerful colonies of a good honey gathering strain, at the opening of the honey flow. It does not pay to spend our time trying to keep up bees that are not good honey gatherers after we have built them up. I had a good illustration of this last season. I bought about 60 colonies from a neighbor, as they were stronger in bees, and had more honey on an average than my own when I got them, April 15th. I expected a good deal of them, but I do not think they gathered more than one-half the honey mine did, all located in the same yard. Well, I didn't do a thing but kill all of those queens and requeen them from my own stock. This season being a failure, I had to furnish honey for those bees, from my own stock, to keep them from starving to death. Had these bees gathered as much honey as mine did, then all would have been heavy with honey. As it is, I am afraid I will find many light ones in the spring.

And now to sum up the whole matter: We should endeavor to have our bees go into winter quarters with young queens of the best strain possible, strong in young bees, heavy with honey, in good hives, well protected from wind and rain, and then give them our attention just when needed. For neglect for a few days, at certain times, will often cost a bee keeper many dollars. If we can succeed in building up all colonies so they will be just boiling over with bees at the opening of the honey flow, then we have reached an ideal condition in bee keeping, one that will cause us to laugh, as we see the honey rolling in by the ton. Bee keepers should leave no stone unturned to accomplish that end.

A THREE-BILLION BUSHEL CORN CROP.

The magnitude of the corn crop passes comprehension. Its 3,125,713,000 bushels exceed the former bumper crop of 1906 by over 198,000,000 bushels. It is the first three-billion bushel crop of anything that the country has ever grown. It is about 50 per cent greater than the total of all our other cereal crops for this year.

The corn crop occupied 114,002,000 acres the past season, yet so vast is this country and so varied are its agricultural resources that this area represents only a small proportion of its total improved farm acreage. If all of the improved acreage of Indiana, Illinois, Iowa and Missouri had been planted to corn last spring, those four states would readily have produced the nation's corn crop, while all of the other states could have produced other cereals, hay, pasture and miscellaneous crops. These four states actually had only a little less than one-third of the corn acreage of the entire country.

The value of the cotton crop with its seed is only three-fifths of the value of the corn crop; wheat is worth only two-fifths as much; hay less than one-half, and all other cereals together less than three-fourths as much as corn. And yet only about two-thirds of the feeding value of the corn crop is included in the ears and counted in these figures.—Breeders' Gazette.

A 50x100-foot fruit packing house is being built at Fullerton.

The El Centro Creamery is paying out about $70,000 monthly to Imperial Valley dairymen.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

MARKET FOR DRAFT HORSES.

From an address by Wayne Dinsmore before the Percheron Society of America, made before the students of Iowa Agricultural College, we quote:

"Horses and mules represent more than one-half of the total valuation of the livestock in the United States, and the valuation is on a very conservative estimate, the average valuation on mules being placed at $119 per head, and the average valuation on horses at $108 per head.

"The draft horse has done more to make possible the thorough cultivation of our farms and to permit of farming on a labor-saving basis than any other animal which we possess. He has made possible a high standard of life on our farms.

"Dr. Knapp, the special agent of the Department of Agriculture, who has made extended investigations into southern agriculture, has pointed out very clearly that the one great weakness in southern agricultural conditions lies in the low proportion of team force used per man. In many large districts through the South one man uses but one mule, whereas in such districts as Iowa, Nebraska and other prosperous Northern states practically four horses are used per man. The efficiency of the human worker is thus greatly multiplied, and the heavier tools and more modern machinery make possible much more thorough cultivation, with its corresponding results in larger crops and greater prosperity for the man who tills the soil.

"There has been in the past a great market in our large cities for heavy draft horses, and good prices have for many years been realized for horses of substantial weight and good draft qualities. This market still exists. It is possible that it may be in some degree curtailed by the development of the motor truck, although I have but recently read the frank admission of some of the most noted authorities in the auto world to the effect that the auto truck cannot expect to compete wih draft horses, save where the hauling is exceptionally heavy, of greater length than is usual, and where but little delay is connected with loading and unloading.

"In such work as freight hauling from the warehouses and large jobbing establishments to the freight depots, where the distance is relatively short and where teams must frequently stand for an hour or two, awaiting an opportunity to unload, the high cost of the auto truck precludes its economical use, and as hauling of this and similar kinds makes up a large part of the draft horse work in the cities, I do not look for as serious a curtailment in the city demand for draft horses in the future as many alarmists are expecting.

"I believe, however, that the greatest market for the draft horses of the future will be found on the farms. As the prices of farm products continue to advance, land value will inevitably advance, and to be successful we must so till the soil as to secure more abundant crops than before.

"High production on our farms comes only with thorough tilling of the soil. Plowing must be thoroughly done, and every furrow turned to as great a depth as the conditions of the soil and the crop to be grown render advisable. The plowed land must be disked, and this must be well and frequently done, especially during the spring months, when land not so handled tends to lose a large share of its stored-up moisture, particularly during the dry springs which we so frequently have.

"The most fertile fields are those which receive most liberal dressings of barnyard manure, and our modern machinery, which renders this work so easy, requires an abundance of power in the way of horseflesh. Cultivation, it is true, does not require such extremely heavy horses as the other work of the farm, yet animals must be of good weight and possess abundant strength to handle a riding cultivator for ten hours steady work in the field, particularly where the work is well done.

"Haying with six-foot mowers, twelve-foot rakes and elevating hay loaders requires horses of more than usual strength, and the modern self-binder was never built for animals of light weight.

"In fact, throughout all the farm operations we find urgent need for draft animals of the best conformation and with weight exceeding 1,600 pounds, even in working condition. In many of the farm operations, animals weighing in excess of 1,800 pounds can be more efficiently used than those of the lighter weight.

"It is true that there are many farmers who cannot see the advantage of using draft horses for farm work, but their number is steadily growing less. One of the arguments most frequently advanced is that draft horses are slower in field work and do more injury to the crops in turning than lighter horses weighing 1,100 and 1,200 pounds, but the charge of slowness is unfounded, for the long, swinging stride of the good drafter carries him over vastly more ground in a day than the shorter, fussier, but apparently more rapid step of his lightweight brother. So far as the crop damage in turning is concerned, practically all up-to-date farmers are now adopting the plan of leaving a twelve-foot headland in hay, which gives a much neater appearance to the fields, makes it possible to keep the fence rows clean from weeds, and also permits of turning without damaging the field crops. The headlands produce practically as much hay as any of the meadow lands, and it is a simple matter to adopt this plan.

"Aside from the fact that the farm work can be most efficiently and economically done by the use of heavy draft horses, we find that where intelligent methods prevail the farm work is being done by mares and such of their colts as are not yet of marketable age, which means that the work is being done by animals that are of productive value aside from their labor.

"The man who keeps geldings or mules for his farm work secures only their labor in return, while the man who keeps draft mares receives not

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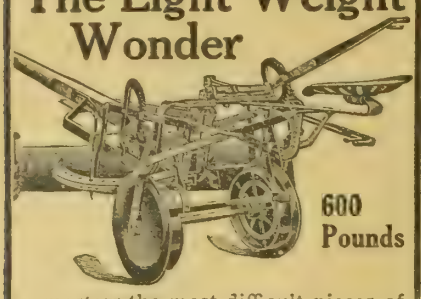

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THE PERCHERON SOCIETY OF AMERICA.

Has just taken over all records and business of Percheron Registry Company of Columbus, Ohio. 215 breeders took membership in P. S. of A. during December and January alone. 137 more new members added thru recent acquirement named above. There is now but one recognized Society in the United States recording Percherons. For information address WAYNE DINSMORE, Secretary, Union Stock Yards, Chicago, Ill.

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only their labor, but, in addition to this, their colts.

"It is true that somewhat more team force must be kept where the work is done by mares than where the work is done entirely by geldings, but when we consider that three mares can be counted upon to do as much as any team of geldings of an equal weight and strength, that the difference in feed cost will not exceed $60 per year, and that the three mares can be counted upon to produce, in addition to their labor, at least two colts that are worth $100 each as yearlings, it is apparent that the mares are the most profitable. The comparison just made is on the basis of grade mares, but where pure-bred mares are kept, the returns will be much greater."

WHY I CHOSE JERSEY.

By Charles N. Taylor, Artesia.

For a number of years I have been making an impartial investigation as to the relative merits of the different breeds of cows for dairy purposes. Having had no preference or choice, I was therefore influenced entirely on the finding of facts such as I could obtain from dairy journals, reports of competitive tests, reports of agricultural experimental stations, and from observation.

The basis of my selection was to find the cow that would produce the most butter fat on the least feed year in and year out.

I spent several months among the "grade" and "scrub" cows (which I am sorry to say are very numerous). Among the "scrub" cows I found that those that looked as though their grandmothers had been in the same pasture with a Jersey bull were the best of these very poor herds. Among the grades I found again that the Jersey bull was the sire of the best milk and butter producers of the grades. I would look at a herd of mixed breeds —grades of Shorthorn, Holstein, Jersey and others. I would ask the owner which were the best cows, and he would invariably point out a cow that showed the markings of the Jersey. The matter of the pure-bred cows of the different breeds was then taken up and investigated. Again I found the Jersey in first rank, and to me the evidence is overwhelming and absolutely convincing that the best dairy cow is the Jersey cow.

I am not partial to the Jersey because she is a Jersey. I would milk a mule if it gave 400 pounds of butter fat per year. It is purely a business proposition, and entirely free from sentiment. What I want is the most economical production of butter fat. I am thoroughly and completely satisfied that the Jersey has led them all in the past, is leading them all now, and will continue to lead them all in the future.

To my mind, the introduction of the Register of Merit by the American Jersey Cattle Club will do more good for the Jersey cow than anything else. It will divide the registered Jerseys into two classes, viz., those in the Register of Merit and those out of it. The beginner like myself will look for cows of individual merit or the sons and daughters of known performers. The Register of Merit gives an opportunity for permanent records of official performance, and is reliable information.

PREDICTION FAILED.

Some time back it was predicted that bicycles and auto-vehicles of various sorts would put horses out of business. Do the signs point to any such thing? In 1910 there were in the country 14,000,000 horses, average worth $44.61 each. In 1909 there were nearly 30,000,000 horses, average worth $95.64 each, showing the increase in average value to be more than 100 per cent. That, however, does not tell the whole story. All of the horses in the United States in 1900 were worth nearly $630,000,000, while all of the horses in the United States last year were worth nearly $2,867,000,000. That doesn't look much as if the horse were passing out, and there is everything in the situation to encourage breeders and farmers to give attention to raising more and better horses.—DeLand News.

SKIM MILK CALVES.

Answering question as to raising calves on skim milk and calf meal, Hoard's Dairyman says:

We feel very certain that under average conditions, the feeder cannot afford to deny the calf whole milk for at least two or three weeks. We believe that if the calf is raised, it should be fed properly from the start, and new, whole milk is, without question, the best feed for the calf. After the second or third week the whole milk may be gradually decreased and skim-milk added to take its place. This process of changing from whole to skim milk should be done gradually. There are calf meals upon the market which are being used with satisfaction, but we would not advise their use until the calf has reached the age of three or four weeks.

WELL-BRED ANIMALS.

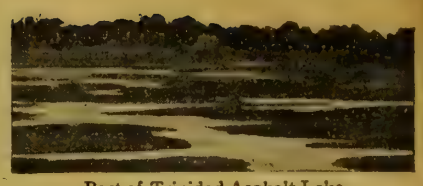
It has become an axiom, with some dairymen, that the best results are obtainable only with the best breeds of animals. But success with such animals implies also the best management; and not every beginner is capable of the skillful handling necessary with high-bred cows. The higher we get in the scale of animal life the more delicate the animal mechanism becomes, and the greater the need of wisdom in the human agency which controls its movements.

It is a long time before a baby can care for itself as well as can a bronco colt at one day old. A bronco colt can stand more simple hardship and abuse than a colt from a standard-bred trotting mare or a high-class draft animal; but the bronco will never have the great speed, at the trot, of the standard-bred; nor will it grow large enough to have the power of the drafter. The scrubby native can stand more hardship and abuse than a highly developed dairy cow capable of doing great work, and the latter loses her superior commercial value in unfavorable surroundings and under unskilled treatment.—Prof. Geo. P. Grout, University of Minn.

With systematic handling and judicious management, the hog is pretty nearly sure money. The cheapest and most profitable way to insure a healthy and rapid growth with young pigs is through the sow. She should be possessed of a strong and unimpairable digestion that is capable of converting coarse grains and roughage into easily digested milk.—Farm Journal.

Cattle do not relish eating after pigs, and colts are apt to injure hogs by chasing them.

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.



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Genasco has the natural oils of Trinidad Lake asphalt sealed in it; and they keep the roofing always pliable and strong and defensive against all weathers. Genasco doesn't crack, rot, rust, or break. It is *permanently* waterproof. That means real economy.

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M. Bassett ***Hanford, Cal***

NOTES ON THE HOG.

It is best to fatten and sell hogs young.

It costs no more to raise a good hog than a poor one.

Feed goes further with a young animal than an old one.

You can hardly push pigs too fast, providing you use the right kind of food.

Extra feed increases the growth of a proper kind and makes larger animals at maturity.

It often takes a number of generations to thoroughly change the disposition from timidity to quietude.

If when the hogs are growing fast their hind legs become weak, feed a little bone meal daily.

It is conducive to health to feed hogs where they can have the range of the pasture field.

The fairs give a good opportunity to compare breeds, and farmers should use this opportunity intelligently.

Whatever material is used for bedding, it should be changed sufficiently often to insure cleanliness.

It is nearly always best to save some of the old sows, especially to farrow the early spring litters.

The vigor and health of the hog are to some extent involved in the strength and texture of his bones, influencing to some extent his exercise.

Even with hogs the value of good feed is wonderfully increased by these attentions.

The cleaner the feed and feeding places, the better the quality of the pork in all.

A sow with a mean, cross temperament is always hard to deal with, and this disposition often causes loss of the litters.

A ground floor is the best for the sleeping quarters for the reason that the soil retains the heat, and is much warmer than plank in winter and cooler in summer.

If the swine are in the fattening stage they should have all they will eat up clean, but growing animals should have just enough to keep them in a thrifty growing condition.—Western Farmer.

NOT PERFECT.

A horse dealer was showing a horse to a prospective buyer. After running him back and forward for a few minutes he stopped and said to the buyer: "What do you think of his coat? Isn't he a dandy?"

The buyer, noticing that the horse had the heaves, replied: "Yes, I like his coat, all right, but I don't like his pants."—Tit Bits.

The dairyman should keep a complete record of each cow in his herd, including both a feed record and a milk record. Then only is he in a position to find the standing of each cow and tell which cows are profitable and which are unprofitable. Then only can he know how much feed he can afford to give each cow to make the highest profit.

The cow testing associations are already producing very good results wherever they are under good management. In almost every instance the farmers who do not join soon perceive the advantage of the plan and the number of the herds put under regular inspection increases very fast. It all depends upon the ability of the inspector. A thoroughly competent tester not only shows the dairyman just where he stands in a business way, but also helps him to make the various practical changes which improve the rations, cut down the cost of production and increase the profits. —American Cultivator.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

SUGAR.

The average American family consumes about 400 pounds of sugar in a year. The average, per family, has increased 140 pounds in the last thirty years. The figures show that we are the largest consumers of sugar, in proportion to population, of any country in the world. That may explain, in part, the present high cost of living among American families. It indicates, at least, that we do not hesitate in getting what we want, whether the home supply be sufficient or not, and that the price has nothing to do with the quantity consumed.

Sugar is one of the necessities of every home. It is so much of a necessity that for every man, woman and child in the United States there must be a supply equal to seventy-five pounds in twelve months. And it does not matter what kind of a home we have, whether shanty or mansion, sugar is considered one of the family food requirements.

Statistics as published by the Department of Agriculture show that one-half of our imports during the last year have been farm products, largely sugar, tobacco, silk, cotton and fibers. Unless we increase the productiveness of our farms, we shall most certainly have free importations of grain from Canada and of cattle from Canada and Mexico. Farmers must either increase their yield per acre or yield to the cry of the hungry stomach. To greatly increase the yield per acre, we must have smaller farms and more intensive cultivation. It would seem, therefore, that, whether we would or not, we will be forced to revolutionize to a very great extent our methods of farming.—Wallace's Farmer.

Bad usage is, more often than not, responsible for the short life of a really first-class scrubbing brush. After using the brush, never lay it upside down, as any moisture on the bristles will sink into the back and make the brush soggy. For the same reason the household broom should never be placed in the corner with the straw part upward. Instead, fasten it to a catch in the wall by a piece of string tied firmly to the end of the handle or run through a hole in it.

What Makes a Cream Separator Good or Bad?

It takes something besides cast iron, red paint and hot air to make a separator that will skim milk clean twice a day 365 days in the year for 15 or 20 years.

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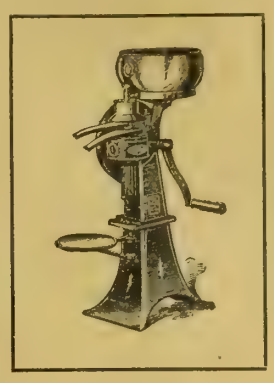

Any competent separator mechanic with a knowledge of materials and high-class separator construction will tell you that the marvel is, not that "mail order" machines are sold so cheaply, but that they succeed in getting the price they do.

High-grade separators cannot be manufactured like harvesters, plows and other farm machinery. A properly built separator is almost as delicate and exacting in its construction and measurements as a watch.

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The California Cultivator

A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,864 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, March 9, 1911

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APIARY INSPECTION.

It is to be hoped that the state legislature will pass the bill calling for more perfect protection for the apiaries of the state. It has gone through the Assembly and is now in the hands of the Agricultural Committee of the Senate, where there seems to have been a hitch because of the fact that the appointive power of the state examining board lies in the hands of the State Bee Keepers Association, as appointments must be made by the Governor from a list furnished by the state organization of the bee men, which organization was formed more than a score of years ago when bee keeping was largely confined to the southern counties. Since then the industry has been greatly extended and the San Joaquin Valley and Northern California both have organizations having to do with their local situations, and, in addition, are strong factors in the welfare of the industry at large. It goes without saying that these should be maintained, but it would seem to us that affiliation with the state organization, permitted under its by-laws at a nominal cost, would contribute to the best interests of the entire industry. The difficulties before bee keepers in the production of honey, even in California, are great enough as it is and they should not be increased by contention within the ranks.

REFORESTING.

The Tri-Counties Reforestation Committee has had charge of a fund during the past two years furnished in part by the state legislature and in part by the national congress. This fund was $10,000, but it is now hoped to duplicate it within the coming two years. The expenditure is a wise one for it has to do with fire trails or alleyways over the watersheds which supply waters to irrigate the orchards of the valley to the value of millions of dollars. The state legislature will work great injury to a very rich section should it refuse to grant this request. The proposition is to have the appropriation cover "the southern slope of the San Bernardino mountains and the San Gabriel mountains from San Antonio canyon east to the Cajon pass."

"IN THE ORANGE COUNTRY."

The March number of Sunset is one of the handsomest ever put out by that magazine. The first article, as in the two preceding numbers, is by Mr. Walter V. Woehlke of Los Angeles. Mr. Woehlke is a most interesting writer with a wonderful way of presenting the truth, and he makes one read his articles from start to finish. It is "In the Orange Country" and describes the section of this state "Where an orchard is a mine. The human factor among gold bearing trees of California."

WOOD PULP EXPERIMENTS.

The department of agriculture is at present experimenting in the manufacture of paper from different woods than have been used heretofore. The experiments are of a most practical nature, consisting in the construction of actual paper mills and the manufacturing of paper in a commercial way, covering woods from all parts of the country, at least those which are found in quantity sufficient to make experiments of value. These mills will utilize great quantities of timber which is altogether too small for the lumber mills.

In addition to the benefit which the public will derive from the advancement of forest conservation in consequence of the wood pulp experiments of the government, there is the further benefit of cheaper paper which it is believed these experiments should make possible. The price of paper of the cheaper grades, including newspaper, has been advancing rapidly of recent years as the supply of spruce has dwindled, and American mills are now drawing a large part of their supply from Canada. If ground pulp of the requisite quality can be made from new and abundant woods as cheaply as it is made from spruce, one of the most serious problems of the newspaper publisher nowadays will or should be considerably simplified.

At its last session the Massachusetts legislature instructed its board of education to investigate the practicability and desirability of establishing a farm school in the city of Worcester in which instruction shall be given in raising fruit, vegetables, grains, etc. Further, that the board shall investigate the advisability of establishing a general system of agricultural schools throughout the commonwealth. The board comes to the session of 1911 with 104 pages of report of its conclusions, first of which is that there is no systematic or general recognition of agriculture in the elementary schools in the state; further, that instruction in agriculture is of direct value in itself because of its contributing to the prosperity of the community and its aiding in the adoption of improved methods. Teachers have been enabled to increase interest among pupils in the activities of the farm. The board believes that boys may be induced to remain with the farm and accomplish better results than was formerly possible. It recommends promotion of elementary nature study, school gardens, summer courses of the agricultural college, and general encouragement on the part of boards of education.

AGRICULTURE.

Agriculture, the basic industry of the country and of the world, is entitled to the foremost position in legislative affairs. History proves that in all countries where agriculture has prospered all other industries have prospered, and where agriculture has declined, all other industries have declined; therefore, the promotion of agriculture means the promotion of manufacturing, transportation and commercial interests and the interests of the people engaged therein. Agriculture does not depend upon other industries for prosperity, but other industries depend upon agriculture as the basis of their prosperity.—The Grange.

ON TIME.

The circulation of The Cultivator has increased during the past years until the number of papers now required to send to our subscribers makes it necessary to go earlier to press. Formerly material of a news nature might be touched upon as late as Wednesday morning, but at the present time we find it impossible to handle any new material excepting markets later than Monday evening. We call attention to this because many queries and other material sent to us the first of the week cannot appear until the issue of the following week. Especially in the matter of inquiries we may say that it has been the plan of The Cultivator to get the very best information to answer points raised. In order to do this some of the queries are sent to practical workers in the field. Sometimes it is necessary for these to go to the state university or to the experiment station staff in other parts of the state, so if queries are not answered at once, bear in mind the delay is occasioned by desire to secure the best information to be had. But in regard to the news notes, such as programs of important agricultural meetings, we would urge our friends to give them to us the last of the week preceding date of issue.

C. E. RUMSEY.

The passing of C. E. Rumsey takes one of our brightest men. Mr. Rumsey has only been engaged in California horticulture for ten years, but in that time he had aided materially in lifting the standard of work. He was one of the first to take up with the suggestions of Mr. Powell, and in order to carry them out he built a separate packing house to put up a special pack which he felt would make a name for him and for his house. We heard him at one time remark that the extra care he was giving in packing added an expense of about ten cents a box, but the additional cost came back to him many times over in the higher prices which the exceptionally fancy pack commanded. Not only was this profitable to Mr. Rumsey, but it gave to the whole citrus industry an uplift which it needed. He was always quick to take up with suggestions, if important, and equally as quick to pass them on to others. In this he was the life of many a horticultural meeting.

GROWTH OF THE GRANGE.

During the year one state not entitled to representation one year ago has been added to the list. Four hundred and fifty-four subordinate granges have been organized and reorganized, which is a larger number than in any year with one exception for thirty-five years and that the year previous. The receipts for dues by the National Treasurer indicate a gain of 85,000 in paid membership, showing a net gain in every state except four, which speaks forcibly and eloquently for the splendid growth made during the year and indicates a prosperous condition of the Order in all sections of the country.—The Grange.

The Denver and Rio Grande railroad is following the Southern Pacific plan of demonstration trains excepting, we notice, that "four commodious baggage cars will contain an exhibit on agronomy, etc." We can inform the Denver and Rio Grande that the Southern Pacific takes seven large, well-lighted chair coaches and after removing the chairs, installs exhibits with some style. The Denver and Rio Grande, however, seems to have some valuable exhibits and makes a nine-day trip, stopping at various Colorado points along its line.

The consulate general of Japan at San Francisco furnishes a leaflet with figures showing that the number of Japanese in this state is being reduced every year. In 1910 there departed from Japan for the United States 924 laborers and 2,098 non-laborers, or a total of 3,022 Japanese entering this country. The arrivals in Japan from the United States were 4,823 laborers, 278 non-laborers, showing an excess of arrivals in Japan over departures for this country of 2,079.

Agricultural News Notes of the Pacific Coast

Northern California

Truckee, Nevada county, is harvesting an immense ice crop.

Colusa farmers are forming a stock company for the raising of sugar beets.

Mud hens are destroying great quantities of growing grain in Sutter county.

Corning, Tehama county, claims its orange groves have been most profitable this season.

Gridley farmers are contracting with the J. K. Armsby Co., for extensive plantings of tomatoes.

The Chamber of Commerce of Oroville has fixed upon November 20-25 as dates for its citrus fair.

An artesian flow of water has been struck at a depth of 195 feet on a ranch near Dixon, Solano county.

A bunch of Oregon men have recently purchased an extensive tract of land near Willows, Glenn county.

The government has announced that it will sell 25,000 feet of timber of the Crater Lake forest reserve.

Ukiah is entering more and more into the poultry industry, and now has one hatching plant with a 25,000-egg capacity.

Rohnerville, Humboldt county, is elated over the winning of first premium by her apples at an apple show at St. Joseph, Mo.

About 9,000 acres along the main fork of the Stanislaus river in Calaveras county will be opened by the forest service for grazing.

Residents of Lassen county are working for a branch of the state highway in Lassen and Tehama counties from Susanville to Red Bluff.

The hop growers of Yuba, Yolo and Sutter districts met recently and formed an association which it is hoped will aid them in securing better returns.

Irrigators of the North are more hopeful of the heading off of the Lake Tahoe contract by which the state of Nevada was to secure immensely valuable water rights.

The incorporation papers of the Sebastopol Apple Growers Union have been received, and the growers feel hopeful of more satisfactory marketing conditions next season.

Upper Mattole, Humboldt county, reports that some stock has been lost because of the long continued storms of this winter. At present the weather conditions are more favorable.

The bill before the state legislature calling for state aid for county or district fairs will probably pass favorable to the district fair plan. It calls for six districts in the entire state.

The last storm was a freak in that it gave snow to many sections of the state. In the city of Sacramento, and many towns near by, flakes came down and left a coating of the "beautiful."

The Santa Rosa Grange sent a delegate to San Francisco to present the matter of selling eggs by weight to the Produce Exchange, and the proposition has been endorsed by that organization.

The Cloverdale Citrus Fair did not receive quite so good an attendance as usual, it is claimed because of the citrus fair held in Sacramento. The gate receipts were not sufficient to meet expenses.

Central California

Raisin Day, April 29.

The state's output of canned goods aggregated $2,656,891.

Three and a quarter cents is being offered for 1911 raisins.

Salinas Valley farmers are plowing with gasoline tractors.

California's dried apricots aggregated 30,000,000 pounds last year.

A committee has been appointed to push the matter of the West Side irrigation scheme.

A large area is being planted to eucalyptus in the southern part of Tulare county.

An association of horse owners at Salinas has just purchased a fine imported Percheron stallion.

Watsonville reports strenuous effort to completely eradicate San José scale from its apple orchards.

An agent of an Iowa homeseekers' organization is in Fresno, looking for lands suitable for subdivision.

Madera county residents are taking steps to beautify their main thoroughfares by planting shade trees.

Poultrymen of Santa Cruz county are uniting in the formation of a cooperative poultrymen's association.

The Fresno Home Packing Company has sent circulars to its patrons stating that raisins will go to four cents.

The Spreckels Sugar Company is exhibiting to beet growers a beet which is claimed to be, in size, shape and sugar content, perfect.

Raisin men of the San Joaquin Valley are asking why no exhibit of raisins was made at the recent Fruit Jobbers Convention at Sacramento.

The Tulare county board of supervisors is making a fight against squirrels, and has appointed inspectors to report on various sections of the county.

The boundaries of the big irrigation district along the west side of the San Joaquin Valley have been reduced from 1,700,000 acres to approximately 1,000,000.

Apple growers of the Pajaro Valley section are demanding an amendment to the proposed law prohibiting the sale of perishable food that has been in cold storage longer than ninety days.

J. W. Guiberson, of Corcoran, one of the largest growers of alfalfa in the valley, is planning to increase his alfalfa acreage from 1,200 to 2,200. He expects soon to stock the place with dairy cattle.

Residents of the island district of the Laguna da Tache grant in Fresno county are protesting against the water service, claiming the Lemoore Canal Company is taking water which belongs to them.

A San Jose subscriber writes that Santa Clara Valley's weather has been simply perfect this season. Almonds were in bloom two weeks ago, and hopes are expressed that bracing mornings will destroy the thrips.

Poultrymen of Santa Clara county are discussing the matter of either a state or coast organization to look after the best interests of the industry, and especially to get proper recognition from the management of the Panama-Pacific Exposition.

Southern California

The Pacific States Tobacco Company will plant 200 acres to tobacco at Yorba, Orange county.

The Lompoc Produce Company has purchased during the season 56,000 sacks of local potatoes.

Land owners at High Grove, Riverside county, are suing to quiet title to Gage Canal water rights.

The acreage of celery in Orange county this year is 2,700, or nearly one-half that of a few years ago.

The efforts to compel the removal of the weir which diverts water for the Imperial Valley irrigation system are being resisted.

Some of the vegetable gardens above Redlands, especially in the Yucaipe, were injured by the snow which fell in the valley during the last storm.

Orange growers of Southern California had a great gathering in Highland to celebrate the pre-cooling decision of the interstate commerce commission.

The last rain put California to the good so that there is now no fear but that the year will be a complete success so far as irrigation water is concerned.

Citrus growers from all over the state are holding a special session under direction of the state horticultural commission at San Bernardino this week.

The city of El Centro, Imperial Valley, is the first to take advantage of the state law authorizing the setting of trees by the municipality along the highways.

A rancher at Santa Ynez, Santa Barbara county, has a way of placing traps surrounded by newspapers, as if a picnic party had left the place, and catches many coyotes.

The National Orange Show which is on at San Bernardino this week has a novel feature in a complete orange-packing plant, showing each step in the preparation and packing of oranges.

Mr. C. E. Rumsey, one of the brightest men in California horticulture, whose orange grove at Riverside has one of the finest packing houses in the world, died at his home at Riverside on February 27.

Ventura county is taking the initiative in the matter of securing a just proportion of the $18,000,000 state good roads fund, and is urging a meeting at some point in Southern California where all counties can unite.

On his recent visit to the Imperial Valley, President Lovett of the Southern Pacific intimated that he would expect $5,000,000 from the settlers because of expenditures made in putting the Colorado within its banks.

Filings have been made on the tidelands of Newport Bay and other ocean frontage of Orange county for the establishing of oyster farms. The city of Santa Ana, however, maintains it is to prevent the dumping of Santa Ana sewage into the bay.

Tree wardens from all sections of Southern California met in Riverside on the last day of February and discussed the matter of public control of the roadsides and the rousing of a greater public sentiment demanding beautifying of California roadsides.

The Coast

Hops are now selling at Portland, Oregon, at 19 cents.

Timothy hay is selling at $22 per ton at Brady, Montana.

Effort is being made to drain some 9,000 acres at Ephraim, Idaho.

Heavy selling of potatoes at Seattle has weakened the market.

The Rogue River Valley Fruit and Produce Association has declared a dividend of 20 per cent.

The fruit growers of the Yakima Valley, Washington, have organized a co-operative shipping association.

Spokane reports the potato market as materially weakening, $1.25 being the top notch at the present time.

The first year of a school of practical agriculture at the Idaho university has attracted thirty-two students.

Over a quarter of a million acres of desert land has been filed on in the Sudphur Springs Valley within the past year.

The Oregon Sweet Pea Society has decided to hold an exhibition the coming summer, and is offering exceptional prizes.

The earth on the Arizona side of the siphon under the Colorado river near Yuma continues to cave in, and is giving much trouble.

A company of farmers near Ritzville, Washington, has secured a large tract of land, which they will proceed to irrigate by pumping.

Attention is being directed to the rich lands in the Sulphur Springs Valley, Southern Arizona. Wilcox is the principal town of the valley.

The four weeks course for creamerymen was held at the Montana Agricultural College, at which seventy farmers and creamerymen attended.

More than 30,000 farmers of Utah and Southern Idaho have visited the demonstration train conducted over various railroads of those two states.

Governor Norris of Montana is crowding the legislature to secure the enactment of measures looking toward the conservation of natural resources.

Nearly 60,000 acres of land in Western Montana have been restored to entry because of being unfitted for irrigation, for which they were being held.

Farmers near Opportunity, Washington, are urging the state college at Pullman to take up the matter of bacteria, which are seriously blighting the tomatoes.

A farmer at Great Falls, Montana, lost a hog, which fell into a pit, where it remained for 79 days. Its weight before falling in was 225 pounds, and 90 pounds when rescued. The hog is again laying on fat.

Hungry insurrectos took possession of the grading camp working on the levees of the Colorado below the Imperial Valley, and contractors have appealed to the United States for protection of their supplies.

A committee appointed at the wheat growers convention at Pullman last year to investigate as to the cost of wheat production estimated that in order to make money on wheat, pay interest, and all expenses considered, the farmer should grow at least thirty-five bushels per acre.

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A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Descriptive booklet of our stock and farm and recipe for mixing best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels.

On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

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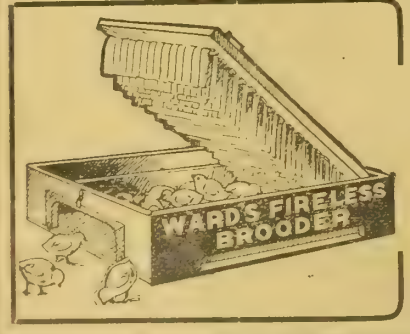

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Proven to be the most successful Brooder Stove on the market. Awarded gold medal for most Meritorious California invention at California State Fair, Sacramento, September, 1910. Burns distillate, perfectly simple and easy to manage. Write for details. **H. F. ARENBERG, Petaluma, Cal**

Practical Poultry Culture

SHIPPING BABY CHICKS.

Answering the questions as to boxing and shipping day-old chicks, two writers in the Rural New Yorker give the following:

In boxing "day olds" for shipment by express we use what we call "flats" or shallow boxes four to five inches high, 15 to 18 inches wide, and about two feet long, holding 100 to 200 chicks. First take a strip of coarse muslin, or even burlap will do, and lay one end of it across the box on which place a layer of cotton batting, thin if the weather is warm, and thicker if cold. Then fold back the muslin and press the pad thus formed down evenly on the bottom and against the edges of the box, when it is ready for the chicks. Now, being very careful not to let the chicks get chilled, the box is filled evenly, but not piled up. Then fold the muslin across over the chicks and put on another layer of batting, enough to fill the box, then you fold back the muslin and nail strips closely for a cover, and they are ready for the devious ways of the express company.—Floyd G. White.

The business of hatching and selling day-old chicks has increased enormously within two years. To many people who are not familiar with the poultry business this matter is entirely new, and they do not understand how it is possible to send the tender little chicks any great distance without many of them dying on the way. As a matter of fact the chick 10 hours after he has kicked himself loose from the egg shell is in much better condition to be safely shipped 500 to 1000 miles than he would be when a week or two weeks old. In his body is the entire yolk of the egg which was surrounded by the chick only a short time before it left the shell. This yolk furnishes sufficient nourishment to sustain the chick's life for four or five days; the only thing to be provided is warmth; and that the chick itself furnishes, as each little body is a furnace generating heat, and if enough chicks are kept together, say 25 to 50, and the heat is kept from being dissipated by a burlap or muslin cover over the box containing the chicks, they may be safely snipped any distance which can be covered by express trains in three or four days. The muslin cover allows sufficient ventilation, and practically the greatest risk the chicks have to run is the care of the express agent. He may be overkind and put the chicks so near the stove or steam-pipes that they become overheated, or carelessly leave them where a strong draft of cold air may chill them; but with reasonable care they may be shipped 500 miles and the loss not exced two or three per cent.

This opens up great possibilities for the man who desires to start in the poultry business; for there is no expense for incubators and an incubator cellar, no loss from infertile eggs or chicks "dead in the shell," and then better yet, he can have all his flock practically of the same age, which is a very great advantage in raising the chicks. White Leghorn chicks a day old are advertised for sale in all the poultry magazines for $10 per 100. Suppose a man pays $50 for 500 chicks May 1. Allowing a loss by hawks, skunks and other causes of 20 per cent, he would have in the fall 400 head, worth a dollar apiece. Or if he sold the cokerels for broilers when one to two pounds in weight, which would under ordinary conditions pay the entire cost of raising the pullets, he ought to have 200 good pullets ready to lay in September or October and keep it up all winter. This, of course, is supposing that the chicks have been well cared for from the time they were received. I have been asked "what proportion of the chicks received in this way can be expected to live?" I would answer, just about as many as if they had been hatched in your own house and carried across the road to the brooder. The brooding is the most important part, and the heatless brooder has come to stay.

My own experience and what I saw done by my neighbors last year convinces me that stronger chicks can be raised without heat than with. Mr. Fred Gammack raised 1600 White Leghorn chicks last year in cheese boxes, simply cheese boxes, obtained at the grocery stores in Hartford. No artificial heat whatever was used. Last fall I went through his poultry houses, and never saw a thriftier lot of birds, and he tells me they are laying to beat anything in his experience. Mr. Gammack takes stiff paper—strawboard—and makes a little yard in front of the cheese box, tacking the strawboard to the sides of the box, and cutting an oval hole on each side of the box where the strawboard joins it, so that the chicks when they crowd in the corners, crowd themselves through the holes right into the box. An iron wire ring fitting loosely inside the box has a "sheet" sewed to it, and one or two cotton stuffed "blankets" are dropped on the "sheet." The ring is suspended from the top edge of the box by bent wires. That is all the "mother" the chicks have, and it does the business. The cheese boxes cost nothing, the rest of the material five or 10 cents. A cheap way certainly of brooding 25 or 30 chicks. Mr. Gammack had a lot of the old lamp brooders; he tore the insides all out, retaining only the four sides and the roof, and put the cheese boxes inside on the ground. When the chicks were two weeks old the paper "yard" was removed, and the chicks had the run of the inside of the brooder, and remained there until large enough to be put in colony houses out in the cornfield. For the man who has not a suitable place to keep incubators, or the time to attend to them, the opportunity to buy day-old chicks is a great convenience. Orders for chicks should be sent in to the dealers as early as possible, stating the time when chicks will be wanted. Two years ago I bought 200 day-old chicks—R. I. Reds; they had to be carried about four miles, then shipped to me by train, and carried two miles to my place. The chicks arrived in good condition, not a dead one in the lot, and I raised most of them, selling the cockerels for broilers. I selected 40 of the pullets in the fall, put them in a 10x20 foot house, and they gave me 16 to 20 eggs a day all winter.—Geo. A. Cosgrove.

Don't do a thing a certain way, just because a neighbor does or does not do it that way. Every successful man does his own thinking.

POINTS IN BREEDING.

A certain writer defines breeding of fancy fowls as "breeding with particular reference to points which have no bearing on the practical usefulness of the breed," and then draws the sage conclusion that "the breeding of 'fancy' poultry is, therefore, a system of breeding for non-essentials." How wonderful are the ways of logic!

Once in a while a man is found brave enough to defend the mongrel hen. It is well, for if anything in this world and in this age of the world, when the thoroughbred cock grows in nearly every backyard and the thoroughbred hen cackles in every hamlet needs defense, it is the mongrel hen.

It is better to know one thing thoroughly than to know many things partially. The man of one idea is the man that the times demand. This is the day of the specialist, the day, not of general culture, but of thorough, though limited knowledge. A specialist may not be an entertaining companion but he is the man whom you consult when you wish to know anything about his specialty. In poultry breeding the men who stick to one variety seem to be the men who are making the most money out of their fowls. Whether they get the most pleasure out of their business may be open to debate. But that is another story.

Without a definite standard the judging of fowls would be a farce; without competent judging poultry exhibitions would be a failure; without poultry exhibitions no distinsctive breed of fowls would long exist in its purity.

Fashions in fowls, like fashions in everything else, animate or inanimate, change from time to time. Ideals, practically realized, must be pushed to a farther point, so that they may remain ideals, and this progress in ideals is the cause of change in the fashions in fowls.

Even in eggs is the influence of fashion seen. One market demands a white, another market a brown egg, or in other words, white eggs are fashionable in one place and brown eggs are fashionable in another place.

Each nation sets the fashions in fowls for itself. In England the Leghorn is beefy, in America slighter in build, more graceful and airy.

Here is a recommended recipe for making a wet mash. Fill a suitable vessel nearly full of fresh water and add one quart of whole plump oats; after the oats have soaked about five hours, add one quart of ground beef scraps; the next morning, twenty-four hours after the oats were put in soak, add one quart of corn meal, and from one to two quarts of wheat bran. Stir until the ingredients are thoroughly intermixed and the mash is reasonably stiff. Then feed. The hens and chickens like it, and the former will show their appreciation of it by laying freely, while the latter in their rapid growth will testify as to its good qualities. Fine grit or fine oyster shells may be added occasionally with advantage.

Cleanliness is next to success, but always a little in advance of it.

Cleanliness is not good health, but a condition to good health. Healthy fowls may be found in nasty surroundings; they are pretty certain to be found in clean ones.

It is with chickens, as it is with dahlias, that the best is the kind to raise. There is some degree of beauty in the low-bred sorts of both, but when they are compared with the best this beauty pales into insignificance. One is, relatively speaking, wasting his time in cultivating and rearing the inferior sorts.

Condemn a fancier because he follows the fashions in fowls? No, sir. For by the same token you would condemn the practical poultryman who follows the fashion in the color of eggs and in the color of the skin and shanks of market poultry; you would condemn every business practice, every industrial method. Everywhere fashion rules and the hard-headed practical man, as well as the fancier, and as truly and fully obeys. "The butcher, baker and the candlestick-maker" are all governed by the decrees of fashion in their several occupations. Condemn the fancier? Not on your life.

There are three cardinal principles in successful poultry keeping and they are: first, cleanliness; second, cleanliness, and third cleanliness.

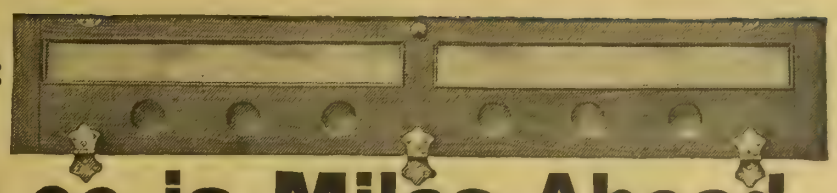
If you haven't tried it, just try soaking oats in water for twenty-four hours and using them as one of the ingredients of the wet mash. You will be pleased with the results.

Do everything that needs to be done, when it needs to be done. Don't delay for a single day, but, as you may, do right away, ere set of sun, what must be done, is, so they say, the only way to make fowls pay.—Successful Poultry Journal.

South Africa has prohibited the exporting of ostrich eggs and live birds, and imposes heavy fines for any attempt to evade this rule. It is hoped to corner the feather market, but there are many birds outside of the Cape. Ostrich farms have been established in the South of France, in Belgium, in England and in this country. The largest number of ostriches in one locality outside of South Africa is in the Salt River valley, Arizona. There are 7000 birds on farms there and they are raised very successfully. The birds at two years old produce about $25 of feathers a year. Birds are known to live to a great age, some reaching 75 years.

An incubator will not feed or regulate itself as the hen does, and we must not expect as good results until we have had some experience, and we should not blame the incubator because of poor eggs, a poor location causing uneven temperature, or our own carelessness.

This open front door makes perfect ventilation



Mandy Lee is Miles Ahead

It is the only Incubator without a "Sealed," Air-tight Egg Chamber. It supplies the life-giving oxygen freely, draws off the carbonic acid gas, and is saving the lives of millions of chicks.

READ the story of the Mandy Lee triumph in our new catalog. Other incubators are already preparing to imitate and profit by our great discovery.

No guessing with a Mandy Lee

You cannot afford to buy an old-theory incubator which may go out of date and be discarded next year. You should know the truth *now* about the great discovery. The book is free. Ask for it.

There IS Something New in Incubators

We have taken the boldest and most important step ever taken in incubator building. See the openings into the egg chamber? They mean the saving of chicks' lives. It is the key to *right* hatching. Ventilation in the Mandy Lee is now perfect. It goes on all the time, neither above nor below, but right *at the eggs*. Every minute of the hatch the life-giving oxygen is freely passing in to the eggs and the carbonic-acid gas is passing out. And correct ventilation is just one of the great Mandy Lee features.

We Don't Guess—We Measure

The Mandy Lee is as far in advance of other incubators in heat and moisture as it is in ventilation. We do not guess at anything. The sensitive regulator controls heat to the fraction of a degree and *we measure moisture* just as accurately with the Mandy Lee Hygrometer (one sent with every incubator). You know what you are doing. *You* measure and control moisture; *you* control the hatch. The Mandy Lee is the all-season, all climate, all condition hatcher, always producing the most and the strongest chicks.

NEW OUTDOOR BROODER
Heated—Storm-proof

Mandy Lee Brooders give direct contact heat to the backs of the chicks. That is *real* mothering, the most important thing in poultry. Hovers are raised and lowered as weather gets warmer or cooler—heated from end to end. Chicks do not pile up and smother. Write to-day for catalog and full information.

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I have started over 61,000 people the Queen Incubator Way. May I do the same for you? Get my offer on

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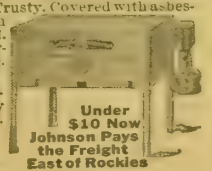

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Winners from Seattle down 33 out of possible 35 prizes in 3 shows this season. **Bred as layers first.** Stock, any age. For sale at reasonable prices—Eggs $8 and $12, per 100. Settings $2 up. Send for **New free folder** and prices.

1st Ckl A. Y. P. Ex. 46 Wash. Ave. San Jose Cal

S. C. Buff Orpingtons

Eggs for hatching, Utility stock (no culls), $1.50 per 15; special matings $5.00, $10.00, $15.00, $20.00 and $25.00 per 15; Bridgewater's famous strain—won for us first and second pens at late Los Angeles Show—$2.00 per egg. No baby chicks for sale. No visitors on Sunday.

J. J. DEAN, Moneta, California.

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All varieties and sizes; extra hardy stock. "The finest trees I ever saw," is the verdict of all who see them. Write today for free booklet C on their culture, etc. Questions gladly answered.

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The Poultry Question Solved

If you have been hesitating about raising poultry on account of food difficulties, be assured that you need delay no longer.

Start Now--You can succeed.

The poultry outlook is better than ever before, and there is a big demand at all seasons.

We are the largest POULTRY FOOD manufacturers in California and our success is due to the results obtained by feeding our product. **They are right in every particular.**

Our Special Chick Food ——is just what young chicks need. It is what they naturally look for.

Our Growing Chick Food ——is a strength giver and body builder. It is the ideal food to bring young chicks to a healthy maturity.

Our Egg Food ——supplies the necessary ingredients for making eggs and keeping laying hens in full vigor.

Our Scratch Food ——gives the flock the variety of grain, etc., necessary for vigor and continued health.

We are manufacturers and distributors of the most perfect poultry food to be had any place at any price. If you will give our foods as directed you will have no trouble in raising chickens for eggs and market.

We Have Solved the Problem For You. Ask For

COULSON'S FOOD.

Insist on getting it if you want the best.

Our goods are sold by all reliable poultry supply houses. If your dealer cannot supply you, write us and we will name our nearest agent.

Be sure to write for our book "Poultry Feeding for Profit." It is instructive and entertaining. Also contains a list of poultry remedies and supplies. Write today for a copy.

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FEED AND CARE OF GOSLINGS.

Goslings are not very well able to endure bad treatment when they are first hatched. Why this is so it would be hard to tell, because after three or four weeks there is no more hardy bird among all our domesticated fowls.

Some breeders practice feeding only tender grass for the first two days, giving grain feed afterward. Others feed a mixture of one-third corn-meal and two-thirds shorts, mixed quite dry, with some tender grass as a relish.

Theoretically the grass is a good feed, because the goose is a grazing bird, capable of living and thriving on green vegetation without other feed.

Keep the goslings in a dry, warm place twenty-four hours, or even several hours longer, after they are hatched, without feeding them anything. Then give them the tender grass or the corn-meal and shorts mixture and grass.

If corn-meal and shorts are not obtainable, cracked corn slightly cooked does very well, feeding it very lightly at first, gradually increasing the feed.

Until a week or ten days old keep them in a small enclosure, such as a pen made of boards a foot wide set on edge, moving this every day to fresh ground on which there is a supply of tender grass.

After this give them a large place to run in, feeding a little at a time and often until they are a month old. After this time they may be safely turned on a wide range where they will find pasturage and make rapid growth. Feed them every day and accustom them to being called, so they will come when it is desired to gather them together. It is not necessary that they should have water in which to swim, but a small stream or a pool is much enjoyed by them, and furnishes a place to which they will resort a considerable part of the time, if feed is plentiful, so they need not spend most of the time eating.

After goslings are turned on pasture, if the grass is in good condition it is not necessary to feed them more than twice a day at first and later once a day, as it is not desirable to keep them fat from the start unless they are to be sold as green geese, in which case they should be kept plump from the start and sold as soon as they are ready for the market. There is no profit in keeping a gosling fat if it is to be kept for the Christmas market or reserved as a breeder.

The object should be to get as large a growth of frame as possible, and for this nothing is better than grass alone. Feeding them once a day or once every other day will keep them familiar with the owner and tame enough so they will come at call.—Poultry.

SOME SUGGESTIONS.

Hens that lay soft-shelled eggs may be helped by a little more vegetables or green food and oyster shell.

Young ducks should be ready for market at 10 weeks old. There is no profit in feeding them after that.

Never change to a new breed simply because extravagant claims are given. It is better to try to improve the old ones.

Do not forget that the hens will need plenty of grit to help grind up the food. If plenty of grit is not available, provide it for them.

Treatment for roup—One ounce permanganate of potash to three pints of water for submerging the head. For drinking purposes dilute one pint of above mixture in three or four pints of water.

Made to Meet Coast Conditions

CYPHERS Incubators and Brooders *are by far the best* for use on the Pacific Coast.

Ten years' experience *has proved this!* We have letters from leading, successful poultrymen from one end of the Coast to the other. They all tell the same story of *continuous, high percentage hatches.* Many of these letters, all of them of *late date*, are published in our new 1911 Year Book. It's a big 212-page *guide to poultry profits.* Helpful, practical, inspiring! And it tells all about

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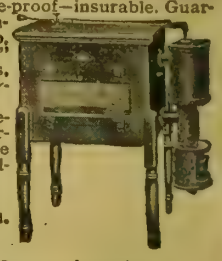

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Cyphers Incubator Co. Dept. 46, Oakland, Cal. Also Buffalo, N. Y.

Southern California Agents

Cyphers Incubator

GERMAIN SEED & PLANT CO.

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The evidence is conclusive that the PETALUMA is the best Incubator buy that can be made. The best value for the money ever offered and is appreciated most by those who have had varied experiences with other incubators. Why? Because it hatches such large, strong vigorous chicks. More Petaluma Incubators were installed in the large hatcheries last year than all other makes combined. No other incubator in the world has a hatching record to equal the Petaluma.

Write for our Free Catalogue. It is interesting.

We pay freight.

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Box Petaluma, Cal., or Box 30 Indianapolis, Ind.

"Chicks well hatched are half raised"

CHICKS

Strong, healthy chicks that are well hatched from vigorous utility breeding stock.

	Per 100
S. C. White Leghorns, best grade	$10.50
S. C. White Leghorns, 2nd grade	8.50
S. C. Brown Leghorns	10.50
R. I. Reds	14.00
B. Minorcas	12.50

In quantities of 300 and over, 50 cents per hundred less.

San Jose Hatchery

Henry Langenschwadt *SAN JOSE, CAL*

EUCALYPTUS

Large, well rooted plants; best varieties; some with balled roots for distant shipment. Price moderate.

Large lots grown by contract. Circular Free.

HENRY SHAW

Riverside Nursery,

320 River St., Santa Cruz, Cal.

SEED CORN

Department of Agriculture Selection No. 160. An early maturing yellow flint corn that has produced 78 bushels shelled per acre. Will produce a fair crop with a minimum of water if planted early. Sold only in the ear. Price $3.00 per 100 pounds, smaller lots five cents per pound.

J. B. Neff

Anaheim, Cal.

Irrigation and Forestry

ROOSEVELT DAM FULLER THAN EVER.

Speaking of the great benefits of the Roosevelt reservoir, the Arizona Democrat says:

The maximum of last year, which was the record to date, was passed today and will far exceed the old record. On April 8, of last year, the elevation reached 125.3 feet, which indicated a stored water supply of 235,440 acre feet. At this morning's reading at 8 o'clock the elevation stood at 125.05 feet, an indicated stored water supply of 227,932 acre feet. Two and one-half feet of water is flowing over the intake dam at Livingstone, 19 miles from Roosevelt, and this alone shows that the record amount was passed at an early hour.

Today, February 6, the residents of the Salt River valley are starting with a larger water supply than was had on April 8 of last year, which was the end of last year's rainy season. This year the rainy season is just beginning and by April 8, 1911, there will be twice as much water in the reservoir as there was a year ago at that time.

The big rains which were general over the territory have brought about this remarkable record which means a prosperous year and thousands of dollars to this section. The reading of Saturday morning, which was taken before the run-off had gotten under way was 116.5, Sunday 119.0 and today 125.05, which shows the rapid rise, an increase in the past 48 hours of 14.4 feet.

Plenty of Water.

An announcement of interest is made today by the reclamation service to the ranchers of the Salt River valley. Last October, the date of the annual sale of winter water, owing to conditions then prevailing in the reservoir, the reclamation service refused to sell water for the class A and class B lands which were not cultivated during the preceding year. They were entitled to water when it could be assured, but if there was a scarcity, the lands in continuous cultivation come first. One of the fine points of the government administration is that it will sell them no water unless it can deliver the goods. Since last October things have changed and Engineer Reed stated today that all those who have class A and class B lands may now buy water, whether they had them in cultivation last year or not.

Meaning of Irrigation Terms.

Hundreds of tourists and new settlers in the city and Salt River valley have inquired recently what is meant by all this uproar over the water proposition, what an "acre foot" means, what is a "miner's inch," and how much water will the reservoir hold, etc.

Acre Foot.

An acre foot is the amount of water that will cover an acre of land one foot deep; or an acre foot is the amount of water that will cover 43,560 square feet, which is the number of square feet in an acre, a foot deep.

Miner's Inch.

A miner's inch is the one-fortieth of a second foot. A second foot is the amount of water passing through a space one foot square, in one second.

Capacity of Reservoir.

The reservoir will hold 1,284,000 acre feet, an amount which would last over four years without any rainfall. The present amount of 227,932 acre feet would easily carry us through this year, if no more flowed into the reservoir and even if no more rain fell in the Salt River valley during the next year.

Last Year Exceptionally Dry.

Last year was an exceptionally dry season and the water supply decreased considerably by the end of the summer. The lowest point reached last year was on November 13, when the water elevation dropped to 56.85 feet, indicating a stored water supply of 16,914 acre feet.

What a Foot Increase means.

A foot increase in the elevation at the present time means about five times as much increase as it would mean when the elevation was lower.

As for instance, the elevation 64 feet means 24,773 acre feet, and at 65 means 26,026, showing a one foot rise to mean an increase of 1,253 acre feet. An elevation of 125 feet means 227,632 acre feet, and the 126 mark indicates a supply of 233,648 acre feet, which shows a foot increase now is equal to about 6,016 acre feet, against an increase of 1,253 acre feet when the elevation stood near the 60-foot mark.

Four Acre Feet Per Year.

Approximately four acre feet of water is used per year on one acre of land. At the present time the reservoir supplies water for irrigation purposes to 131,364 acres, which includes the Tempe irrigation lands.

When ex-President Roosevelt comes here in March he will not only see a rapidly growing section of the southwest, but also the reservoir which bears his name, containing the greatest amount of water in its history.

There is much rejoicing around the reclamation offices today and throughout the Salt River valley. The fact that the maximum amount was reached today is cause for rejoicing.

A Few Facts.

The great Roosevelt dam is about 70 miles northeast of this city and will be dedicated on March 18 of this year. Ex-President Roosevelt will have charge of the dedicatory exercises. Some facts about the dam follow:

It is 1800 feet long, 280 feet high and contains 326,000 cubic yards of masonry.

The reservoir will be used in a short time to irrigate a total of 240,000 acres of land.

The dam was erected in the course of five years and will cost the government about $8,540,000.

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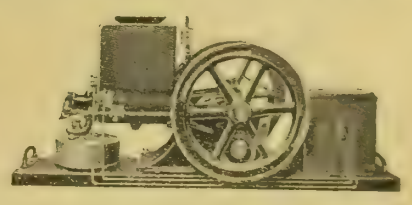

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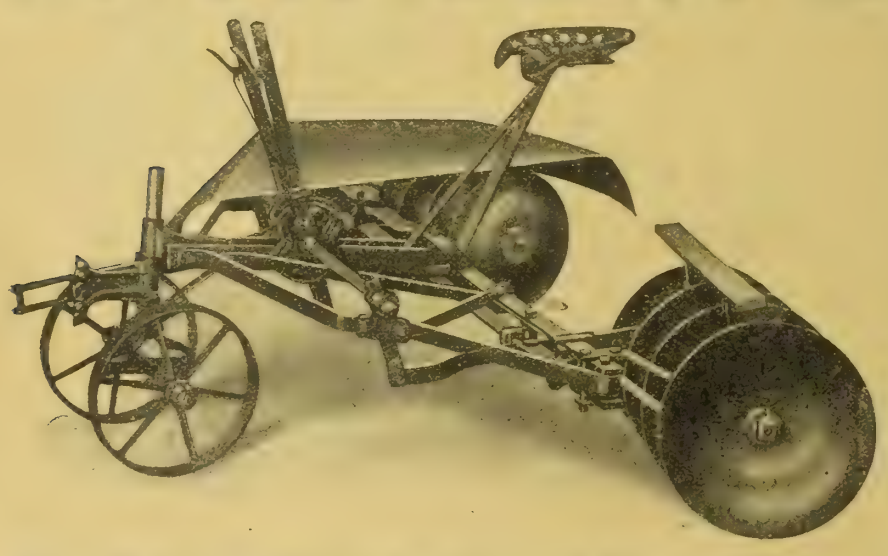

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Grafting Walnuts.

Please describe in Cultivator grafting of walnuts. I have access to an expert grafter, but he does not seem to succeed with walnuts.—Subscriber, Mesa Grande.

We would refer our subscriber to issues of The Cultivator of February 16th this year and February 17th, 1910. The former mentioned article gives Mr. Roeding's method; the latter, Mr. Neff's. Both are illustrated with good engravings.

Duroc-Jerseys.

Can you give within easy shipping distance of Turlock the name of breeder of Duroc-Jerseys? — Subscriber, Turlock.

Duroc-Jersey breeders in this state, if there are many of them, are exceedingly backward in announcing themselves. We imagine there are but few in California.

Grafting.

I am surprised to note in a recent Cultivator that the originator of the graft described and illustrated in the leading article, is Mr. Roeding of Fresno, also to see it described as a late method, as I practiced it for ten years in Ohio and advocated it in 1906 at an institute conducted by Mr. Fowler at Acampo. I think you should give the "effete East" its due. I enjoy The Cultivator very much.—J. F. Callahan, Redlands.

Measuring Water.

Please tell me how to measure water from an artesian well.—Subscriber, Oxnard.

We regret that our issues of March 9th, 1909, and March 31st, 1910, both of which contained tables and instructions for weir construction and for measuring water, have been exhausted. As soon as possible these will be reprinted for the benefit of this and other subscribers.

Weeds in Young Alfalfa.

I sowed some alfalfa last fall and have a very good stand, but the wild oats and other weeds are very thick and high all over it and the little alfalfa does not seem to grow much in it. I intend to mow it but a neighbor of mine has some in the same condition and mowing did not seem to help it, as the wild oats is growing up again. I should like to have your advice as to what to do with it. Will the wild oats and weeds mature and die or keep on growing under irrigation and kill the alfalfa.—M. W., Lindsay.

Mowing of these weeds will probably keep them down so that the alfalfa will get a start. The wild oats is an annual and we presume the others you mention simply as weeds are also. Of course, if you have Bermuda or similar pest to contend with, the matter is more serious, but with the annuals kept mowed, the alfalfa will take a start as soon as warm weather comes and will probably give you a good stand.

Pruning Red Emperors.

I wrote Mrs. Sherman last year asking for advice in pruning Red Emperor vines, which she kindly furnished me. The vines were about three years old and I staked all of those that were long enough to a stake five feet in height, running one long cane to top of stake with the intention of forming the head there as per instructions. Results were very satisfactory and I got a nice crop; in fact, they were the first Red Emperors to furnish a crop in San Diego county so far as I know. For this year on those that I staked five feet high last year, will try to form the head at top of stake and to leave good laterals all the way up vine, two to three buds to each lateral. Shall be greatly obliged if you will let me know whether this is correct as I know of no one else who is so well informed on the subject.—J. J., Escondido.

I am glad you made good with the pruning and you have the correct idea of forming the crown at the top of the stake. Now in pruning the side laterals to spurs, there is one thing to observe, that is to keep them going around the stake; that is, cut if possible to buds that point in the right direction so that the spurs do not stand out, in time, a foot or so from the vine, but while they may be that long it is in close to the stake. This is one reason why one cannot say cut to so many buds exactly on these spurs.—M. E. S.

Olive Oil.

Can you tell me some way by which I can make my own olive oil for home use —Subscriber, Kaweah.

It is not practicable to manufacture olive oil in small quantities. The process requires weeks and even months and the number of utensils and the conditions under which the oil must be kept to ripen are all against the process in this small way. In a word, the method is to crush, press, allow the oil to separate from juice and such pulp as passes through the press, racking off the oil, clarifying, filtering, ripening, again filtering and bottling."

Nectarines not Bearing.

Do my nectarine trees need spraying? They are four years old and so far have never had ripe fruit. Fruit drops when about the size of a cherry. No curl leaf bothers them.—Subscriber, Redwood City.

We cannot give any very definite treatment for this trouble. We would, however, spray with the sulphur-lime or Bordeaux solution. This can do no harm and would correct any possible fungous trouble. If trees do not bear this season it is possible that summer topping would cause setting of stronger fruit buds for the next crop. Citrus growers have been applying to soil nitrate of soda at blossoming time in order to give more strength to the tree for the young crop. We have never heard of this being used on deciduous trees, but if we had this orchard we would do a little experimenting along that line. We should be pleased to hear from the inquirer after the setting of this crop if any experiments are made.

Homesteading.

Can a citizen (ex-soldier) obtain government land in California under the homestead act? How long does it take to prove up? Can it be taken up in the forest reserve? What would be the actual cost? Where can I obtain printed information relative to this subject?—G. H. G., Carpinteria.

Any citizen of the United States or one having filed intention of becoming a citizen, can obtain government land under the homestead act if he has not exhausted his right by other filing. There are also certain other exceptions, such as a married

woman, unless deserted by her husband or he is incompetent; ownership of more than 160 acres of land, etc. It takes five years to prove up excepting in the case of ex-soldiers, whose time of service during the Civil war or the Spanish-American war is deducted from the five years. He cannot take up land within the forest reserves. There is no other cost for homesteading than filing fees which are merely nominal. The best information can be obtained by writing to the nearest land office, in this case, Los Angeles, and asking for "Suggestions to homesteaders and persons desiring to make homestead entries," issue of Sept. 24, 1910.

Trespassing Stock.

My neighbor has an unfenced grain field, adjoining my farm. He sowed grain while I was away for the day and as my chickens were not fenced in they got on his grain field, with the result that he shot some of them. Is he not liable to me for the amount of my loss? He had not notified me of his intention to sow grain, and the land was not cultivated last year. I was perfectly willing to keep the chickens penned up, for I did not wish a neighbor's crop molested, but I think that he took an unfair advantage. I have them fenced now. Had he the right to kill my stock?—V. B. B., Highland.

Under the present law unless a field is surrounded by a "substantial fence," trespassing stock, which means poultry, of course, cannot be held accountable for damage done, that is, the owner of field must fence against other people's stock. This is unjust, but it is the law and will be until the new one which is now being pressed in the legislature is signed, if it passes. But under any law the destruction of trespassing stock is not justified, and you have a claim for damages. The only counterclaim which could be put up is for damage caused by stock, and, as we say, under the present law that would be nothing.

Olives That Bloom With the Mission.

Answering a former query: In Southern California we would plant Rubra for cross pollination of the Mission, but in Northern California we would plant Ascolina. Rubra is a good oil olive and a prolific bearer in the south, while the Ascolina is a shy bearer. In the north, any kind of olive will bear every year if properly pruned.—J. W. M.

Bitter Milk.

Cow was sick from feeding musty hay, but got all right as far as I could tell, but her milk became bitter about seven or eight weeks before she calved. She has been fresh about eight weeks, but her milk does not sour and butter when churned from cream 48 hours old has an odd taste. —W. L. K., Lemon Grove.

We do not think the bitterness comes from condition of the cow, more likely the cause is bacterial. We would refer the inquirer to Mrs. Sherman's answer to another question in the last issue, headed "Stringy Milk."

Cucumbers in Brine.

What is the best way to treat cucumber pickles now in brine to make them into sour pickles? What is the best kind of vinegar to use?—J. B. L., Kingriver.

When wanted for pickling, remove from brine, taking off weight and board, carefully lifting cloth with scum on it. Wash all clean and wipe all scum off cucumbers and sides of cask. If not all are removed from the brine at once, return the cloth, board and weight and cover closely. Place the cucumbers in a vessel large enough to hold two or three times as much water as there are pickles, cover with cold water (some use hot), change the water each day for three days, place porcelain kettle on fire, fill half full of vinegar (if vinegar is very strong add half water) fill nearly full of cucumbers, the larger first, then the smaller ones, put in a lump of alum the size of a nutmeg, let come to a boil, stirring with a wire or wooden spoon so as not to cut the cucumbers; after boiling one minute, take out, place in a stone jar, and continue until all are scalded, then pour over them cold vinegar. In two or three days, if the pickles are too salt, turn off the vinegar and put on fresh, add a pint of brown sugar to each two gallons pickles, a pod or two of red pepper, a very few cloves, and some pieces of horseradish. The horseradish prevents a white scum from rising. The best vinegar is made from pure apple cider.

Bugs in Peaches.

I was greatly troubled last season by bugs in my peaches. They are black, a quarter of an inch long, and very small. They start at the stem and work into the peach. I have the two varieties of Crawfords, the early not being affected. Will spraying do any good?—J. H. C., San Bernardino.

This was referred to Horticultural Commissioner Pease of San Bernardino county who writes that he has never heard of this trouble unless it be the small bugs which find entrance to the pit in peaches that split badly. In such a case the bugs enter and might be considered the cause, which they are not. What causes splitting of peaches is unknown though there has been much investigation to determine it. We do not believe that spraying would have any effect.

Georgia Yam.

Where may I secure white sweet potatoes or Georgia yams for seeding? I wish potatoes free from disease. Also, where can I secure reliable information on sweet potato culture?—Subscriber, Ontario.

Mr. W. W. Burford of Glendale, and the Aggeler & Musser Seed Co. of Los Angeles can supply you with plants of white yams and possibly may sell you the potatoes. Also it is probable that other seed houses advertising in The Cultivator can do the same. Former issues of The Cultivator have contained much information about sweet potato culture, as does Wickson's California Vegetables. We do not know of any publication given entirely to sweet potato culture.

Cyclamen—Poppies—Nasturtiums.

I purchased a number of Cyclamen plants in full bloom from a florist. Can I set them out in the ground when they cease blooming, or what shall I do with them? Can you give me some advice as to their care and habits? Does the root of the cultivated California poppy remain in the ground through the winter and come up in the spring the same as the wild plant, or must I sow seed every spring? When can I plant nasturtium seed, and do they require a rich soil? Is decayed leaf mold as good for a flower garden as barn manure? Can one use fresh hen droppings, or such as are in a dry condition, in the flower beds? —Subscriber, Los Gatos.

Cyclamen may be planted in open ground from the pot as soon as done blooming. Treat as you would ferns or other shade loving plants.

California poppies will remain in bloom if supplied with water through the summer. They are so easily reproduced from seed, however, and the young plants give so much more satisfactory flowers, that it is better to

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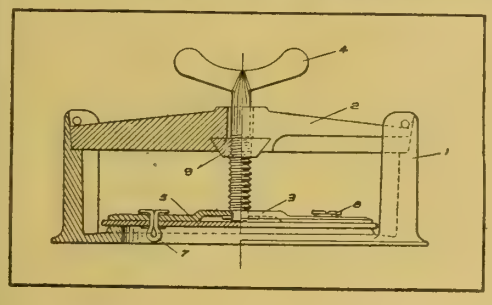
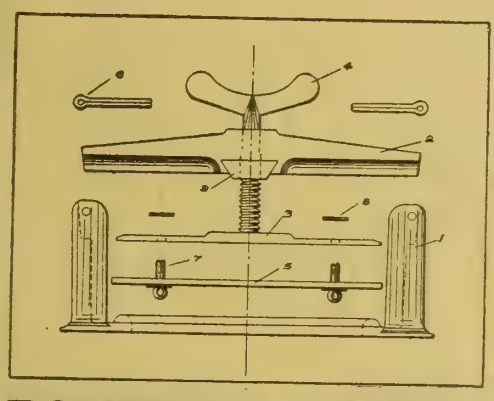
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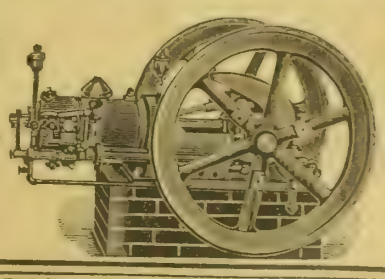

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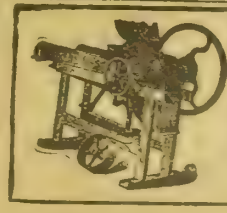
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211 South Main st., near Second, Los Angeles, California

sow repeatedly than to treat as perennial.

Nasturtium seed may be planted at almost any time from this on except in sections where there is danger of late frost. They do not require rich soil, and if it is very rich the plants go almost entirely to rank vines. Decayed leaf mold and stable manure have similar effect on soil, but of course the stable manure is far richer in plant food, especially in nitrogen, of which leaf mold possesses practically none. The leaf mold lightens and helps mechanical condition of soil. Fresh poultry manure must be used very cautiously. Do not get near roots of plants. It is well to compost with soil and coarser, less condensed fertilizer, then wait till at least partially decayed.

Black Spot in Oranges.

What causes the Navel orange to have black spot, usually at the navel end? Often there is a small round hole in the skin with web over it, and the opening sometimes has a worm in it and always looks as if a worm had entered. The spot inside has the appearance of dry rot. Is there any remedy?—T. J. L., Alhambra.

Our subscriber seems to have two separate troubles in mind. The hole with the small web over it is caused by the larva of an insect, while the navel end rot is from another cause. On this point Dr. J. Eliot Coit of the Pathological Station writes:

"In regard to the black spot, or navel end rot of the orange, I will say that the remedy is to destroy, preferably by burning, all affected oranges, including those which dropped off under the trees, and in this way prevent to a certain extent the fruiting of the fungus and wide dissemination of the spores. A remedy of this kind is of course most effective when all growers of a section co-operate. I would also suggest that in the case of the orange worm, Tortrix citrana, the same method of gathering the infested fruit and destroying them is recommended."

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Lice on Horses.

I have several horses which are troubled with lice. Kindly advise a remedy.—Subscriber, Newcastle.

To five quarts of water add a half pint of creolin; mix till a uniform solution is obtained; and sponge the affected animals with the solution. After about ten days examine the horses carefully and repeat the treatment if young lice are found.

Scours.

In a recent issue of The Cultivator gallogen was recommended for scours in horses, but the druggist to whom I applied has no knowledge of the drug. Where can I secure the remedy?—W. E. K., Azusa.

Gallogen, an intestinal astringent, is listed by Merck & Co., and drug houses in New York, which offer it prepared especially for veterinary use. Tannoform may be substituted for gallogen and may be less expensive. The dose is two drachms three times daily.

THE END OF THE AUTOMOBILE.

Treating upon the subject that the automobile is the evil spirit of hard times and high cost living, the editor of "The Lever," a Chicago publication, sums up the situation as follows:

The automobile was an inevitable outcome of an epoch which conceived a telephone, a telegraph, a harvester, an airship and a turbine.

We have ended the search of alchemy. The world's supply of gold is in the sands of the hour-glass. Time is money.

When men can stretch one minute into two, expenses become halved and profits doubled.

We have set up a vast and irresistible machine to squeeze centuries into decades.

We have built it with wires and Leyden jars and armatures—with Titan cranes and caissons and steel rails.

But no cog in all the mass of whirling, swirling parts, is more vital than that which will condense distance for the individual.

We are outbreeding our food supply. We must break grounds in the wilds—the farmer must have a longer stride. He will not land where he cannot profitably and comfortably reach a shipping point.

Acreage out of the zone of traffic is as useless as a garden in the Sahara.

The automobile means a doubled agricultural area within the next ten years.

Its gasoline is a mile-shrinker. It enables the producer to operate twice as far from the town as his mule-team or Percherons could ever have permitted him.

It solves the problems of sequestration and turns ranches twenty miles apart into neighborhood backyards.

It banishes the loneliness of the women—the unutterable heart-aching, mind-breaking desolation which in another day filled insane asylums with demented wives and mothers.

It locates a school house around every corner.

It is sending new sons to the soil and keeping the farmborn at the plow.

It has set a hundred thousand mechanics at the lathe—given employment to more than a million men, at a better wage than the same labor hitherto yielded, and simplified the long baffling tangles of transportation.

But if it has done none of these things—if all its utility—all its productivity were naught—it has made a newer and a stronger and a keener generation.

It has crooned the Song of the Road to an over strained and neurotic and tired commonwealth—lured a wan and worn people to the field and forest—carried them out of the moil and toil into a saner and cleaner life.

RECENT DEVELOPMENTS IN THE NITROGEN QUESTION.

By E. S. Mather.

Scientists and bacteriologists in various parts of the world have been for many years interested in discovering new methods of producing nitrates to replace the rapidly diminishing supply and insure the world against gradual starvation. Without nitrates, the plants on which we depend for our food supplies cannot live.

For our supply of nitrates in the form of nitrate of soda, we are obliged to rely on the saltpeter deposits in Chile, and so great is the demand for this material that the most available portions have already been used up, and the rapidly increasing cost of production will soon place what little remains beyond the reach of the agricultural world.

Let us turn, therefore, from the most interesting manufacturing phenomena, and consider the wise provision that nature has made for just this emergency, namely, the fixation of nitrogen by bacteria, on the roots of legume crops. For in this method lies the solution of the problem, and the next generation will marvel at the folly of their fathers in expending large sums of money for material that could be abundantly supplied almost for the asking.

The discovery of the value of treating the seeds of legume crops with nitrogen fixing bacteria, as a means of enriching the soil in nitrates is not new, but like many great discoveries, its general practice has been greatly retarded by crude methods and premature exploitation, which has prejudiced the minds, not only of farmers, but of the very men in the agricultural experiment stations and colleges, to whom the farmer turns for advice.

The necessity of inoculation is well recognized by the best authorities today, but recognition of the advantage of using pure cultures of high-bred bacteria for this work is apparently retarded by suspicion of commercial cultures and lack of knowledge of the methods employed in their production.

When the bacteria have been grown in a non-nitrogenous medium directly on the roots of the plants, they are to be used for, their potency is greatly increased, and all the attendant dangers of the soil transfer method are done away with.

The many failures to secure results from inoculation of seeds were largely due to three causes: First, to lack of attention to the great importance of breeding the organisms to secure the strongest and most virile specimens. Second, to crude methods of sending them to the user, and keeping them alive until they could be put on the seeds. Third, to lack of knowledge of necessary soil conditions for their proper development.

These difficulties have been overcome by Dr. G. H. Earp-Thomas, and he is sending to seed houses for distribution to the farmers from his laboratory cultures of high-bred bacteria that are guaranteed to keep in perfect condition for long periods of time, and require no further development on the part of the user. The bacteria are simply put on the seed, and nature takes care of the rest. In selecting bacteria for breeding purposes, it is, of course, necessary to watch the development of the different colonies on the roots of the legumes, and it would be manifestly impossible, when working with plants (under ordinary conditions), to pull them up every day to examine them. It was the discovery of a transparent jelly so delicately balanced, that it would furnish a perfect food, that made this work possible. This jelly contains no nitrates except those produced by the bacteria on the growing roots.

Experiments carried on by one of the state experiment stations proved that these high-bred cultures would produce from one to four hundred per cent more nitrates than those usually found in the soil. It is also true that the increased activity of the bacteria means quicker production of nitrates, and an ample supply of this most essential material during the early stages of the growth of the plant.

Having procured the means of breeding pure active cultures it became necessary to devise some means of preserving them, until such time as they could be used. The earlier attempts of the U. S. department of agriculture, and other people to send the bacteria dried in cotton, had not proved successful, and the bacteria when sent in a liquid preparation in sealed bottles, soon lost their vitality from lack of atmospheric nitrogen.

Were it possible to keep bacteria in good condition in a liquid medium there would still be strong objection to this method, as it is impossible in such preparations to detect the presence of moulds and other contaminations that are dangerous to the nitrogen fixing bacteria. The value of all cultures of bacteria depends very largely on their purity and freedom from contamination. This method of growing cultures on the surface of the jelly in the bottles in which they are sent to the user enables him to easily detect imperfections and prevent their distribution.

The invention of a bottle stopper which admits a supply of air through a glass tube containing filter plugs, that keeps out contaminations, yet is so constructed as to prevent the escape or evaporation of the contents of the bottle, is not simply an ingenious device, but a remarkable contribution to the art of preserving bacteria and protecting the cultures from destructive contamination. The development of these methods and processes means that another of nature's forces has been harnessed for the benefit of mankind, and the question of maintaining the supply of nitrates in the soil is finally solved.

To secure the best results from the use of nitrogen fixing bacteria, some consideration must be given to the conditions of soil that are most favorable to their growth, and the most important is the question whether the land is acid or alkaline.

The development in the land of beneficial soil bacteria of various kinds is to a great extent dependent on proper chemical conditions. Microscopic examination of soil and the determination of the kinds of bacteria that are found therein, will tell the story of its fertility more surely than chemical analysis, as the presence of some forms of bacteria is a sure sign of its productiveness, whereas, other kinds indicate improper conditions that must be corrected if good results are to follow. It has been found that highly productive land contains large quantities of beneficial bacteria, whereas, poor soil is deficient in this respect, but often contains large quantities of organisms that are known to be injurious in their effect on plant life, and destructive to the nitrogen fixing bacteria. The protozoa, and the various forms of fungi yeasts and anacrobes belong to this class. Science has not yet determined the practical means of exterminating all of these forms, but much has been learned about conditions that are favorable to the nitrogen fixing bacteria and this knowledge is available to every farmer. Good drainage and cultivation are well known requisites for good farming, but the beneficial effect of lime may not be so well understood. Bacteria cannot fix nitrogen in the soil without some base with which it can be combined, and lime is by far the cheapest material that nature has provided for this purpose. Lime also has strong chemical action, and neutralizes the acid conditions of the soil. Land that is acid or sour is fatal to the growth of nitrogen fixing bacteria, and the corrective influence of lime is most valuable. The use of green manure and fertilizers makes the application of lime absolutely essential. Heavy soils require more than light soils.

Loss of nitrogen in the soil is often the result of denitrifying bacteria which exist in heavy wet soils and decaying organic matter. Such conditions can be prevented by proper drainage and the application of lime to lighten the soil, and put it in proper condition for the growth of legume crops that have been inoculated with pure cultures of high-bred bacteria.

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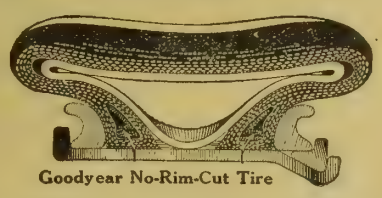
Probably 100,000 motor car owners now use Goodyear No-Rim-Cut tires—10% oversize.

The control of this tire jumped our tire sales last year to $8,500,000. And 64 leading motor car makers have contracted for these tires this year. They now outsell our clincher tires almost six to one.

If you are a tire user you should know these tires. They cut tire bills in two. Ask us to mail our Tire Book.



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The picture shows how the thin edge of the flange then digs into the tire. That is the cause of rim cutting. That is what ruins a tire beyond repair if you run it not fully inflated.

More damage is done by rim cutting than any other single cause. To avoid it means an average saving of 25 per cent on tires. We do avoid it utterly in Goodyear No-Rim-Cut tires.

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The reason lies in 126 braided piano wires which we vulcanize into our tire base. That makes the tire base unstretchable. Nothing can force it off of the rim until you unlock and remove the rim flange.

When the tire is inflated these braided wires contract. The tire is then held to the rim by a pressure of 134 pounds to the inch.

That's why No-Rim-Cut tires are not hooked to the rim. That's why the rim flanges can be turned outward. Not even tire bolts are needed.

We control this feature by patent. All other methods for making an unstretchable tire base have been found deficient. Single wires or twisted wires won't do. The braided wires which contract under air pressure are essential to a safe hookless tire.

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No-Rim-Cut Tires

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This 10 per cent oversize, with the average car, adds 25 per cent to the tire mileage. These two features together—No-Rim-Cut and oversize—are saving thousands of motorists about half on their tire bills. Nothing else invented in late years saves so much on upkeep.

Yet these patented tires—which used to cost one-fifth extra—now cost the same as other standard tires.

Our Tire Book explains things fully. It tells all we have learned about making tires in 12 years spent in tire making. It tells how you can reduce your tire bills to a trifling sum.

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Timely Ranch Suggestions

THE CALIFORNIA GROUND SQUIRREL.

By C. Hart Merriam, Consulting Biologist U. S. Dept. Agr.

Ground squirrels are among the most destructive of our native mammals, causing losses to agriculture amounting to upward of ten millions of dollars each year. Most of the western states are overrun by them. California is no exception, having within its borders not less than three genera and a dozen species. Of these the most important in its relation to man is the large gray species variously known as the California, Digger, or Beechey ground squirrel (Citellus beecheyi). It is about the size of the eastern gray tree squirrel and like it has upright squirrel-like ears and a long bushy tail.

It has two near relatives—the Douglas ground squirrel (Citellus douglasi), which ranges from the north side of San Francisco Bay northward to the Columbia river; and the Rocky Mountain or Plateau ground squirrel (Citellus grammurus), which in California is known only from the canyons of the Colorado river and the Providence Mountains on the east side of the Mohave desert.

The California ground squirrel, because of the extent of its range, which covers the greater part of the agricultural lands of the state; because of the magnitude of the losses it causes by eating grain, nuts, fruit, and other crops; and because of its dangerous character as a carrier and disseminator of bubonic plague, is, of all our species, the one of greatest consequence to man. The danger to human life by the spread of plague so far exceeds in importance the harm done by the destruction of crops that the duty of checking its increase is no longer merely of local interest but has become a matter of national concern.

Range.

The California ground squirrel ranges from Lassen Butte and Susanville in northeastern California southward, east of the Sacramento Valley to San Francisco Bay, and south of the bay overspreads practically the entire state and pushes southward into the peninsula of Lower California, avoiding only the higher mountains and the more arid deserts. Its handsome subspecies, fisheri, inhabits Kern and Owens valleys, the borders of the Mohave desert, the upper parts of San Gorgonio Pass, and other localities in Southern California, and occurs as far east as the Coso, Argus, and Panamint mountains.

Habitat and Home.

The Beechey ground squirrel abounds along the ocean shore from San Francisco southward; it inhabits the open plains of the great interior valley of California, the grassy chaparral slopes of the foothills, the rocky walls of canyons, and in places the more open parts of the yellow pine forest of the mountains. It lives in underground burrows which usually are grouped in colonies. The colonies may be located on bare open plains, on the grassy slopes of foothills. or about the roots of trees—particularly the great valley oaks with hollows in their trunks and limbs. The burrows vary in number from a few to hundreds, and by the union of continuous colonies sometimes reach a total of thousands and cover almost continuously many hundreds of acres. In places they are so near together as to fairly honeycomb the ground. Well-beaten paths, 2½ to 3 inches broad, lead from burrow to burrow and radiate to the adjacent feeding grounds. Many of them extend for considerable distances and by intersecting form a conspicuous network. The earth brought up from each bur row is deposited at its mouth to form a gradually enlarging hillock, and col onies on the plain may be recognized at a distance by the mounds.

Habits.

The animals are diurnal, and in the larger colonies hundreds may be seen at a time, some scudding swiftly over the ground, some rolling in the dust, some basking in the snushine, and some standing erect on their haunches gazing over the country or biting off the stems of grain, tarweed, or other plants on whose seeds they feed. The seeds not eaten on the spot are tucked away in the cheek pouches and carried to underground storehouses for future use.

While living mainly on the ground the squirrels are good climbers, and are often seen in oaks and other nut-bearing trees and also in fruit trees and tobacco trees.

They are not migrants in the proper sense of the word, their journeys being limited to short distances, as from one locality to a neighboring one, according to the season and fluctuations in the food supply.

This species does not hibernate, except in the mountains, although in the foothills and valleys the animals usually stay in their burrows during stormy and severe weather.

Breeding.

The time of breeding varies somewhat with the locality, animals living in the north, in the mountains, and along the coast breeding later than those in the hot country. The young are usually born in March or early April. Pregnant females have been killed at various dates from February 15 to May 12, and in the farm country young old enough to run about are usually common in April. Now and then small young are seen as late as the middle or latter part of August, indicating that they were born in late June or early July. Whether or not these are cases of a second litter is not known. The number of young at a birth varies from 5 to 11. The average number over the greater part of the state is 8, but along the borders of the Mohave desert it appears to be reduced to 6 or 7.

Food.

The food consists, according to season and locality, of acorns, fruits, seeds of various plants, and green herbage. Acorns are a favorite food and where obtainable are gathered and stored in large quantities. The same is true of manroot (Echinocystis fabacea), the seeds of which are eagerly eaten, according to Piper, from the time they begin to form until fully ripe. At Modesto the squirrels were eating them as early as the middle of May and as late as the middle of December. Other favorite seeds are those of elderberry (Sambucus), jimson weed (Datura), wild nightshade (Solanum), turkey mullein (Eremocarpus), tarweed (Madia), and numerous grasses. Of cultivated nuts,

almonds and walnuts are preferred; of other crops, apples, prunes, peaches, apricots, figs, olives, certain garden vegetables, the seeds of cantaloupes, watermelons, and citron melons, and all the grains are eaten wherever they are to be had, and green alfalfa and clover are sometimes taken. In November—sometimes earlier, according to the date on which the early rains begin—tender green vegetation becomes abundant, and tne ground squirrels turn their attention to it. At this season their chief food consists of green stuff, mainly young wild oats and filaree, the latter a small member of the geranium family widely distributed in California and valued as a forage plant. In several localities in March the cheek pouches examined by Piper were filled with the yet green seeds of filaree. In June the pouches are often filled with alfalfa leaves and flowers. In Southern California the squirrels are fond of the fruit of the prickly pear (Opuntia).

Storing Food.

Ground squirrels carry, in their ample cheek pouches, acorns, olives, various seeds and grain, and even green stuff, from the places where the acorns and seeds are stored for future use. At Modesto in May, 1909, Piper found stores of alfilaria seeds packed in cavities and well mixed with dry sand. In December of the same year he examined a number of stores of grain unearthed by a farmer while scraping and leveling his land. Each of these caches consisted of from a pint to a quart of oats stored in cavities and packed in dry sand. They varied from 8 to 18 inches in depth beneath the surface; some were in short blind holes; others at the ends of branches of the main burrow.

Depredations.

It is easily seen that an animal so large, so abundant, and so generally distributed over the agricultural parts of the state is capable of inflicting serious losses; and when it is remembered that the ground squirrel feeds on walnuts, almonds, apricots, peaches, prunes, apples, olives, figs, oranges, certain vegetables and forage crops, and all the grains, and also damages vineyards and young orange groves, the magnitude of its depredations, amounting to hundreds of thousands of dollars annually, can be readily appreciated. Ground squirrels are particularly fond of green almonds and of the pits of green peaches and apricots, eating these from the time the kernel begins to form until the fruit is ripe, thus doing serious damage. They are very destructive to apples also, and in places in the foothills of the Colfax-Auburn region are said to take fully half the crop.

At times they injure both almond and orange trees by gnawing the bark. In the orange groves between Porterville and Springville, in Tulare county, it is reported that they occasionally gnaw the bark of the orange trees and sometimes cut the fruit and carry it off. They attack drying prunes and carry off large quantities.

But the principal money loss attributed to ground squirrels results from their depredations on grain. They devour barley, wheat and oats when the seed is first sown; they dig up and carry away the sprouting kernels; they invade the fields of ripening grain and feast upon it continuously until harvest time; and when it is cut and stacked they concentrate about the stacks and attack it vigorously, eating all they can and laboring tirelessly to carry the remainder to their underground storehouses. At a single stack near Jamesburg, in Monterey county, a few years ago 300 ground squirrels were caught in traps and many more poisoned; and in July, 1907, Vernon Bailey saw fully 200 about a barley stack at Capistrano, in Orange county. They climbed to the top of the stack and dragged down the grain until it formed a windrow 2 or 3 feet high. At the same place two years later S. E. Piper counted 158 squirrels in sight at one time.

Another kind of injury inflicted by ground squirrels results from their habit of burrowing in embankments. In the flat country they seek small elevations from which they can better observe the approach of their enemies. Dikes, levees, roadways, and embankments of all kinds attract them and are often seriously undermined by their burrows. In the irrigated districts their underground tunnels, like those of the pocket gophers, frequently cause breaks costing large sums to repair. Thus in May, 1910, ground-squirrel burrows caused such a serious washout in the Turlock Canal in Stanislaus county that the line of the canal had to be changed at a cost of $25,000. The break occurred during the latter half of May, and the labor of rebuilding the waterway occupied about three months, depriving the ranchmen of water at the very time it was most needed for the irrigation of their alfalfa and other products and entailing a loss of upward of half a million dollars.

SMELTERS' TROUBLES.

Continuous disputes and lawsuits between farmers and smelting companies are evidence of the increasing damage done by the poisonous fumes from the smelters as the population increases. The smelting of many ores, and especially those of copper, volatilizes the arsenic or other poison in combination with the ore, which is sent off in sufficient quantity to injure and ultimately kill all the vegetation, especially on the side opposite to the prevailing winds, for miles around. As the result of suits in many states, it has become settled law that smelters cannot be operated unless this destruction is prevented, and their owners are at their wits' end. The problem is to conduct the fumes from the chimneys into some building where they can be so treated as to render them harmless. Various methods have been tried, but no entirely satisfactory process for eliminating the poisonous elements from the fumes seems to have been yet perfected. Chemists and mechanical engineers have been at work on the problem for years, and while processes are in use which reduce the damage, none has been found that is reliable for all ores. In fact, each mine seems to create a separate problem.—S. F. Chronicle.

HALL'S SQUIRREL POISON

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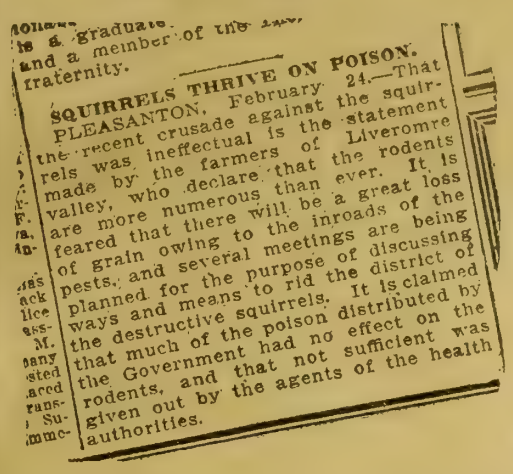

...graduate ... and a member of the ... fraternity.

SQUIRRELS THRIVE ON POISON.

PLEASANTON, February 24.—That the recent crusade against the squirrels was ineffectual is the statement made by the farmers of Livermore valley, who declare that the rodents are more numerous than ever. It is feared that there will be a great loss of grain owing to the inroads of the pests, and several meetings are being planned for the purpose of discussing ways and means to rid the district of the destructive squirrels. It is claimed that much of the poison distributed by the Government had no effect on the rodents, and that not sufficient was given out by the agents of the health authorities.

Clipping from S. F. Chronicle, Feb. 25, 1910

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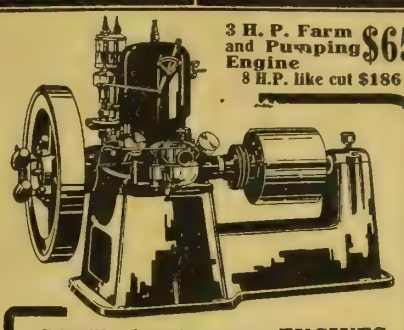

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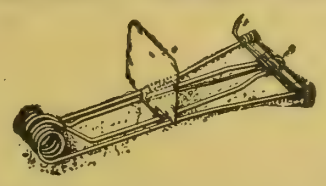

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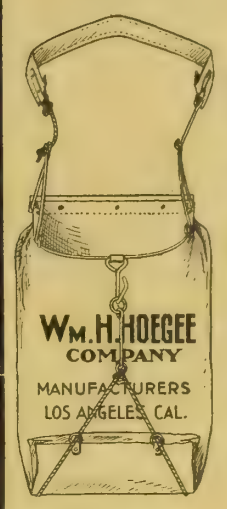

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In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Extra fine draft stallion. He combines the world's two greatest draft breeds. Sire is an Imported English Shire, weighing 2100 pounds, one of the best of this great breed on the Pacific Coast. Dam is a very fine, pure bred Percheron. This colt will be 3 years old in May, weighs 1750 pounds now, in ordinary condition. He will weigh 2100 or 2200 pounds at maturity. He has good, heavy bone, splendid conformation, excellent color, style and action, and is a horse that will please the most critical. Price very reasonable. Write for particulars. Geo. A. Smith, Corcoran, Cal.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Steck Farm, Fresno, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

Polled Jerseys—Breeders names of Chas. S. Hatfield, Secy., Springfield, Ohio.

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Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L448 Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Wanted—Sour and Trifoliate orange, apple, pear, cherry and plum seedlings. Elk Grove Nursery, Elk Grove, Cal.

Wanted—At bargain price, 1200 Bartlett pear trees, 2 to 3 feet, at once. Box 225, Upland, Cal.

Wanted—One thousand seedling orange trees from three-fourths to one inch in diameter, sour stock preferred. John S. Adams, R. R. 2, Box 20, Pomona, Cal.

MACHINERY.

For Sale—Windmills, pumps, engines, piping, brass cylinders, guaranteed 1st class. Wagons, buggies, harness, plows, scrapers, power feed cutter, fruit crusher, 2 H. P. Hurst orchard sprayer, windlass, 20 H. P. hoist, sundries too numerous to mention.

8 ft. Aermotor windmill complete with tank and pump at $59 on cars.

2 H. P. engine, jack, pump and pipe complete, $89 on cars.

Tanks.

50,000 gal. tank and stand, 30,000 gal. tank, 6,000 gal. tank and 24 ft. stand, 2,000 gal., $19.50, and many other sizes.

5-ton brand new parts for mowers and rakes, such as knives, guards, sickle guards, connection rods, 100 complete sets rake teeth. Will sell at 50 per cent off wholesale price. For real bargains and good material see Demmitt Co., upstairs, 120 N. Main St., Los Angeles.

For Sale—One No. 3 Ames pump, 8 in. cylinder, $250; one Fairbanks-Morse 22 H.P. engine, $450. Also for a short time only I offer a 45 H.P. White & Middleton engine, air starter, for $700. 1½ miles north of Olive, ¾ mile south of Richfield. I. H. Gulick, Olive, Cal.

For Sale—Complete pumping plant consisting of Ames No. 2 seven-inch cylinder head; 180 feet of rods, 180 feet eight-inch O. D. casing, 12 H.P. Daniel Best engine; all in good condition. Will lift from 12 to 15 inches water. Price $350. P. C. Bashore, Covina, Cal.

For Sale—One 4x6 Duplex belt-driven pump. This is an economical pump for irrigation or other purposes. Guaranteed like new. Bailie & Brandt Co., 943-45 No. Main St., Los Angeles, Cal.

For Sale—One 32 H.P. Fairbanks-Morse distillate engine. Like new. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—A practically new No. 2 Sharples Separator. Snap. C. P. Dandy, 421 Wilcox Bldg., Los Angeles.

MISCELLANEOUS

45c brings you freedom from mites and other vermin, and consequent profits and peace of mind. Send right now to John S. Siebert, Box 835, San Diego, Cal., for full illustrated directions to make Siebert's Sanitary Roost and Dropping Board (No stamps).

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

Trees—Grafted Franquette, San Jose Mayette Walnut, 8 varieties Grafted Mammoth paper-shell pecans, assorted plums, quince, and general nursery stock at bargain prices. Tribble Bros., Elk Grove, Cal.

For Sale—Pure White Fan-Tail Pigeons, $1.50 per pair. F. o. b. express office. Bert L. Nunnaley, Puma, Ariz., R. D.

FARM LANDS FOR SALE.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars, call or address Paxton, 612 Lankershim Bldg., Los Angeles.

Perris Valley—Quarter section of 154 acres fine level alfalfa or sugar beet land; station and side track on land, near new sugar factory. All in grain with sure prospect of good crop which goes with the land. $100 per acre, part cash. Another quarter, 160 acres, near Riverside, slightly rolling; grain, orange or eucalyptus proposition; $75 per acre, very easy terms. Address owner, Chas. S. McMillan, 300 S. Marengo Ave., Alhambra, Cal.

For Sale—In Dinuba, Tulare County, California, 20 acres, 2 miles from town in splendid location on main road to Reedley. 12 acres in Thompson seedless grapes, which come into bearing next year; 8 acres unimproved. Will sell this piece cheaper than any of the surrounding property in order to make a quick sale. Price $225 per acre. Write to Sibley & McCormick or Barrett & Green, or D. H. Kash, Dinuba, Cal., about this property, which is lot 36, Producers' Colony.

For Sale—$125 per acre, 160-acre ranch in Owens River Valley, 2 miles from county seat. 12 acres Stayman Winesap apples, 50 acres alfalfa, 60 acres farming, balance pasture. Entire ranch soil suitable for apples and pears or farming and alfalfa. 100 inches water continuous flow, non-assessable. Would consider one-half exchange in Southern California. Address Owner, Box 52, Independence, Cal.

24 Acres in the Famous "Orland Project," 18 acres alfalfa, 6 acres bearing oranges; all irrigated by the U. S. Government; Orland's best soil; small residence, barn, dairyhouse, etc.; right in town, and will double in value in a short time; worth $12,000 now if cut into city lots. Will sell for $8,000 for a short time. Address owner, J. Vance Wilt, Box 71, Orland, Cal.

If You Want a Fine Home, No. 1, rich, level land, close to best market in the state, best climate, where irrigation is not required, write me. I have a few 80 and 160-acre tracts at $10 per acre. Also a fine 160-acre relinquishment for $500, if taken quickly. Wm. T. Mantz, Pattiway, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

I will exchange 13-room house and lot in the railroad town of Sparks for country property. Write for particulars to Mrs. R. Cook, Sparks, Nevada.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

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Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

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The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

DUCKS

Indian Runner, Muscovy and Buff Orpington Ducks.—Stock and Eggs. Rabbits and Guinea Pigs. Book on rabbits. Price list free. Caldwell & Co., R. D. 3, Los Angeles, Cal.

"The Indian Runner Duck Book." All about this wonderful breed. Public 200 egg record (without meat). Stiff paper, 200 pages, numerous illustrations. Price 75c, postpaid. Caldwell & Co., R. D. 3, Los Angeles, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Dissolution Sale of thoroughbred poultry at less than half price. 16 White Orpington year-old hens, large birds, at $5.00 each. One first prize rooster, 12 lbs., cost $30.00, price $12.00; one rooster, best utility stock, 10 lbs., price $7.50; one 8-months-old cockerel, grand bird, price $6.00. Pullets and cockerels, two and three months old, $1.25 each. 50 Buff Orpington laying pullets and year-old hens, Sullivan strain, $1.50 each. Four one-year-old roosters, from $3.00 to $6.00. For the same quality of stock elsewhere you would pay more than double, and I guarantee every bird to be just as represented. First come, first served. A. H. Foster, 144 Frisbie St., Vallejo, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Thoroughbred White Rock, Rhode Island Red, Buff Orpington eggs, $1.50 per 15, $6.00 per 100. White Leghorn eggs, $1.00. Thoroughbred Bronze Turkey eggs, 20c each. Orders taken for baby chicks. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

Ancona Eggs for Hatching—Extra good stock. Eggs, $2.50 and $2.00 per setting of 15. Also White Mammoth Pekin Duck eggs $1.00 for eleven. C. S. Norton, Corning, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME

At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Eggs for Hatching—$1.00 per 15; $5.00 per 100. Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons. Stamped envelope or cash with order. L. W. Neilsen, R. R. 2, Box A1, Petaluma, Cal.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

For Sale—Imperial White Pekin duck eggs, $1.00 per setting. Incubator lots, $7.00 per hundred. T. H. Hanson, Petaluma, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Thoroughbred Light Brahma eggs for hatching, $2.00 per 15. L. C. Oakland, Chula Vista, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs—from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

Lodi Hatchery—Just hatched, White Leghorn chicks from healthy, heavy laying stock. Booking orders for later delivery. T. C. Hawley, 504 E. Elm St., Lodi, Cal.

CHICKENS FOR SALE.

Cook Strain White Orpingtons—"The Real Thing," where Kellerstrass and all other breeders had to go to get the pure blooded Orpingtons. The Standard Poultry Yards has them direct from Cook Brothers, Scotch Plains, N. J. Note report of late San Diego Show: "C. A. Loud, all awards White Orpingtons." Eggs and baby chicks for sale. Also Northrup heavy weight S. C. Black Minorcas. Send for folder. C. A. Loud & Bro., San Diego, Cal.

Kellerstrass Strain Crystal White Orpingtons—Best in the world. At the Santa Barbara Poultry Show with only three birds entered I won four prizes: 1st cockerel, 1st pullet, 3d hen and special premium for the best White Orpington male in the show. Eggs, select matings, $3 per 15. Extra special matings, $5 per 15. Chicks, 50 cents each. S. Gascoigne, 520 Stevenson Ave., Pasadena, Cal. North loop car.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

For Sale—Some A1 Silver Penciled Wyandotte cockerels, from blue ribbon winners. Some fine ones at $2.50 and $3.00. Higher priced birds a matter of correspondence. Eggs $1.25 per 13, $8.00 per 100. My stock are the winners of four first prizes, three second prizes and one third prize at the 1911 Los Angeles Show. W. C. Pagenkopp, Sherman, Cal.

S. C. White Leghorn Eggs—Eggs for hatching from stock bred for beauty and duty. All our birds are especially bred for heavy egg production as well as fancy qualities. Every egg is especially selected for hatching. Prices very reasonable. Place your orders now for future delivery. Geo. A. Smith, Corcoran, Cal.

Stock and Eggs For Sale—Buff, Black, White, Cochin Bantams, Cornish Games, Houdans, Barred Rocks, Reds; fancy and utility pigeons, 20 varieties. In 1910 I won 114 prizes, 6 cups. B. Kuechel, Route 2, Orange, Cal.

S. C. Rhode Island Reds, young hens at $1.00 each. Chicks 15c each. Eggs $1.50 per 15, $6.00 per 100. L. Haynes, Madera, Cal.

For Sale—Pure bred White Cochin Bantams, very fine, excellent layers. $1.50 per pair. Cockerels 75c, F. O. B. Fillmore. Address Ona King, Fillmore, Ventura Co., Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Barred Plymouth Rocks hatched to order at $12 per 100. P. L. Simpson, Orland, Cal.

Baby Chicks—Order now from R. I. Reds (Thompkins strain). S. C. Black Minorcas (Northrup strain). White Minorcas, Buff and White Leghorns. Eggs for hatching. C. U. Chamberlin, Los Gatos, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

R. I. Reds—Phenomenal strain. See display ad, this issue, poultry department. The Luedkes, Anaheim, Cal., R. D. 1.

Greenleaf "Reds"—Single comb cockerels, and eggs for sale. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Single Comb Brown Leghorn Eggs—$6.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100, $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

S. C. Rhode Island Reds—Laying hens for sale. Eggs $1.50 per 15, $6.00 per 100. L. Haynes, Madera, Cal.

Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

NURSERY STOCK.

For Sale—Fine plants Asparagus Plumosus, two years old, $40 per 1,000. Also Springeri sane agi, $20 per 1,000. L. J. Goodman, R. F. D. 1, Box 22, Los Angeles, Cal.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

Rocky Ford Cantaloupe Seed—We have a limited amount of genuine Rocky Ford, Netted Gem, Cantaloupe Seed. This seed was personally selected by the late George W. Swink from melons grown on new ground and is particularly choice. Price of No. 1 seed $1.00 per pound; price of No. 2 seed 75c per pound. Address Estate of Geo. W. Swink, Rocky Ford, Colo.

Nursery with 80,000 trees from one to four years old. Plenty water, land all piped. Big reservoirs on place. Place about 1500 feet from railroad station. There are twenty acres of land and good buildings on it. For sale right away. Price $20,000. Apply for address in the office of the Cultivator, Box R.

Planters and Nurserymen, attention! Fine, thrifty fruit trees, our own home grown peach, plum and apricot. Prices right. Call and see them at 738 South Spring, or write C. A. Douglas, 912 East 46th St., Los Angeles, Cal.

For Quick Sale—The finest lot of oranges, Washington Navels and Valencias; also Eureka Lemon Trees, 5/8 and up, ever grown in Southern California, at low prices in large lots; also 500 small Acacias at 8c; 500 Phoenix Palms at 15c; 500 Strawberry Guavas at 8c and 500 Eucalyptus Robusta and Rostrata out of 4-in. pots at 7c. All No. 1 stock. Act quick, enclosing check if you want these snaps. Address H. L. Bauer & Son, 737 So. Spring St., Los Angeles, Cal.

NURSERY STOCK.

U.S.-King Edward (Strawberry)—Introduced by us this season for the first time. This berry has been tested from the Atlantic to the Pacific, by the most expert strawberry growers, and it has stood the test better than any other strawberry grown to date. Send today for our 1911 catalogue, 7 color plates of berries. It's free. Berrydale Experiment Gardens, California Ave., Holland, Mich.

Extra Select Pineapple cantaloupe seed grown from original stock, no culls, only first-class specimens taken for seed. $1.00 per pound prepaid. Also small lot of Chilean watermelon seed, 75c per pound. S. Fairburn, Burbank, Cal

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

TREES.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

For March Delivery—First-class peach trees at 10c each; first-class apricot trees 15c each; first-class almond trees at 13c each; first-class prune trees at 13c each; first-class plum trees at 13c each. Sour orange seedbed stock at $12.00 per thousand. We pay freight on all orders of $10.00 or over. Address S. E. Courtney, Rose Lawn, Hanford, Cal.

Special prices on Tilton apricot, apples, Salway peaches, Satsuma plums, lemons, Navel and Valencia oranges, seedling walnuts. Grafted walnuts on own and black root. Anything in nursery line. Get my prices. A. R. Marshall's Nurseries, Cor. 3rd and Bush Sts., Santa Ana, Cal. Box 64.

Ornamental Eucalyptus—Cleanest and best shade trees for the ranch. Acacias, pines, etc. Large stock. Weigelia, 25c; Escalonia Alba, 50c; Fuchsias, in variety, 10c up to 25c; Syringa, 25c. Ballou's Nursery, Pasadena, Cal.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries. Whittier. Cal.

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Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

Eggs from Select Trapnested Stock—No culls. Black Minorcas, Northrup strain; White Wyandottes, great winter layers; Barred and White Rocks; Buff Orpingtons; Rhode Island Reds; all $2.50 per 36 eggs, $6.00 per 100. White Minorcas, beauties, fine layers of the largest white eggs, $3.00 per 36, $7.00 per 100. White and Brown Leghorns, heavy laying strains, $2.25 per 36, $4.50 per 100. Enclose stamp for reply. W. D. Rose, R. D. 6, Santa Ana, Cal.

For Sale—Eggs from genuine White Indian Runner Ducks, $3.00 per 15, $6.00 per 50, $10 per 100. Fawn Indian Runner ducks and Howard strain White Leghorn eggs $1.00 per 15, $3 per 50 and $5 per 100. Dustins White Wyandottes, $1.50 per 15; fertility guaranteed. J. C. Carlisle, R. D. 4, Box 249, Los Angeles, Cal.

For Sale—White Muscovy, Indian Runner and Pekin duck eggs. Also fine Buff Orpington and White Leghorn eggs. Eggs $1.00 per setting. Mrs. Ungerland, Route 2, Box 300, Los Angeles. Phone Boyle 8080.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V Peterson. Guerneville. Cal.

TURKEYS.

For Sale—Thoroughbred Mammoth Bronze Turkey hens of large size and fine markings; also eggs for hatching. Mrs. Nellie Hart, Holtville, Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

For Sale—Have three young Bronze Turkey Toms left, all grand birds. Your flock will be greatly improved by securing one. Mrs. A. C. Wisegarver, San Fernando, Cal.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

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Business

GARDEN CALENDAR.

Chas. Winsel's American Garden Calendar is the best he has ever issued. It is the work of the Kruckeberg Press. It consists of 100 pages, and in addition to cataloging many of the old standbys and many of the novelties, he is handling, a calendar is given for each month of the year for vegetable and flower garden. Another feature of value appears on page 70. This is a plan for landscaping a country home. It presumes the place to be one of 15 or 20 acres, five acres of which are given over to ornamental grounds. Some of the trees recommended are purely ornamental; others are the more attractive fruit bearers. The plan carries numbers which refer to full list of plants, trees and shrubs. This particular design is for a semi-tropical effect possible in this end of the state. Among the flower seeds catalogued by Mr. Winsel is one of his newer introductions, antirrhinum majus grandiflorum, or double white snapdragon, a very striking and beautiful white flower much used in bedding and of great value as a cut flower. The booklet may be had by addressing Chas. Winsel, 211 South Main St., Los Angeles.

A WONDERFUL SEEDER.

You have undoubtedly noticed the advertising of O. E. Thompson & Son of Ypsilanti, Mich., on their wheelbarrow seeder. This seeder has been on the market for nearly forty years. Over 200,000 of them have been sold and are now in use. All are making money for their owners by increasing crops and saving seed. Almost anybody can use a Thompson Wheelbarrow Seeder. There is no trick in its operation, no experience is necessary. We would suggest to you that you write a postal card to O. E. Thompson & Sons, Ypsilanti, Mich., for complete catalog.

A NEW DICTIONARY.

The new edition of Webster's International Dictionary is the finest ever issued of that great publication. It is a book which should be in every library, and those of our subscribers who have not seen it should write the G. &. C. Merriam Co., Springfield, Massachusetts, for sample pages and particulars of this revision.

SULPHATE OF IRON.

Our subscribers often write as to where sulphate of iron may be had for spraying operations, weed killing, and sometimes for soil experiment. The largest manufacturer of this material, which is a by-product, is the American Steel & Wire Co. at Chicago. Booklets showing manner of treating seed grain for fungous diseases, killing weeds in the fields, and other valuable points, will be sent on application.

DON'T GROW OLD.

He who lives in touch with youth, enjoying boys' fun and keeping in sympathy with boys' lives is buoyant with hope and cheer and does not take life seriously enough to grow old over worries.

Would we urge frivolity then? No. But there is too much sham seriousness that ages men as does the real. Dignity is a good thing to wear in company, but a dangerous life companion. It gets a man by the collar and marches him down to old age at double quick. Dignity is a close relative to grouch. It makes men hate the laughter and cheer of youth, and in shunning youth our grouchy friend grows old.

Some men and women with white hair and eighty years behind them are young in heart and a pleasant companion for young and old. Others at forty are bowed in body and spirit, old in every sense of the word because they have gotten out of touch with youth.—Ex.

Lewiston, Idaho, is planning for the greatest stock show ever held in that state to be pulled off next fall.

General Household Notes

HASTY JUDGMENT.

"I can never consent," she was saying,
"To my daughter's becoming your bride,"
"Then sad is my fate; I am doubly
Forsaken," the young man replied.

"For the goal of my twofold desire,
I foolishly fancied I saw—
A bride with the grace of an angel,
And a young-looking mother-in-law."

Then her voice, it was sweet with emotion:
"I'm oftentimes hasty, I find,
And if here I have erred, I should do you
But justice—in changing my mind."
—Eugene C. Dolson, in Woman's Home Companion.

SAVING THE EXPRESS.

"Well, Kent, I guess we can spare you for a couple of weeks, if you would like to take a vacation," said the General Manager of the C., D. & P. Railroad.

Kent Ballard was night telegraph operator for the C., D. & P. road in the big terminal station at Chicago. He was eighteen years old, and as bright, capable and faithful an employe as the company had in their entire system. As the General Manager came and leaned over the window-shelf of the telegraph office, with his pleasant announcement, Kent looked up gladly and gratefully.

"I would like a little outing, sir," he said, "if it is perfectly convenient. It's been pretty steady work the past year; and I must confess that I am a bit tired. When can you spare me, sir?"

"Day after tomorrow, if you wish. We will have a man at our disposal then, and can put him on your work for a couple of weeks. Have you any idea what you would like to do, or where you would like to go—any vacation plan in which I could be of assistance to you?"

Kent hesitated a moment. "I have had a plan in my mind for some time, sir," he said, at length; "but I hardly dare to mention it, even now. It would be asking a great favor of the road."

"Out with it, my boy!" cried the General Manager. "If it doesn't involve us too deeply in financial embarrassment"—and he laughed good-naturedly—"I can promise you it will be granted."

"I want to make a trip over the road in a locomotive," said Kent. "I should like to go clear to the Pacific Coast, if there is time. If I could venture to ask you for permission to go on and back with the engineer of one of the overland expresses"——

"Why, of course you can, my boy!" exclaimed the General Manager. "Say no more about it. Make all your preparations, and come to my office tomorrow for your pass and written permit, in case anybody should dispute your right of way. I will speak to Mr. Faley, the engineer of the mid-week overland, and he will be ready for you on Thursday's out-bound trip."

"Thank you, sir—ever so much!" cried Kent. "It will be a great pleasure to me, and I shall never forget your kindness."

Kent Ballard told his mother, next morning, that his pet vacation project was to be realized. "I've always longed to cross the Rockies and see the Pacific," he said; "and now, if you can spare me for a couple of weeks, Mother, I am off. Fred and George will take good care of you. They have had their vacations already, you know."

On Wednesday Kent went up to the General Manager's office and got his pass and permit. "I have also reserved section twelve in the sleeper for you," said the Manager. "You will want a good, comfortable bed at night," you know. Here is your ticket. And as for your meals, get them in the buffet car regularly. The steward understands."

"Oh, sir! you are too kind!" cried Kent.

"No, I am not!" laughed the Manager. "A man can't be too kind—it's impossible. You must remember, too, that you have served us faithfully, in a difficult and responsible position, for three years. You deserve a favor now and then, according to my way of looking at things. Well, goodby to you, and a pleasant trip!"

The mid-week overland express pulled out, at ten o'clock on Thursday morning, with Kent Ballard in the cab of the big Mogul locomotive. "Our first run will be express for fifty miles," said Mr. Faley, the engineer, "and you will have a good chance to see how No. 312 behaves."

It was a trip full of profit and delight to the young telegraph operator. He was very fond of all kinds of machinery, and the mechanism of the engine proved a most fascinating study as they whirled along over the rails. Then the ever-changing scenery; the bustling cities and towns along the route; the big rivers over which they steamed on spider-web steel bridges; the wide, level prairies, across which they raced at whirlwind speed, occasionally sighting a herd of deer or frightening up a flock of prairie chickens—all these things made an endless program of interest and pleasure for Kent Ballard. Then what a thrill passed through him when at last they came in sight of the towering Rockies, with their terraced foothills, like Nature's doorstep to the threshold of the mighty range.

So far the overland express had whirled along on its long western trip without the slightest adventure. There had not even been an hour's delay. The train was sharp on time, and if everything went well its journey would be completed in twelve hours. They had now reached the ascending grade over the foothills, and were slowly crawling upward toward the pass, between the great snow-capped peaks, through which they were to gain the Pacific slope. The scenery was indescribably grand, and Kent's eyes never wearied of feasting upon it. "Oh, if Mother could only see these grand mountains!" he thought. "And if I ever get promoted to a good salary, she shall."

Nine hours passed, and at length the great engine, with an almost human sigh of relief, stopped, panting, on a side-track at the Summit Station of the "divide." A train of flat-cars, loaded with stone, and drawn by two locomotives, was slowly puffing up the western grade. The express had to wait on the siding until this freight train should pass and leave the main track clear. While they were waiting, Kent Ballard left the engine and took his seat on the rear platform of the

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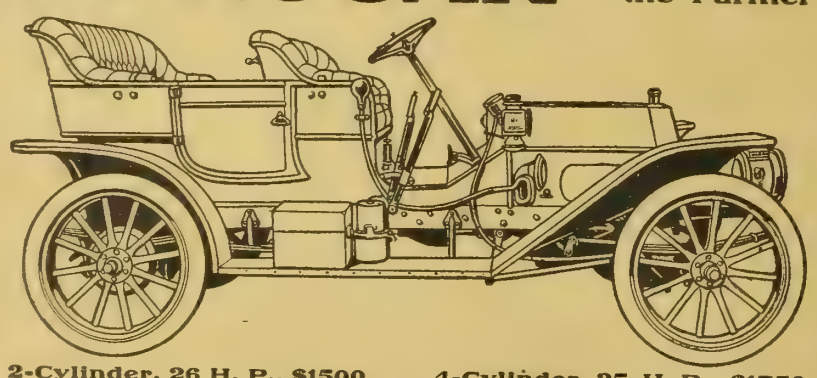

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last car, where he could look back at the grand snow-capped mountains they had just passed.

The heavy freight train struggled up the grade until it had passed the lower end of the siding, and then stopped at the water tank on the main track. A few minutes later the express pulled out, and the switchman again set the main track open. Kent remained on the rear platform of the train, looking back at the mountains. Presently he saw the freight train endeavor to start up again. The engines backed a trifle, and then, as the car brakes were released, went forward with a jerk.

Kent Ballard suddenly jumped to his feet. What could it mean?—the freight train seemed to be backing down the heavy grade after the express, instead of going straight ahead. But no! the engines and the main part of the train were going the other way. Then the startling truth flashed upon the young man. The jerking start of the heavy engines had broken the train in two, and the rear part of it, without a brakeman aboard, was running wild down the steep grade after the express!

What was to be done? Fortunately, Kent Ballard was not one to be easily confused in an emergency. He was noted for always "having his wits about him." Plainly, the first thing to do was to warn the engineer of the express. But this must be done without alarming the passengers and throwing them into a panic. Some persons would have been just foolish enough, on making the discovery which Kent had, to run back through the train, crying: "Get ready to jump for your lives! There's a runaway freight train on the track behind us!" But Kent did not even hurry through the cars on his way forward to the engine, lest he should thereby excite the suspicions of the passengers. Even the brakeman did not suspect any danger from his actions as he passed through the train. But as soon as he reached the baggage car, where the conductor was sitting, he motioned the latter to follow him. Rushing to the forward platform, he climbed on top of the tender and shouted:

"Faley!"

The engineer did not hear him at first.

"Faley!"

The man turned quickly.

Crowd on steam! That freight train has broken in two and is chasing us down the grade!"

"Good God!" exclaimed the conductor, who had followed Kent out on the platform of the baggage car. "Let her out, Faley! I will go back and signal you from the rear car."

The conductor disappeared, and Kent crawled over the tender into the engine cab. Faley had already "let her out" as much as he dared on so steep a grade. Presently, however, came the clear signal of the conductor's bell—"More steam!" Faley's hand was on the throttle; but he hesitated. "It's worse to jump the rails than to get overhauled on the track," he muttered. "But here goes! I'm in this cab to obey orders."

He threw the throttle wider open, and the great engine rocked and plunged at more terrific speed down the sharp incline. "Those stone cars must be terribly heavy," exclaimed Kent.

"Yes. How many of them broke loose—do you know?" asked Faley.

"Not exactly," replied Kent; "but I should say four or five."

"Enough to smash the whole express to bits!" muttered the engineer. "It's curious how much faster a loaded freight car can travel on a down grade than a locomotive, even. Seems to get a greater momentum. Good heavens! He wants more steam!"

The conductor's bell clamored its signal twice. Faley threw the throttle wide open. "There!" he exclaimed. "If that doesn't save us, it will smash us!"

Kent Ballard had been thinking very hard for a few minutes. A project was forming itself in his mind. Suddenly he grasped the engineer by the sleeve and asked eagerly:

"How far ahead is the next station?"

"About five miles."

"Siding there?"

"Yes."

"Telegraph operator?"

"Yes."

"Good! I have a plan. Let me work the whistle. I'll signal them! What is the name of the station?"

"Mineville."

Kent Ballard grasped the whistle cord. In sounds corresponding to those of the Morse code when ticked out by the instrument, he signalled:

"Mineville! Attention."

After a few seconds' pause he repeated the call. "How far are we from the station now?" he asked.

"Between three and four miles," answered the engineer. "You can calculate a little more than a mile to the minute."

Kent repeated the call once more, and allowed a pause of ten seconds. Then he telegraphed, by sounds:

"Open the siding, quick!"

Then a pause of ten seconds, and again:

"Open the siding!"

The station was now in sight. Men were running to and fro in front of it.

"I've telegraphed them to open the siding!" shouted Kent in Faley's ear, for the train was roaring and thundering on at terrific speed.

"And sure enough, they've done it!" exclaimed Faley, shutting off steam and setting the air brakes. "The signal says 'siding open.' You've either killed us or cured us—depends on how close behind the freight cars are."

It was a minute of terrible suspense. The express, its speed slackened just in time by the powerful air brakes, glided on to the siding. Would there be time to throw open the main track again, before the runaway freight cars came on?

"Jump!—we've done everything we can, "cried Faley to Kent and the fireman, as the express stopped on the siding. Even as they jumped, there was a roar like a thunder peal on the right side of the engine, and a dark shadow passed with the swiftness of lightning.

It was the runaway freight cars, thundering by on the main track! The stationmaster had thrown open the switch rod and closed the siding, just in time.

It was not long after this experience that Kent Ballard got his promotion; and the next time he visited the Rockies it was as assistant general passenger agent of the C., D. & P. railroad. On this trip he brought his mother with him in a Pullman car.

A strong solution of potash should be frequently used in rinsing out a kitchen sink; it not only removes all traces of grease, which so often resist the gentler influence of mere soap, but decaying particles from the drain pipes, and is to be regarded as an important sanitary measures.

OWENS VALLEY.

By Thos. C. Evans.

Your correspondent has just returned from a trip through Owens Valley and has decided to enumerate the things he saw and heard. One sees more than he hears, however, since Owen Valley farming folk are small talkers.

The Owens Valley train departs from Los Angeles at half after seven each morning. Dinner in the celebrated Harvey house at Mojave; thence on across the great desert until the snow-capped Sierras appear above the foothills. And permit me to say, in passing, that the sight of old Mt. Whitney rising to the sublime height of 16,000 feet is an inspiring one. Lone Pine is reached late in the evening and the passenger pushes on to the comfortable Mt. Whitney Inn where a good night's rest and excellent board bolsters up the tired tourists. From Lone Pine a fairly good mountain road takes you to the valley proper. One sees nothing of farming until the Lacey ranch is reached. There for many years the soil has yielded up a great store for the family whose name the ranch bears.

The Shepherd ranch comes next, where George Chaffey, the well-known land and water promoter is putting this ranch on the market in ten and twenty-acre ranches. Great evidences of business are manifest at the Shepherd, or George's Creek ranch. Seven hundred acres are being leveled, plowed and arranged for fruit trees; two artesian well outfits are on the ground ready to bore for the big vein of water, which is assured in immense quantity by the engineers. Forty or fifty men are digging trenches for irrigation pipe, which by the way, is the finest iron riveted pipe to withstand a severe pressure. Road scrapers were at work making good roads crossing the ranch from end to end. In all it was a constant bustle and excitement. Mr. Nordyke the ranch manager, who oversees manual labor, is a very busy man. Mr. Nordyke comes from Whittier and is a practical farm manager. George Hanson took me in his automobile over the tract and more than thirty twenty-acre lots were being put into cultivation. The sage brush which abounds on all this land was being brushed aside with heavy railroad irons, six horses doing the work. In many places the plow was following the clearers.

The Chaffey people are planting a large acreage of apples, part for themselves and part for people who do not live in the valley. It is learned that the nursery stock comes from the finest nurseries of Oregon and Washington. The principal varieties planted are Winesap 65 per cent, Spitzenbergs 30 per cent, mixed varieties the remaining 5 per cent.

The samples seen on the Shepherd ranch indicate that the two former varieties are good producers in the Owens Valley, although Smith's cider, Jonathan, Delicious, King David, Ben Davis, Imperial, White Winter Pearmain and Newtown Pippin do well.

The water supply at the Shepherd ranch will be brought down in a stone and cement conduit to the line of the property and from thence diverted to the various lots by riveted iron pipe. The pressure will be tremendous owing to the fall. In order to prevent a loss of 65 per cent by seepage in streams Mr. Chaffey took the precaution to save the water by bringing it down in a stone conduit.

The mules and workhorses on this ranch were fine big specimens. It was pointed out that they had never eaten grain in their lives although the work done is of the heaviest drafting. Alfalfa grows abundantly in the valley and contains that nutriment that ordinary grain holds.

From the Shepherd ranch we drove to the Dean orchard where about twenty acres of the most ordinary trees ever seen grew crops averaging 15 boxes to a tree, although the owner has never during the life of the trees, sprayed, pruned or properly cultivated his trees. This is strong evidence that good care will bring Owens Valley apples to the notice of the world.

Independence, a neat little town of 500 inhabitants, was the next stop. The situation is beautiful and the town is surrounded by fine farms that bring profit and pleasure.

Your correspondent had the pleasure of talking with Mr. Baxter, who has farmed his place for forty-two years. He has a fine alfalfa field, fruit trees of all kinds and about 300 stands of bees. The bees are bringing in about $1500 each year, and the Baxter honey is eaten in the homes of New York millionaires each year. The apples last year averaged nine boxes to the tree; alfalfa eight tons per acre for three cuttings a year.

On the Summers ranch, above Bishop, on 400 acres of alfalfa, 3200 tons was cut last year which received only two irrigations during the year. This is the record crop under the circumstances in the Owens Valley and should stand against all comers for some time.

Many other nice farms, big and little, were noticed between Independence, the county seat, and Big Pine. Notable among others is the chicken ranch of Hon. Fred Eaton near Big Pine. He has 6000 laying hens, 250 to a pen. The breed is of the best strain of White Leghorns. Just at present Mr. Eaton has 30,000 eggs in his incubators. The houses are all scrupulously clean. The estimated cost of the buildings is $100,000. The markets for this wonderful ranch are all in Nevada. The average price for eggs and chickens is far above any other in the West.

Big Pine nestles against the foothills comfortably and is a neat little town of 800. The view of the high Sierras is just like that from the other towns in Owens Valley.

The ranch of "Bull Frog" Smith was particularly noticeable owing to the fact that his apple trees, Winesap and Smith's Cider varieties, were as clean as mahogany and were properly pruned. Mr. Smith took 15 boxes off each tree last year. His ranch is well cared for, although he was formerly a mining man.

Many nice homes abound all through the valley and good farms and stock meadows line the turnpikes. Stock cattle looked sleek and fat and horses and mules do exceedingly well. Sheep in countless droves browsed along the grazing fields and were in pink of condition. Young lambs were frisking around as in spring although the temperature registered 29 degrees.

Timothy and oat hay is very plentiful through the Owens Valley. Most all of the farmers raise good crops of both these feeds. Wheat is also a good crop.

Bishop, the largest town of the valley, is a prosperous place of 1500 and fast growing. Around Bishop are many fine ranches and on each can be seen good houses and well-kept stock. Water is just as plentiful there

(Continued on page 319.)

Shrinkage vs. Stability

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No. 750 Price $9.50

For Dry Bones etc.

STRAWBERRY PLANTS

75 per cent of the strawberries sold in Los Angeles last season were shipped last year were **KLONDIKE BERRIES**. Why? What plants are you going to set out?

KLONDIKE BERRIES 90 per cent of the strawberries

E. H. LEARNED · R. F. D. No. 5, Los Angeles

Grower of Strawberry Plants only, and only the best.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 8, 1911.

Butter.

Butter has dropped slightly in upper grades. Demand is heavy, prices weak. Arrivals, 50,000 pounds.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	27½
Firsts	26
Ladles	22
Country	18

Cheese.

Oregon Daisy	16½@17½
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Eggs are in good demand, and prices stand as last week, showing a tendency to weaken.

Paying price f. o. b. Los Angeles is:

Local ranch candled	24
Case count buying price	20
Northern	18@22
Eastern	20

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	17@19
Roosters	10
Broilers	25
Fryers	28
Roasters	19
Turkeys	23@25
Ducks	20
Geese	17
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.10@2.25
Salinas	2.50
Watsonville	2.35
Oregon, Early Rose	2.00@2.25
Northern Early Rose	2.00
Lompoc	2.50
Idaho Rurals	1.90@2.00
White Rose, local	2.25
Colorados	1.90@2.00
Sweets, yellow, cental	4.50
Sweets, white	3.00@3.25

Onions.

Wholesale quotations:

Oregons	2.75@3.00
Australian browns	2.50@2.75
Nevadas	2.75@3.00
Utah	3.00
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Asparagus, lb	40
Beets, sack	90
Brussels sprouts, lb	12
Bell peppers, lb	20
Green chilis	15@20
Cucumbers, doz	1.00@2.25
Cabbage, sack	80@90
Celery, crate	2.75
Cauliflower, crate	2.25
Carrots, sack	1.00
Egg plant, lb	15
Horseradish, lb	12½
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	75@1.25
Oyster plant, doz	40
Peas, lb	10@12
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Radishes, doz. bunches	20@25
Rhubarb, Crim. Winter, box	1.25@1.50
Spinach, doz	20@25
Squash, Hubbard	2½@3½
Tomatoes, Mexican	1.50@1.60
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.25@2.25
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.25
Tangerines	1.35

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.40@1.75
Spitzenbergs	1.75@2.50
Greenings	1.25@1.50
Pearmains	1.10@1.50
Newtown Pippins	1.25@1.75
Bananas	4½
Pineapples	9@10
Pears, lb	5@6
Winter Nelis	2.50@2.75
Strawberries	15

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evap. Apples, fancy, lb	13@13½
Figs, box	1.65@2.00
Peaches	7@8½
Nectarines	10
Pears	13@14
Prunes	10@13
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.50
Black eyes	7.00
Pinks	6.25
Lady Washington	4.25
Small white	4.00@4.25
Garvanzas	4.50
Bayous	4.75@5.00
Lentils	6.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb, new	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10
Extracted light amber	8½
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, March 7, 1911.

Butter.

There was a sharp advance in extras, bringing the price up to 29 cents. Demand heavy.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	29
California firsts	24
Seconds	22½

Cheese.

California flats, new	11½
Cal. Y. America, fy, new	15@15½
Oregon fancy	13½

Eggs and Poultry.

Steady decline in eggs brings prices down two cents lower than last week in extras. Other grades also drop.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	17½
Firsts	17
Seconds	16½
Hens, doz	5.50@10.00
Fryers, doz	6.00@7.00
Ducks	6.00@10.00
Broilers	4.00@5.50
Roosters, doz	5.00@10.00
Turkeys	18@20
Geese	2.00@3.00
Pigeons	1.50@2.00
Squabs	3.00@4.50

Live Stock.

San Francisco prices, gross weight:

Steers	4¼@6
Cows and heifers	3½@5
Calves, lb	5@6½
Hogs	6@8½
Milk lambs, unshorn	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4½@5

Potatoes.

Wholesale market quotations:

River White, cwt	1.60@1.85
Salinas Burbanks, cwt	2.10@2.35
Oregon Burbanks, cwt	1.90@2.20
Lompocs	2.10@2.35
Early Rose	1.65@1.85
Sweets, cental	5.50@6.00

Onions.

Onions, California, sack	2.15@2.25
Onions, Oregons	2.25@2.50

Vegetables.

Wholesale quotations:

Asparagus, lb	8@20
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	1.50@2.00
Celery, crate	1.50@2.50
Bell peppers	10@20
Chili peppers, lb	5@8
Egg plant, lb	12½@15
Lettuce, crate	75@2.00
Peas, lb	11@17
Rhubarb, Southern	1.75@2.00
Tomatoes, Mexican	1.25@1.50
Turnips	60@75
Garlic, lb	4@6

Citrus Fruits.

Navels, new	1.50@2.35
Grapefruit	1.00@2.50
Lemons	1.25@3.00
Limes, Mexican	6.50@7.00
Tangerines	1.25@1.75

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.25@1.65
Spitzenberg	1.50@2.75
Bananas, Hawaiian	1.00@1.50
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	1.00@1.75

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 10@11c; Apricots, 10¾@13c; do, Moorparks, 14c; Peaches, 6@7¼c, with premium of ⅛@¼c on Muirs; Prunes, bulk basis, 6¾@7¼c; Figs, 5¾@7c for White, and 5@5½c for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1.00. Seeded, per pkg.—Fancy, No. 16, 5¾@6c; Choice, No. 16, 5½c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5c; do, 3-crown, 4⅜@4½c; do, 2-crown, 4@4⅛c. Dried Grapes, 3c. Seedless—Muscatels, 4c; Sultanas, 4¾@5c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	14
Almonds, '10 Nonp	12½
Almonds, '10 I X L	14@15
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	5.85@6.10
Pink	5.40@5.55
Black eyes	5.25@5.75
Small white	3.25@3.50
Large white	3.25@3.50
Kidneys	5.75@6.25
Garbanzos	2.50@3.25
Bayou	4.50@4.85
Horse beans	2.50
Red Mexicans	5.00@5.50
Cranberry	3.75@4.25

Hops.

Hops, coast, 1910	18@21
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	13@15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner & Miller say: Arrivals of hay for the week ending today amount to 2,545 tons, a large decrease from last week, when the receipts were 4,167 tons.

Although receipts are much less and within reason, yet the market has shown no improvement. Wet weather has had its usual depressing effect on the market, which remains dull and weak. Export demand has been very light.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Wheat, No. 1	1.30@1.40
Barley, fancy	1.13¾@1.14
Barley, good to choice	1.10@1.12½
Barley, poor to fair	1.07½@1.10
Oats, white	1.50
Rye, new crop	1.50@1.60
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00@18.00
Bran, ton	24.00@26.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Ground barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	32.00@35.00
Oil cake, ton	40.50@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@26.00
Shorts	25.00@26.00

THE COMING ALMOND CROP.

Sales Manager Tucker of the California Almond Growers Exchange, is sending out crop report No. 1 as follows:

Sacramento, Cal., March 4, 1911.

The weather so far has been very unsatisfactory for the production of almonds, it being quite cold and raining more or less during the past ten days or two weeks. It has hit the Ne Plus and IXL quite hard, as they are in full bloom at this time, and the Nonpareils are partly in bloom. This is just the time we need plenty

of sunshine for these varieties, and as a result we will have an unusually short crop of Ne Plus and IXL, possibly a fair crop of Nonpareils. The Drakes are not in bloom at this time and it is impossible to make any prediction as to the size of crop of this variety, but the cold weather is holding them back considerably.

We believe that the weather conditions here at this time will strengthen the almond market considerably throughout the East, and we would not be surprised to see an advance in the market on the balance of the 1910 crop now on hand. This balance is very small indeed.

We have moved out of the warehouses several cars since the first of the month, and we have approximately 14 cars left to be sold.

Citrus Fruit Market

LOS ANGELES, March 8, 1911.

The orange market has improved, if anything, during the last week. Extra fancy navels are now commanding an average of about $2.50, with off sizes and the lower grades running 15 to 25 cents under those figures. The daily shipments are now approaching the 200 mark, though the storm of last week prevented cutting, so that at present the shipments are slightly under normal. The excellent quality is causing most favorable reception in all quarters. Puffing which started early in the season is not so noticeable since the cooler weather began.

The lemon market is featureless, every shipment being taken at fair prices.

Shipments.

Shipments of oranges to date since November 1, 1910, 12,303 cars; of lemons, 1,608; making a total of 13,911. To same date last season: Oranges, 7,923; lemons, 1,336; total, 9,259.

NEW YORK, Monday, March 6.—Forty-three cars navels, two cars bloods and three cars lemons sold. Market easier on navels, steady on lemons. Snowstorm raged during sale; fair this afternoon.

NAVELS—	Avge.
Orchard, Imp, Or, National O Co	3.00
Standard, Imp, Sd, National O Co	2.50
Orchard, Or, National O Co	2.60
Corona, National O Co	2.45
A One, xc, E Peycke, iced	2.15
Independent, fy, Growers F Co	2.85
Stock Label, Growers F Co	2.50
Euclid, Or, Growers F Co	2.90
Uplander, Growers F Co	2.70
Regal, fy, Growers F Co	2.70
Regina, Sd, Growers F Co	2.55
Sierra Celeste, W T Michael	2.60
Sierra Nugget, W T Michael	2.40
Magnum Bonum, fy, Maddock	2.45
Cotton Tail	2.15
Ideal, iced, High Prot F A	2.40
Delicious, iced, High Prot F A	2.30
Stock Label, iced	2.10
Regent, Sd, Growers F Co	2.45
Naralimo, Or, Sparr F Co	2.35
Del Oro, ch, Sparr F Co	2.20
Gold Buckle, R H E, High	2.90
Lochinvar, R H E, High	2.55
Golden Cross, O K Ex	2.80
Red X, O K Ex	2.50
Alta Cresta, A H Ex	2.90
Robusta, A H E, High	2.70
Hobo, A H Ex	2.40
Gold Buckle, R H E, High	2.85
Pinnacle, O K Ex	2.75
Majesty, O K Ex	2.55
La Mesa, Imp, Riv Ex	2.85
Golden Rule, Imp, Riv Ex	2.35
Golden, Imp, Riv Ex, Riv	2.65
Golden Rule, Riv Ex, Riv	2.50
Iris, D M Ex	2.80
Violet, D M Ex	2.70
Pinnacle, O K Ex	2.65
Blue Globe, Riv Ex	2.75
Red Globe, Riv Ex	2.60
Cal Orange, Riv Ex	2.50
Outing, Riv Ex	2.25
Paul Neyron, S A Ex	2.60
Royal Knight, R H E, High	2.55
Dove	2.70
Uncle Sam, Riv Ex, Riv	2.55
Lotus, O K Ex (No 96s)	2.80
Monogram, O K Ex	2.55
Diamond S, O K Ex	2.30
Parrot, S A Ex	2.60
Pointer, iced, A C G Ex	2.70
Hunter, iced, A C G Ex	2.55
Possum, iced, A C G Ex	2.40
Planet, S S Ex	2.35
Monogram, Imp, O K Ex	2.65
Planet, S S Ex	2.40
Butterfly, Covina Ex	2.45
Planet, iced, S S, Orange	2.50
Searchlight, iced, S S, Orange	2.35
Golden Orchard, fy, Or, Ind F Co	2.45
Citrus Belle, Ind F Co	2.30
Brownie, fy, Rialto F Co	2.40
Alchemist, xf, G N O G A	2.50
Avian	2.30
Titus Ranch, fy, S Marino G P A	2.60
El Toreador, Sd, S Marino G P A	2.45
Mahala, L V W Brown	2.35
Swastika, L V W Brown	2.65
Blue Banner, iced, fy, Sutherland	2.70
Green Banner, iced, Sutherland	2.60
Elephant, Or, Elephant Orchard	2.75
Elephant Seconds, Elephant Or	2.50
Redlands Best, iced, xf, R M O D	2.50
Mutual, fy, Red M O Dis	2.50

BOSTON, Monday, March 6.—Twenty-eight cars sold. Snowing. Market strong on oranges, unchanged on lemons.

NAVELS—	Avge.
Alpha, xf, R Henderson	3.00
Euclid, Or, Growers F Co	2.75
Regal, fy, Growers F Co	2.60
Redlands Best, xf, Red M O Dis	2.55
Uplander, Growers F Co	2.50
Chess Queen, fy, Ely Cilmore	2.50
Cluster	2.35
A One, xc, E Peycke	2.35
Cove, Sd, E Peycke	2.25
Mars, xc, E Peycke, Imp	2.45
Gold Buckle, R H E, High	3.00
Queen Bee, Q C, Corona	2.60
O I C, Q C, Corona	2.30
Golden Rule, Riv Ex, Riv	2.60
Golden Bar, S B, High	2.65
Kennilworth, A H, Riv	2.60
Laurel, Q C, Corona	2.75
Homer, Q C, Corona	2.75
Royal, Q C, Corona	2.50
Orchard, Or, National O Co	2.95
Elephant, Or, Elephant Or	2.70
Elk, R Henderson	2.65
Lochinvar	2.60
Uplander, Growers F Co	2.55
Regina, ch, Growers F Co	2.50
Standard, Sd, National O Co	2.45
Palomath	2.35
Topaz, xc	2.30
Crafton, xf, Red G O, Imp	2.50
Pet, S A Ex	2.55
Laurel, Q C, Corona	2.45
La Mesa, Riv Ex, Riv	2.80
Priscilla, S B, High	2.80
Sierra Vista, A H, Riv	2.95
Peasant, A H, Riv	2.35
Princess, Q C, Corona	2.60
Queen Bee, Q C, Corona	2.65
Pinnacle, O K Ex	2.80

LEMONS—Pet, S A Ex, $3.65; Lochinvar, R H E, High, $3.30; Independent, fy, Growers F Co, $3.65; Sardonyx, ch, Fay F Co, $3.25; Independent, ch, Growers F Co, $3.20; El Toro, $2.85.

ST. LOUIS, Monday, March 6.—Cloudy, cool. Market very strong. Nine cars navels and two cars lemons sold.

NAVELS—	Avge.
Searchlight, S S, Orange	2.20
Billiken, Riv, Pach	2.45
Pointer, A C G, Azusa	2.40
Belt, R H E, High	2.35
Pointer, Imp, A C G, Lateen S	2.35
Hunter, A C G, Charter Oak	2.35
Lochinvar, R H E, High	2.50
Conqueror, xc, Ind F Co	2.40
Uncle Sam, Riv, Pach	2.55
Pond Lily, Riv, Pach	2.25
Possum, A C G, Charter Oak	2.40
Belt, R H E, High	2.35
Florencia, xc, Randolph	2.40

LEMONS — Club St, Colegrove, $3.15; Rossmoyne, $3.30@3.40; Lochinvar, R H E, High, $3.40.

TANGERINE HALVES — Stag, boxes, $2.85.

CINCINNATI, Monday, March 6.—Cold. Market strong on small sizes, weak on large sizes navels. Steady on lemons. Four cars navels, one car lemons and three cars Floridas sold. Floridas sold $1.80@2.45.

NAVELS—	Avge.
Baseball, S T, Downey	2.10
Ben Hur, R H, Red	2.35
Monticello, Sweetwater F Co	2.80
Fort Pitt	2.35
Downey, S T, Downey	2.10
Newsboy, R H, Red	2.25
Duquesne	2.40

PITTSBURG, Monday, March 6.—Fourteen cars sold. Market steadier on oranges, easier on lemons. Weather favorable.

NAVELS—	Avge.
Orchard, Or, National O Co	2.80
Naralimo, Or, Sparr F Co	2.40
Gold Ioamosa	2.50
Red Ioamosa	2.15
Del Oro, ch, Sparr F Co	2.15
Golden, Riv Ex, Riv	2.25
La Paloma, Riv Ex, Rix	3.25
Parrot, S A Ex	2.45
Glendora Hts, xc, A C G, Glen	2.15
Majesty, O K Ex	2.45
Lochinvar, R H E, High	2.50
Standard, Sd, National O Co	2.45
Del Oro, ch, Sparr F Co	2.15
Blue Ioamosa	2.35
Jasmine, D M, Duarte	2.30
Castle, Riv Ex, Riv	2.20
Gavilan, Riv Ex, Riv	2.35
Glendora Hts, xf, A C G	2.70
Jasmine, D M, Duarte	2.30
Owl, O K Ex	2.20
Belt, R H E, High	2.30

LEMONS—Defender, xc, Altland F Co, $2.65; Orchid, fy, $3.00; Del Monte, $2.40; Circus, xc, Sparr F Co, $3.25; Mountain Crest, S A Ex, $2.50.

TANGERINES, HALVES—Orchard, $1.70.

CLEVELAND, Monday, March 6.—Six cars navels, two mixed cars and one car lemons sold. Market very strong on navels, unchanged on lemons. Cold; snowing.

NAVELS—	Avge.
Canna, S B, Yerkes S	2.60
Canon, O C G, Lamanda P	2.45
Palomar, Imp, L F, Escondido	2.35
Alta Cresta, A H Pach	2.80
Robusta B, A H Pach	2.60
Gold Buckle, R H E, High	3.00
Pet, S A Ex, Lemons	2.50
Log Cabin, L F, Escondido	2.55
Parrot, S A Ex	2.60
Robusta, A H Pach	2.60
Hobo, A H Pach	2.45
Cosmos, S B, Yerkes S	2.40
Lochinvar, R H E, High	2.70
Elephant Seconds, Elephant O	2.50

LEMONS—Pet, S A Ex, $3.25; Arab, $3.20; Greyhound, $2.90; Duck, $2.65; Hillside Gem, L F, Escondido, $2.30; Palomar, $2.05; Gold Buckle, R H E, High, $3.30; Lochinvar, $2.90.

TANGERINES, HALVES — Log Cabin, $1.20.

GRAPEFRUIT—Gold Buckle, $1.80.

PHILADELPHIA, Monday, March 6.—Two cars navels, two cars mixed and two cars lemons sold; also twenty-six cars Floridas. Oranges, $1.35@3.50, average $2.00. Grapefruit, $1.60@2.80, average $2.10. Tangerines, $1.45@2.15, average $1.80. Market easier.

NAVELS—	Avge.
Stag, A C G, Glendora	2.55
Parrot, S A Ex	2.30
Clover, xc, Red O G A	2.25
Salt Lake, Sd, King, Imp	2.25
Pointer, A C G, Glendora	2.20
Fates	2.45
Native Sons, Imp, King F	2.35

LEMONS—Liberty, Escondido F G A, $3.30; El Dorado, $3.20; Marguerite, xc, Earl, $2.65; Sunrise, Sd, $2.35.

TANGERINES, HALVES — Stag, $1.65; Fancy, $1.40.

CHICAGO, Monday, March 6.—LEMONS are steady. The supply is not large, and a fair demand exists. Boxes, California fancy, 300s, $3.35 asked; 360s, $3.25 asked; off sizes, $3.00 asked; Messina, $2.00@2.50.

ORANGES—Californias are selling very well. They are ruling steady to firm. Receipts are just about ample, and there is no accumulation. Boxes, California navels, extra fancy, all sizes, $2.60 asked; fancy, $2.50 asked; extra choice, $2.35; choice ,$2.15.

The Santa Ana Valley Walnut Growers Association is suing a member for fines imposed because of selling nuts outside of the association.

Orange county shipped $78,000 worth of celery during January.

OWENS VALLEY.

(Continued from Page 317.)

as in the lower end of the Owens Valley and is very cheap.

The potatoes grown in Owens Valley are of the variety grown in Greeley, Colorado. The crops never fail and big prices are obtained. As many as 500 bushels are raised per acre. Turkeys thrive as there is no dampness. Peaches, apricots, cherries, plums, apples, all do well. Tomatoes are big revenue producers, as many as 800 crates per acre being raised. Almond trees, the first spring bloomers, grow large crops each year and as yet frost has not killed them.

Frost comes in November and leaves in the middle of March. Many apple growers realizing that big red apples must have cold weather, are preparing to protect orchards by the latest models of smudge pots. A fruit association has been formed and all of the fruit will be sold by a central office. It is said that the acreage set out in the next year will be upwards of 2000 acres.

Railroad facilities are good but are being improved. Rates are being reduced and the valley is in full touch with the rest of the world.

This great inland valley raises corn as good as that of Nebraska and this is fed to hogs after they have been fed on alfalfa six weeks..

Water is abundant; lands are rich, composed of silt and broken granite, and can grow abundant crops of everything but citrus fruits. These conditions being such Owens Valley is bound to take its place with the richest valleys of the world.

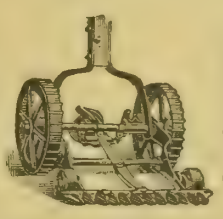
A WINDOW-WASHING HINT.

Do not put soap into the water with which windows are to be washed. A little borax or household ammonia may be added. Use very little water. Wipe off the window casing with a dry cloth and rub it over the glass as well before you begin to wash. This removes the dust which would otherwise streak the pane. The cloth should be well wrung out before it is applied to the glass and this should be rubbed dry at once. A small quantity of kerosene added to the water gives a polish to the glass and in winter a little alcohol in the water keeps it from freezing on the pane. Old newspapers rubbed soft in the hands are admirable for giving the glass a final polish.—Woman's Home Companion.

Syracuse Easy Vacuum Washers and Hand and Power Vacuum Cleaners. Patented Clothes Line

Sold for cash or easy payments. 30 days Free Trial. Freight paid. 6000 sold in California.

JAS. SCOTT & CO., 824 E. 9th St., Los Angeles. Cal.



THE CLIPPER

There are three things that destroy your lawns Dandelions, Buck Plantain, and Crab Grass.

In one season the Clipper will drive them all out.

Clipper Lawn Mower Co Dixon, Illinois.

ARNOTT ORCHARD CULTIVATOR

Acknowledged the best, 5 feet wide. Spring teeth if wanted. Horizontal lift. No neck weight.

AGENTS WANTED

Steel and malleable iron. Dust proof wheels.

ARNOTT & COMPANY, Los Angeles, Cal.

Write for Catalog. 112-118 S. Los Angeles St.

LAYNE PAT.

PUMP-SCREEN-PIT

Our New Catalogue B tells the story.

Get acquainted with our system and you will never be broke. You will be happy, for you will get more water.

LAYNE & BOWLER CO., of Cal.

VIOLET AND SANTA FE AVE.

LOS ANGELES CALIFORNIA

FOR FIELD FENCING

CARBO

AGENTS WANTED
Violet and Santa Fe Ave., Los Angeles, Cal.
BULL STRONG---RUST PROOF

LACK OF RAIN DOESN'T WORRY THESE FARMERS

Last year several hundred farmers decided that they had worried just about long enough over lack of water. So they bought I H C Gasoline Engines and installed irrigation systems of their own.

Now they have the most practical kind of crop insurance and they are independent of the irrigating companies.

Nearly every farm has a creek, slough, pond, or some other source of water supply that can be turned into a valuable asset by the installation of an

I H C Gasoline Engine

Why not put yourself in a position to have water where and when you want it—irrigate your entire farm if need be?

I H C Engines are admittedly the best power for this purpose. They require but little attention and their superior efficiency and economy have been proven by years of service. In addition to running your irrigating system they will do a host of other things such as running a cider press, alfalfa cutter, feed grinder, saw, washing machine, cream separator, etc., better and cheaper than any other power. There are all styles and sizes to choose from, 1 to 45-H. P., horizontal or vertical—stationary, portable, or traction.

Call on the I H C local dealer and let him show you the one best adapted to your needs; if you prefer, write direct for the I H C Engine catalogue.

I H C Service Bureau

What is it? A clearing house of agricultural data.
What does it do? Helps farmers to help themselves.
How can it be used? By sending your farm problems and puzzling questions to the Bureau.

We are co-operating with the highest agricultural authorities and every source of information will be made available to help solve your difficulties. We shall be pleased to have an opportunity to assist you. Write the I H C Service Bureau

WESTERN BRANCH HOUSES: Denver, Col.; Helena, Mont.; Portland, Ore.; Spokane, Wash.; Salt Lake City, Utah.; San Francisco, Cal.
INTERNATIONAL HARVESTER COMPANY OF AMERICA Chicago U S A
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DO NOT WASTE YOUR MONEY

If you are operating machinery or intend to install any new pumping machinery will you not allow us to show you where you can save **MONEY, WORRY and TROUBLE?**

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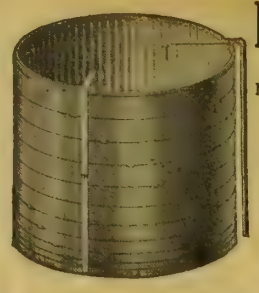

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SUCCEEDING
National Wood Pipe Co.-Pacific Tank Co.

Wood Pipe Tanks

Tanks for Water, Oil, Wine, Mining and Cyanide

Wood Pipe for Irrigation, City Systems, Mining, Power Plants

Machine Banded Pipe, 2 in. to 24 in. Made up ready to lay. Continuous Stave Pipe 12 in. to 12 ft. shipped knocked down. Qnality of material unaffected by change of firm name. We can fill your orders better than ever. New pipe catalog in preparation. Place your name on our mailing list and receive valuable information free. Send for tank catalog.

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Boxes and Box Shooks

Vegetable and Fruit Boxes Our Specialty

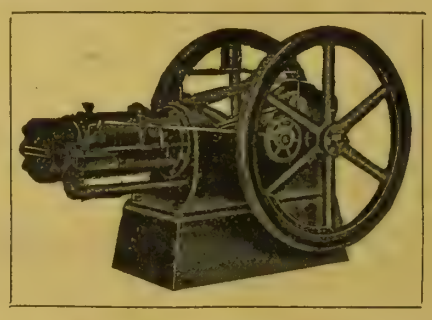
Write for Prices. Prompt Delivery. Good Goods. Right Prices.

Mercantile Box Company

231 Berry St. (Near Fourth) San Francisco, Cal.

Not too Heavy
Not too Light
But Just Right

Send for Bulletin No. 12



COMMERCIAL ENGINE CO.

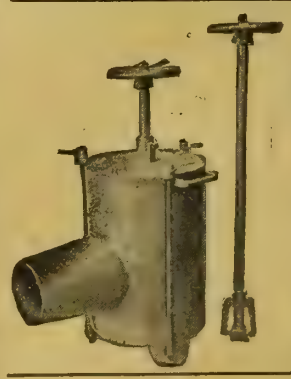
951-955 No. Main St., Los Angeles, Cal.

Save Money By Buying This Good Second-Hand Pipe

We can supply you with any size and quantity of Standard Pipe or Casing—all new threads and couplings—all stock guaranteed first-class.

If thinking of buying any kind of pipe, your best interests will be served by writing us for prices and particulars.

PACIFIC PIPE CO., Main and Howard Streets, SAN FRANCISCO.



Irrigate your alfalfa land with the

KT Portable Hydrant

Practical for steel, vitrified or cement pipes.

Controls flow of water. You need not get yourself wet.

Alfalfa growers like it. We have other devices for irrigation work. Write for "Brown Book."

The Kellar-Thomason Mfg. Co.

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The only Orchard and Vineyard Harness that satisfies every one.

PRICE, $17.50

Write for circular.

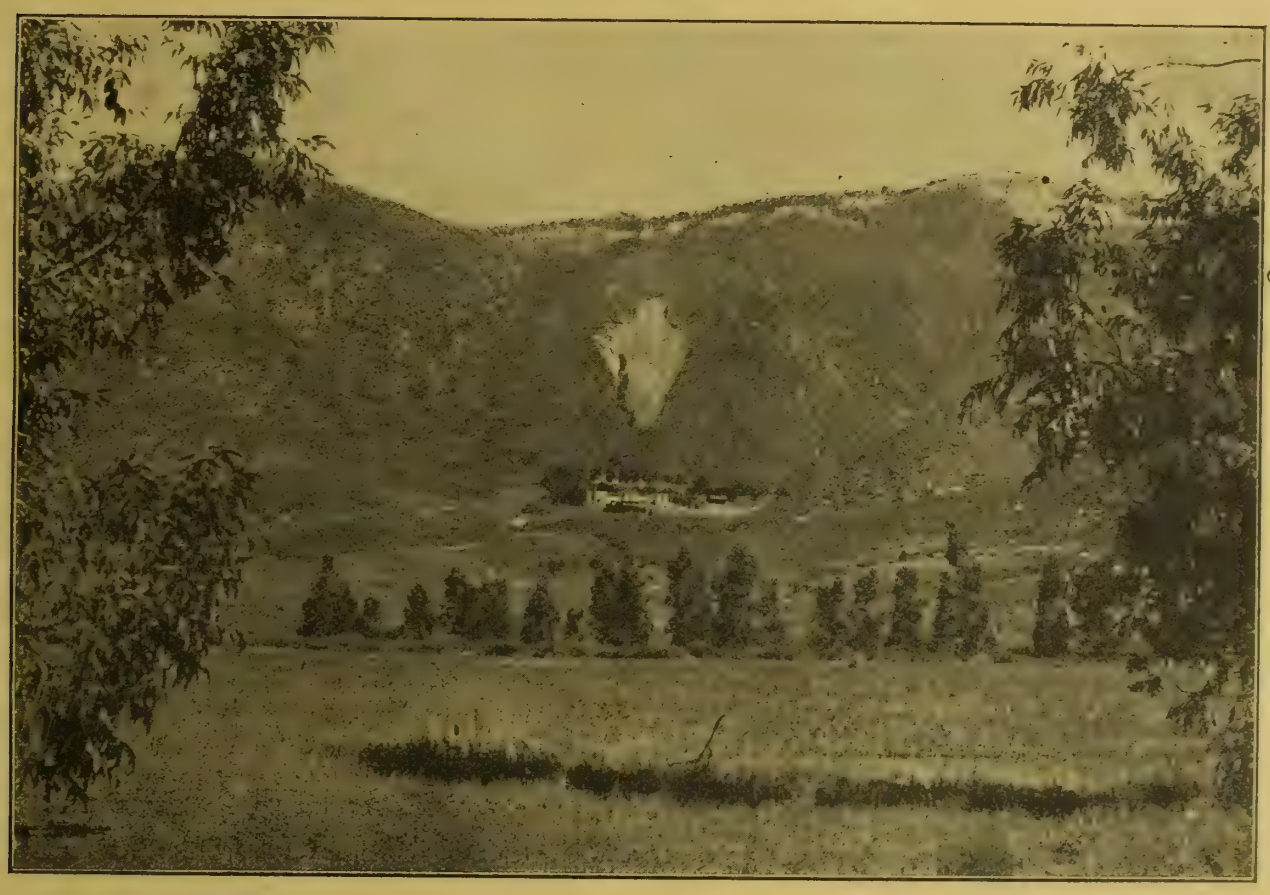
The H. C. Shaw Co.
Stockton, Cal.

The Big Weekly { Fifty-two issues, each containing from 24 to 32 pages of practical information, } For $1 the Year

California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES MARCH 16, 1911 SAN FRANCISCO



THE ARROWHEAD OF THE SAN BERNARDINO VALLEY.

On the twentieth day of May, one hundred years ago, the Guachamas, the peace-loving, indolent inhabitants of the "Valley of Plenty," on the day of San Bernardino de Sienna, welcomed the ambassador of the Mission San Gabriel, the first white man to erect a building in the shadow of the Arrowhead, the mighty symbol pointing from the grim mountain side into the smiling paradise. A strategic position did the good padre choose for his chapel. On the slope of a hill he built, close to the place where never-failing springs sent their water through moist meadows, "cienegas," into the flashing creek. To the north the site commanded an unrestricted view of El Cajon, the entrance to the pass leading through the mountain wall into the country of the martial desert and mountain Indians, the white dome of Mount San Antonio standing guard over the cleft. To the east, where a meandering strip of brilliant white sand, marking the course of the trout-filled river, slashed the green plain, the site faced the twin peaks of Mounts San Bernardino and San Gorgonio in their wintry, sleepy snow cap. To the south the chapel looked across the valley to the naked brown hills swelling into the crest of the Coast Range, over the shoulder of which peeked Mount San Jacinto, a white cloud on the way to the turbulent Rio Colorado. Only to the west, whence the disciple of St. Francis had come, no barrier intervened between the peaceful vale and the tempered trade winds of the Peaceful Sea.

For two years the maid of the mountain tribe watched the doings of the valley Indians from her rocky perch. About the chapel she saw her kin learn the use of the cumbrous plow, saw the blade tear into the virgin soil, saw the sowers rejoice at the bountiful crops yielded forth by the "Valley of Plenty."

For two years the bell tolled at sunrise and sunset, calling the dusky believers to prayer and to work in the new fields under the guidance of Hipolito, the devout red pupil of the padres left in charge of the outpost. Two years the idyl in the vale of abundance lasted, then the temblors came, shook the earth and aroused the superstitious fear of the Guachamas, who fell upon the mission's branch, massacred the brown missionaries and razed the chapel, as an offering to the enraged gods. But they did not destroy the fields. They had learned that the soil was a storehouse of meals to be had for little work, an unfailing source of grain and fruit, and though they drove out the strangers, the Indians remembered the strangers' art and practiced it.—Walter V. Woehlke, in San Bernardino Times-Index.

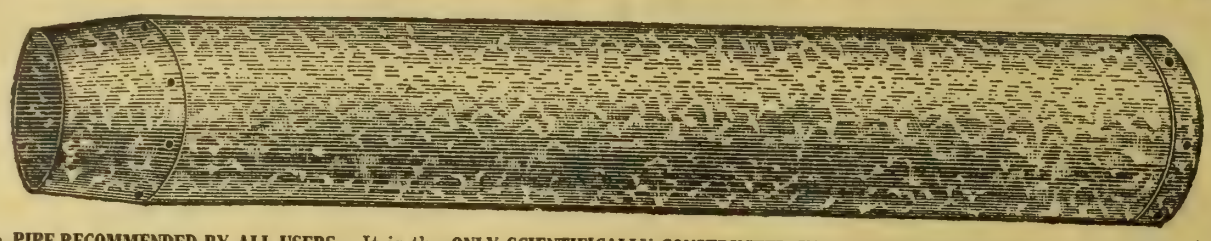
* * *

Later the Gringo came and brought still greater intelligence to the culture of the soil and the orange, the lemon and the olive fruited more and more, until the great arrowhead points to one of the garden spots of the world.

Proof of it was made last week at the National Orange Show. It was a magnificent showing of citrus fruits of all kinds, also of packing and other appliances of commercial and cultural orange orcharding.

Some facts regarding the show and awards may be found on another page.

SAVE YOUR TIME WATER and GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE



The **PIPE RECOMMENDED BY ALL USERS.** It is the **ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE** on the market. **THERE'S NO ROUND SEAMS TO LEAK,** retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a life-time. For irrigating alfalfa it is the only pipe to use. We make **RIVETED PIPE AND TANKS.** Write for Illustrated Catalogue, also **SPECIAL IRRIGATION FOLDER** which may mean much to you.

American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., **Los Angeles, Calif.**

WATER PIPE

Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c per foot
10,000 feet	⅜-inch Standard, at	1c per foot
25,000 feet	½-inch Standard, at	2c per foot
20,000 feet	¾-inch Standard, at	3c per foot
36,000 feet	1-inch Standard, at	4c per foot
20,000 feet	1¼-inch Standard, at	5c per foot
30,000 feet	1½-inch Standard, at	6c per foot
50,000 feet	2-inch Standard, at	8½c per foot
10,000 feet	2½-inch Standard, at	15c per foot
15,600 feet	3-inch Standard, at	17c per foot
15,000 feet	3½-inch Standard, at	19c per foot
20,000 feet	4-inch Standard, at	25c per foot
30,000 feet	5-inch Standard, at	35c per foot
20,000 feet	6-inch Standard, at	45c per foot

Oil Well Casings

1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00 per foot
1,000 feet	11⅝-inch Casing, at	$1.00 per foot
1,000 feet	9⅝-inch Casing, at	75c per foot
2,000 feet	7⅝-inch Casing, at	45c per foot
20,000 feet	5⅝-inch Casing, at	32c per foot
30,000 feet	4-inch Casing, at	19c per foot
30,000 feet	3½-inch Casing, at	16c per foot
20,000 feet	3¼-inch Casing, at	15c per foot
25,000 feet	3-inch Casing, at	14c per foot
50,000 feet	2-inch Casing, at	6½c per foot

WATER PIPE—Riveted Dipped Pipe

10,000 feet 24-inch Riveted Pipe, dipped, good as new... 80c
10,000 feet 12-inch Riveted Pipe, dipped, good as new, 10-guage 35c
20,000 feet 10-inch Riveted Pipe, dipped, good as new, 12-guage 25c
10,000 feet 8-inch Riveted Pipe, dipped, good as new, 16-guage 24c
10,000 feet 6-inch Riveted Pipe, depped, good as new, 16-guage 20c
10,000 feet 4-inch Riveted Pipe, dipped, good as new, 16-guage 10c
20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.

Telephone and Telegraph Poles

20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

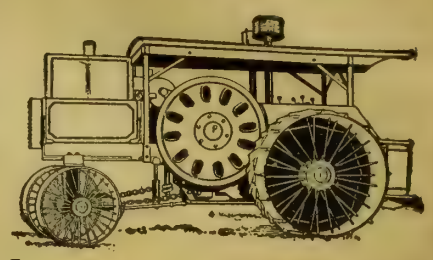
We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

PHONE OR WRITE FOR PRICES

Take Santa Fe Ave. or Huntington Park car at 7th & Bro'd'y, Get off at Bay St.

ADAMS PIPE WORKS, 2025 Bay St., F 1917 Broadway 1274 **Los Angeles, Cal**

Distillate Traction Engine



Double Cylinder 50 H.P.

For Plowing or Hauling will do the work of Twenty-Five Horses

For Pumping or Other Power 50 H. P. Available from Pulley on Engine

Two Speeds Forward, One Back, all on Direct Drive

Easy as an Automobile to Handle. Only Two Levers, One to Drive, One to Control Power Steering Gear.

No Tank Wagon Required.

75% Less in Cost Lighter in Weight Than

A Steam Traction Engine

Come in and See a Demonstration. Send for Circulars

Smith-Booth-Usher Co

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Portable Automatic Derrick

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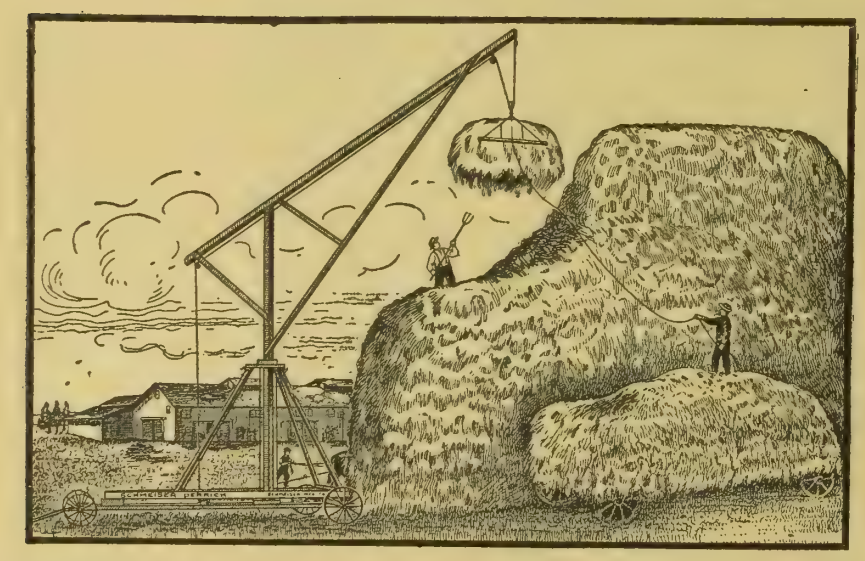

The greatest time and money saver on a farm. It is so handy you can use it for anything you want to hoist.

Last season Mr. H. C. Porter of Alpaugh, Calif., saw our ad in the California Cultivator and, after securing descriptive circulars and prices, he ordered one of our Medium Derricks. The following letter indicates that he is well pleased with the Derrick:

ALPAUGH, CALIF., Feb. 18th, 1911.

SCHMEISER MANUFACTURING CO., Davis, Calif.

GENTLEMEN:—Please send circulars describing your Portable Automatic Derrick to the following:

H. H. Cathcart, Jacob Sonke, J. A. Callister, A. D. Overman, A. B. Ward, F. N. Beason, Ernest Shields

—All of Alpaugh.

Some of them have used my Derrick and all have seen it work and think it is alright. They have alfalfa and need one. I am more than pleased with my Derrick and, with labor scarce and high priced, it is a great saving.. If you wish, I will act as your agent here and try to sell some Derricks.

Yours respectfully,

H. C. PORTER.

We want your name and address if you are a grower of alfalfa or any other kind of hay, so that we may send you circulars describing our Portable Automatic Derrick, a money-maker for you.

☞For further information drop a postal to the

SCHMEISER MANUFACTURING CO.,

DAVIS, CALIF.

ARNOTT HARNESS $10.00 to $80.00

Everything guaranteed. Money back if not satisfactory. Factory in Los Angeles. California leather for all uses. Send for No. 10, eighty page FREE Catalogue.

ARNOTT & COMPANY 112-118 So. Los Angeles St. Los Angeles, Calif.

The Luitwieler Non-Pulsating Pumping System

Deep Well Pump Talk Continued:

Cut shown is of the Machine Room of the Luitwieler Factory, 60x267 feet. The Plant is fully equipped with the most modern machine tools, and turns out perfect machines ready for use—no pit is required, and babbiting on other machine work has to be done in the field. Luitwieler Pumps come finished ready for starting. Order now. There's a reason for our success. Most economical and most durable. Established 1877.

Luitwieler Pumping Engine Co. Los Angeles

Heider Eveners

A Great Invention. Made for 2, 3, 4, 5 or 6 horses. The **HEIDER** 4-horse Plow Evener works four horses abreast on gang, sulky or disc plow, one horse in furrow, three on land. Works free, no side draft, all horses pull equal. We make clevises to attach our Eveners to all plows. **HEIDER** 3-horse Wagon Evener for wagon, manure spreader, grain drill or any other implement with pole. **GO TO YOUR DEALER**—if he can't supply you—don't accept any other. Write us for catalog and we will tell you where to get them. We also make Wagon Doubletrees, Singletrees, Neck Yokes, etc. Insist on getting **HEIDER'S** if you want the best in **EVENERS.**

Ask Your Dealer.

HEIDER MFG. CO., 152 *Main Street* **CARROLL, IOWA.**

California Cultivator

Vol. XXXVI. No. II. LOS ANGELES: THURSDAY, MARCH 16, 1911 One Dollar the Year

Citrus Growers Convention at San Bernardino

Thirty-Ninth State Fruit Growers Convention in Session Discusses Matters Pertaining to Citrus Culture. Many Valuable Addresses Made.

The point most definitely brought out at the convention of citrus growers at San Bernardino last week was that there is still much to be learned in both the art and science of orcharding. If there was ever a convention where "We don't know" cropped out so emphatically as in this, it is yet to be reported. Repeatedly practical growers were overheard remarking "Why can we not have experiment station service and government expert service which will investigate these soil and other problems and tell us?" Take for instance the question of chlorosis. After discussing it from all sides the only thing of a decided nature stated regarding it was that the exact cause and remedy are impossible to state.

Work now being taken up in the matter of developing a higher quality of citrus fruit, especially of the Washington Navel, by the Bureau of Plant Industry through Mr. A. D. Shamel is one of the hopeful things before the citrus grower. Mr. Shamel was present at the convention, and while, as he said, it is yet too early in his work to give any conclusions, he gave the outline of work he is following, and his address will be published in next week's Cultivator. It is one of the valuable additions to citrus literature and shows promise of great results.

The work of standardizing in the North was referred to by State Commissioner Jeffrey, and the point enforced that while the citrus grower is by no means in such a condition as was the deciduous grower of the Sacramento valley, before standardizing, yet there is abundant opportunity for advancement in this industry. A resolution was passed empowering the state commissioner to appoint a committee of fifteen to take up the matter of standardizing citrus fruits. Up to the time of adjournment the commissioner had not appointed this committee.

Other resolutions all recommended by committee composed of Messrs. Pease, Paine, Yoakam, Koethen and Essig, passed, included the usual ones of thanks to the people of San Bernardino, especially the management of the National Orange Show, and the newspapers for liberal reports, the state university and the Southern Pacific Company for their demonstration train service, and the custom house officials of this coast for aid extended to the horticultural quarantine deputies. Mr. Maskew's report brought out the fact that he received much aid from these officials and that the work would be far from effective did he not have their co-operation. Another resolution fully endorsed Commissioner Jeffrey's administration and urged his reappointment. Another extended thanks to the Bureau of Plant Industry for its work especially in sending Mr. Shamel to Southern California for scientific investigations.

Considering the weather which, to be English, was beastly, the attendance was exceptional, though not equal to that at the Pomona meeting last summer. At most of the sessions, however, there were a hundred or more in attendance.

Many of the addresses made will be given in a later Cultivator and one appears in the citrus department on the following page, but it is impossible to give even an outline of the program. Many good things were given which were not announced, and on the other hand some features of the program were omitted. One feature brought out in the discussion on fertilizers was the following letters to Carroll B. Smith. The first is from Dr. F. H. King of Madison, Wis., in r ply to a query by Mr. Smith, and the other, comment by Dr. E. W. Hilgard.

* * *

Dr. King's Letter.

I am in receipt of your letter of Feb. 21st in which you say:

"Your contention made at Los Angeles, regarding the formation of black alkali from nitrate of soda has created a rather continuous discussion through our local agricultural papers and I am enclosing the answer which is given by Mr. Myers of the Nitrate Propaganda of New York, and I should like to know your reply to Mr. Myers. Therefore, in looking over the inclosed article from the Pacific Rural Press, I wish you would, in addition to your own reply, say what you think of the use of acid phosphates to neutralize the effect of any black alkali that may be formed.

"It seems to me that our soils are entirely alkaline enough to neutralize the acid phosphate and still leave the black alkali in as an excess. Do you think that arid soils have a tendency to grow acid and therefore are benefited by the formation of sodium carbonate? Do the potashes actually leave an acid residue "

Hilgard's abundant analyses of California soils show them to contain, generally, so much lime carbonate that little or no advantage can be expected from the use of sodium nitrate in correcting acidity.

When potash fertilizers are utilized by crops as a source of potash, the acid radicle, if not appropriated by the crop, must be released, and acts as an acid factor until neutralized by some other base. Mr. Myers, (in The California Cultivator of Jan. 19th and) in the Pacific Rural Press of Feb. 18th, says:

"Some time since a convention of horticulturists in Los Angeles discussed the question of accumulation of black alkali in soil.

"One speaker made the statement that the use of nitrate of soda would result in such accumulation, stating that in England this has been the case, and that English farmers were avoiding the use of nitrate.

"The incorrectness of this latter statement is shown by the fact that the use of nitrate of soda increased last year by 10 per cent in England and its use is constantly growing there."

Two direct questions from A. D. Hall, director of the Rothamsted Experiment Station, England, is the most authoritative reply that can be given to this. In recommending the use of calcium nitrate instead of sodium nitrate, Hall says:

"Indeed on some soils it is likely to be more valuable because, as will be shown later, part at least of the lime base will be left behind in the soil as calcium carbonate. This will be an advantage in peaty soils and will save clay soils from the peculiar wetness and stickiness which results from the employment of much nitrate of soda."

Again, on page 54 of his Fertilizers and Manures, he says:

"One of the most characteristic effects of nitrate of soda as a manure, either repeatedly or in any quantity, is its deleterious action upon the texture of heavy soil; farmers have repeatedly observed that where nitrate of soda has been applied the land remains very wet and poaches badly if it is at all disturbed before it has dried. Market gardeners in particular have found this destruction of the tilth a serious drawback to its use. Some of the Rothamsted plots in the mangold fields, where very large amounts of nitrate of soda have been applied year after year for the last 50 years, show this deterioration of tilth in very marked fashion, the land being intolerably sticky after rain and drying into hard intratable clods, so much so that it is very difficult to secure a plant of roots unless the season is favorable."

I need hardly say that many of the orchards we visited in your state were of even more intensely clay types than the case cited by Hall, and that it is only with the greatest difficulty that water can be made to penetrate to sufficient depths. It is essential for your people to observe that with all the leaching of English soils, from their large rainfall, nitrate of soda applied alone is very injurious to clay soils. In California soils this leaching is quite impracticable.

It is quite true that we are learning to use sodium nitrate with less harmful results in humid climates, and to advantage, where it is the cheapest source of nitrogen, but it should not be overlooked that it is the rainfall and leaching that makes this possible.

It is very important to remember:

(1) That substances dissolved in soil moisture beyond critical amounts render soils sterile even though the substances be the most essential plant foods. They do this primarily because of the strong power they have over the water, making it difficult for the plant to use, and some of them may be corrosive or toxic.

(2) That the conversion of black alkali into white alkali only substitutes a less harmful for a more harmful agent and the smaller the amount of moisture in the soil the more harmful the non-corrosive white alkalies become.

(3. White and black alkalies are continually forming from the natural decay of all soils and tillage hastens the action.

(4) The irrigation water applied every year makes another material addition to the alkali salts which does not occur in unirrigated soils.

(5) With only the very meager vegetation (native) your rainfall has not been sufficient to prevent the accumulation of alkalies in injurious amounts.

(6) With your larger crops, to increase the loss of soil moisture by evaporation, it is doubtful if you will be able to secure as much leaching on many soils as occurred in the virgin state while in other cases injudicious irrigation transfers the alkalies in dangerous amounts to adjacent areas.

Whoever reads Mr. Hall's discussion of the use of sodium nitrate as a fertilizer should keep in mind that he is speaking of conditions under which abundant leaching occurs, and hence Mr. Myer's statement: "Moreover, the use of acid phosphates associated as they are frequently with sulphate of lime, converts any alkali residue into harmless forms of soda."—is not applicable to California conditions except where there can be sufficient leaching, and leaching is extremely difficult to secure by irrigation even where there is plenty of water. His phrase, "Harmless forms of soda," is misleading when applied to arid soils. It must be remembered also that Hilgard has shown that while sulphate of lime may convert black into white alkali, under the wet, puddled condition of soils, this action may sometimes be reversed, changing the sodium sulphate into the black alkali.

Then, regarding the statement: "Besides, in the vast majority of soils in the United States, probably 95 per cent have a tendency to grow acid rather than to grow alkaline, and nitrate of soda is therefore highly beneficial in the majority of such cases," it must be remembered that while there is some truth in the statement for soils largely devoid of lime carbonate, it has little application to California soils, which Hilgard has shown to be exceptionally rich in lime. The same must also be said regarding the contention that sodium nitrate is needed to neutralize tendencies to soil acid-

(Continued on Page 351.)

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Citrus and Tropical Fruits

BLEMISHES OF CITRUS FRUITS.

By Dr. J. Eliot Coit, Assistant Professor of Pomology, University of California—Address Before the San Bernardino Citrus Convention.

A large increase in the production of citrus fruits will mean, if it means anything, a keener competition in the markets. In order to meet this increased competition, California growers and packers are being encouraged to adopt higher ideals in grading and packing. With more rigid grading, the cull heaps at many of our packing houses assume large proportions. A conservative estimate places the direct loss this year from cull oranges alone in excess of half a million dollars. This amount is considerably augmented by losses from brown spot and decay after the fruit has left the packing houses.

It seemed worth while, therefore, to begin a systematic study of the cull heap, with the idea, first, of classifying and determining the relative importance of the various blemishes which cause oranges to be thrown into a lower grade or into the cull bin; and, secondly, of determining how far it is practicable and by what means the proportion of culls to packed fruit may be reduced.

Such a study, in order to produce results of wide application, should be carried on in many different localities during several years, and all the data averaged together, for it is well known that there is considerable variation in the amount and quality of culls in different years and in different localities.

This work is now in progress, and counts have been made in twelve different packing houses, each located in a different locality in Southern California. So far, Navel oranges only have been studied, but it is intended to increase the scope as the work progresses. A final report is to be made later.

At this time I will discuss briefly the nature of the different blemishes which I have studied.

Blemishes of Citrus Fruits.

The blemishes of citrus fruits may be classified according to their cause. I have therefore grouped them under four heads, namely: Insect, fungous, mechanical and physiological blemishes:

Caused by Insects — Thrips, tortrix, red scale, yellow scale, purple scale, brown scale, black scale, mealy bug, red spider, silver mite, grasshopper, and some others.

Caused by Fungi—Brown rot, Pythiacystis citrophthora; blue mould, Penicillium italicum; green mould, Penicillium digitatum; gray mould, Botrytis cinerea; sooty mould, Meliola camelliae; cottony mould, Sclerotinia sp.; gray scurf, fungus not identified; wither-tip, Colletotrichum gloeosporioides; navel end rot, Alternaria citri; stem end rot, Cladosporium sp. (secondary).

Mechanical Injuries — Bruises, thorn stabs, cultivator scars, clipper cuts, stem punctures, fumigation scars, shoulder spots, hail scars, windfalls, cement dust, and others.

Physiological — Sunburn, frost, offbloom, too small, exanthema, corrugations, bottle neck, fingers, yellow spots, double navel, brown spot, stem end spot, cracks, puffs, splits, pitaca, red blotch, and others.

As a result of counts of Navel culls made in twelve houses during January and February, 1910 and 1911, it appears that on the average the most prolific causes of culls are as follows, according to their importance: Splits, bruises, thorn stabs, thrip scars, sunburns and worm holes. These six kinds of blemishes are responsible for upwards of 75 per cent of the culls.

Blemishes Caused by Insects.

In considering each one of these classes of blemishes, we find that the eleven insects affecting citrus fruits have been extensively investigated for many years, and effective means of control have been devised for most of them. The history of the long fight against scale insects, which has culminated in effective methods of fumigation, is familiar to all of you. The thrips problem, which has attracted much interest of late, is being investigated by the United States Department of Agriculture, and I understand that methods of control by spraying will soon be published. Generally speaking, therefore, the blemishes of citrus fruits caused by insects may be regarded as largely vegetable.

Fungous.

Under the head of fungous blemishes we find ten different fungi responsible, several of which are secondary or dependent on other blemishes. The most serious of these, such as brown rot and blue and green mould, have been exhaustively studied, and adequate measures for their control are at hand. Some of these, such as the gray mould, are quite rare, and worthy of passing notice only. Others, such as the wither-tip and sooty mould, are dependent either upon the special climatic conditions of certain localities or upon a weakened or previously diseased condition of the trees, or upon insects, which have limited distribution. In general, it may be said that the fungous blemishes are largely preventable, and that those which are not at present well understood are being investigated, with a fair expectation of a satisfactory outcome.

Mechanical.

Our list contains nine different kinds of mechanical injuries. These are practically all due to carelessness, and are largely preventable, the exceptions being shoulder spots and injuries due to hail. Such injuries as bruises from rough handling, cultivator scars, clipper cuts, stem punctures, etc., do not directly cause a large percentage of culls, for a large proportion of such injuries pass the graders unnoticed, and are packed and placed in the car, there to develop into decay. Mechanical injuries, therefore, are a great deal more damaging than the percentage of mechanically injured culls would indicate. It is only when we realize the enormous losses from decay in transit due to these injuries that their full significance is brought home to us.

Physiological.

The list of physiological blemishes is a long one, containing seventeen separate and distinct troubles, and the list is being constantly added to. Several of the blemishes causing heaviest losses, such as splits, puffs, bottle neck and brown spot, belong to this class. I wish to emphasize the fact that scientific knowledge concerning this class of troubles is exceedingly meager, as these subjects lie in a field in which scientific research into the

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underlying principles has made but little headway. None of these troubles has so far been shown to be the result of insect or fungous work. They are due to peculiar climatic conditions, to an irregular water supply, or to unfavorable soil conditions, or to some obscure disarrangement of the nutritive, transpiratory or other natural processes carried on in the plant tissue. It is very easy, indeed, to propound plausible theories to account for these troubles, and this has been freely indulged in. The proving of these theories, however, is quite a different thing, on account of the great difficulty of reproducing the conditions under control. An adequate investigation of some of these troubles would require an effort extending through several years and a considerable amount of money, and all this with no assurance that a practicable remedy would result.

The causes and remedy for some physiological troubles are apparent to all without investigation. I refer to such things as sunburn and frost injury. Why some varieties should be more resistant to sunburn and frost than others is, however, much more difficult to answer.

In regard to exanthema, much evidence has been found which supports the theory that this disease is caused by sudden and sharp variations in the moisture content of the soil. In situations where the subsoil is composed of a layer of coarse, open gravel, the conditions are present for exanthema. It manifests itself by spotting and in some cases splitting the fruit. Splits resulting from exanthema are entirely distinct, and in no way connected with the blossom end split of the Navel orange.

Double or protruding Navels and fingered oranges are malformations arising in the blossom, due to obscure and unknown causes. Corrugations, bottle necks and heavily pebbled rinds are usually thought to result from sexual sports, and that the remedy for them lies in careful selection of buds and intelligent pruning. In some cases, however, they may be due to malformations of the blossoms.

The brown spot of the orange has received a great deal of attention at the Whittier laboratory. While a great many plausible theories have been suggested from various quarters, and much work has been done, the cause of this trouble has not as yet been found and proven. The investigation of this subject has been unusually difficult on account of the fact that the spot does not develop on the tree, but only after the fruit has been picked from ten to twenty days. For this reason, very little brown spot is seen locally, and the growers as a rule are not familiar with it. On account of the many different kinds of spots and blemishes, the reports of selling agents are seldom reliable. This spot affects only the surface of the rind, and is purely a physiological one, no trace of any fungus, bacterium or other parasite having been found in connection with it. It seems to occur only on Navel oranges, and is most prevalent during January. This year the losses from this spot were quite serious. The very finest quality Navel oranges may be picked and packed with extreme care, and shipped under a fancy brand, only to arrive in the East in a badly spotted condition. It not only results in the fruit being discounted, but it tends to destroy the reputation of our fancy brands. This is peculiarly irritating to the packing house people, for they know the oranges were not spotted when they left the state, and it is impossible to grade against it, unless, indeed, the oranges are stored for several weeks, which is clearly out of the question. You will, therefore, realize that the investigation of an obscure physiological problem of this nature is a great deal more difficult and time-consuming than that of a problem where some fungus, bacterium or insect is involved.

The stem end spot appears to be very similar to the brown spot in looks, but differs strikingly from it in that it develops on the tree as well as after picking, and the spots occur at or very near the button. This stem end spot has occasioned but little complaint until this year, when, on account of the continued rains, a common fungus, which is almost black in color, and which grows on dead tissue, has developed on these spots and in this way rendered them much more conspicuous.

Splits of the Navel orange have been very common this year, and it would seem that they are caused by some combination of circumstances, such as an irregular water supply, coinciding with extreme variation in the temperature and relative humidity of the air. So far, little but theory has been advanced to account for splits, and much careful work will have to be done before the cause or causes can be scientifically proved.

The pitaca and red blotch are both physiological diseases of stored lemons, the cause of which has not been discovered.

Summary.

I have outlined some forty-eight separate and distinct blemishes of citrus fruits which are at present operating to reduce the profits from the citrus industry. I have divided them into four classes, and shown that mechanical blemishes are practically all preventable; that insect and fungous blemishes have been extensively investigated, and that remedies for these troubles are either at hand or are in process of being worked out, with a reasonable expectation of success. I have shown, also, that the list of physiological blemishes is a long one, and that science has as yet made but little progress in discovering the cause or in finding remedies for this group of exceedingly complex and obscure diseases.

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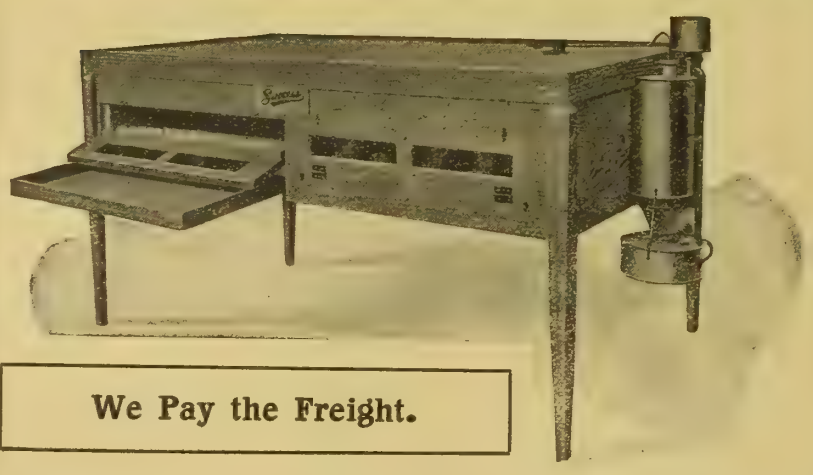

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PHOSPHATE IN MONTANA.

The withdrawal of the phosphate lands in Montana officially known as phosphate reserve No. 7 was made by an order of the president dated January 12, 1911, and is based on a recommendation submitted by the Director of the Geological Survey. A report by Hoyt S. Gale, a geologist of the survey, announcing the discovery of these beds, has just been issued. The lands thus withdrawn include about 33,950 acres.

Location and Character of the Deposits

The newly discovered deposits are situated in and near the canyon of Big Hole river, on the route of the Oregon Short Line, about 30 miles southwest of Butte. Analyses of samples collected from these deposits show the presence of some high-grade rock and the evidence obtained indicates its occurrence in beds of good commercial quantity. The deposits are like those of the southeastern Idaho and western Wyoming field, from which phosphate has been shipped for several years.

A Chance to Utilize Smelter Fumes.

One of the most important considerations in connection with the discovery of phosphate rock in western Montana is the significance it has as to the probable extent of the western phosphate fields, for it now appears probable that similar deposits may extend over a large part of western Montana. Their nearness to the large smelters where sulphide ores are reduced is important, for these smelters produce great quantities of sulphurous-acid fumes, which are usually allowed to go to waste through the smokestack of the plant. It is contended that these fumes destroy vegetation and menace animal life over a considerable area in the vicinity of the smelters and constitute a serious detriment to the locality generally. In recent years efforts have been made to compel the smelter companies to condense or otherwise dispose of the acid fumes, and a number of suits against the companies have been brought in various parts of the United States by the Department of Justice.

Reduction of phosphate rock by means of sulphuric acid appears to offer an opportunity to utilize what has long been largely or wholly a waste product at these smelters.

Method of Manufacture.

All the phosphate rock now shipped from the phosphate fields of the western United States is sent to the Pacific coast, where it is used in the manufacture of fertilizers. The rock is ground fine and then combined with sulphuric acid, which reduces it to a form in which the phosphoric acid is more soluble, thus rendering it more directly available as plant food. Nearly equal parts by weight of acid and phosphate rock are used in this process, so that large quantities of acid may thus be utilized. When the rock and acid have combined chemically the resulting product is known as superphosphate. This is then dried, so that it hardens into a porous mass which is pulverized and sold for direct application to the soil.

Prices of Phosphate.

As to the commercial value of rock phosphate in Montana probably the best evidence is the price paid for similar rock in the eastern fields. A summary of the values reported from nearly all the eastern fields for 1908 shows prices ranging from $4 to $5 a ton f.o.b. at the mine. Superphosphate retails at about $10 a ton in the East and at $17 or more on the Pacific Coast.

Markets for Phosphate.

The chief obstacle to the development of the western phosphate fields at the present time is the high cost of transportation of the bulky fertilizer products and the lack of markets sufficiently near to warrant their development. Much of the agricultural land of the western states is relatively new and as its original phosphates have not been exhausted by cropping it is less in need of fertilizers than the older farm lands of the East and South. The use of fertilizers on the Pacific Coast is said to be increasing fast; also in some other parts of the West where intensive farming is practiced. There will henceforth probably be a rapidly growing market for fertilizer product in the Middle West and it is to this territory also that the western phosphate producers must look for markets.

Value of Fertilizers.

The experience of foreign countries whose soils have become exhausted by long-continued use shows the importance that will some day be attached to our own phosphate resources. For the present, our phosphate fields will probably be developed in accordance with the increasing demand, and this growth must depend to a large extent upon an intelligent understanding of the value and the proper methods of using such fertilizers.

CANCER IN PLANTS.

The Department of Agriculture has in press a bulletin entitled "Crown Gall: Its Cause and Remedy," which promises not only to revolutionize present views respecting the nature of various overgrowths in plants, but also to throw light on the cancer problem in men and animals.

This bulletin deals with a widely distributed and harmful disease of orchard trees and other plants. This disease is commonly known in the United States as crown gall, but it may occur not only on the crown of plants, but on roots and shoots.

The disease has been known for a long time, and under the supposition that it was infectious and injurious, various states have made quarantine laws against it. The disease has been ascribed to various causes, without satisfactory proof, and many persons have been led to believe that it was not due to any organism. The experiments detailed in the bulletin show clearly that the gall is due to bacteria and is infectious, being readily transmitted not only from plant to plant of the same kind, but also to many plants of widely different families. The bulletin shows that the growth is not only of itself injurious to the plant, but also may form an open wound through which other parasites are likely to enter, such as the fungus of root rot, and the bacteria which cause blight of apples and pears.

The bulletin recommends that the inspection laws now in force in the various states be continued and enforced. It shows what plants it is not advisable to use as a crop following a

galled one. It describes the life history and cultural characters of the organism involved, points out the difficulties through which it was isolated and identified, gives numerous illustrations showing the nature of the tumors produced and the time involved in their production when pure cultures of the organism were used, shows that the organism has a wide range of host plants, and that the overgrowths produced are in many ways, anatomically and otherwise, strikingly like those found in certain malignant animal tumors.

The cause of cancer is unknown, and a majority of animal pathologists at the present time are inclined to regard it as non-parasitic, chiefly, however, because no parasite has been found. The bulletin shows that a similar argument might have been advanced with equal force some years ago against the parasitic nature of crown gall. No good reason can be adduced why cancers should not occur in plants as well as in animals, and if these plant growths are truly cancers, then it is extremely probable that micro-organisms of some sort are also the inciting cause in sarcoma and carcinoma. Tubercle diseases occur in plants as well as in animals, and superficially they resemble these growths, but not structurally nor in the groupings of the parasite.

The bacteria causing these plant tumors are not abundant in the tissues, sometimes very rare; are hard to see and difficult to stain; they perish readily, both in the tumor and in culture-media; are difficult to cultivate from the tissues unless one knows the technique; do not form abscess cavities after the manner of the tubercle diseases, but multiply in limited number within the tissues and apparently only inside the cells which their presence stimulates into rapid division. The disease metastasizes readily, and on this account is cut out with difficulty. The organism loses virulence easily both inside the tumors and in culture media, and finally if the plants are not destroyed by it they seem to acquire a partial or complete immunity.

The bulletin should not only be of very great importance to the orchardist and grower of hothouse plants, but also to all specialists who are interested in the cancer problem, inasmuch as in the present uncertain state of research on that disease any clue whatsoever becomes of importance. It is not claimed that the organism here described is itself the cause of malignant animal tumors, but only that in many respects the growths produced by it are suggestive of malignant animal tumors, and that probably some similar parasite lies at the bottom of the malignant phenomena of such growths. The bulletin involves teamwork done by four people in the Department of Agriculture, covering a period of six years, and the total number of experiments involved amounts to thousands.

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It seems to be well loaded.

FUNGICIDES AND INSECTICIDES.

One of the neatest little books we have seen issued in some time is "Fungicides and Insecticides," a handbook for the agriculturist and fruit grower, giving short descriptions of various fungous diseases and insects of common occurrence, containing also formulas for preparation of sprays and directions for time of spraying. It is compiled by Arthur R. Maas, chemist of the Braun Chemical Company, which concern issues the book. It has 70 pages, every one of which is filled with a concise fund of information. A few advertising pages are added, but in no way spoil the beauty of the book.

The plan of presenting these valuable facts is very similar to that used in the Cultivator in its issue of November 3rd, which treated so fully of sprays and time of application. Many illustrations add to the value of the text, most of them half tones. No price is named on the book, but it is altogether too expensive a one for general distribution. Information regarding it, also the chemicals named in the formulas, may be obtained by writing the Braun Chemical Company, 906 East Third St., Los Angeles, Cal.

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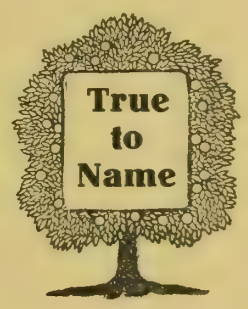
"The Wonderful"

This variety holds the record for the most attractive fruit for table decoration, as well as being eagerly sought after for its delicious eating qualities. Eastern shipments have brought handsome returns to the producers, and as the trees are easily grown and yield early, no one can afford to miss this opportunity to get some of the trees started right now.



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Garden and Field Crops

SPANISH ONION GROWING.

Spanish onions are in great demand in the United States. In fact, last year 412,000 boxes were imported here, 146,000 more crates than were sent in the preceding year. In view of the increasing demands from the United States for these choice onions, Consul Frazier of Valencia has sent in the following directions for their cultivation. It was written by a practical farmer in his district and ought to prove of interest to the California onion grower, as the climatic conditions and soil are much the same as those of Spain. These instructions are applicable principally to the mild, red-tinted, oval onions, which are generally small in size and which resist the long sea voyages much better than the large, soft, whitish, flat onions harvested early in the season.

Spanish Cultural Methods.

The soil destined for onion-seed beds should be well charged with organic fertilizer, preferably humus resulting from previous manurings, because fresh cattle manure is objectionable for onions in many ways, and may even lead directly to rotting the bulbs. The seed should be sown in the proportion of ten grams to the square meter (equivalent to 0.353 ounce per 1.196 square yards, or at the rate of about ninety pounds to the acre) and covered lightly with finely pulverized earth, or with dry, fermented and powdered manure. A small empty barrel or similar light roller is passed over the seed bed to slightly press the earth and facilitate germination. The soil intended for the transplanted seedlings must be carefully broken and reduced to a uniform consistency.

With the last plowing, and about fifteen days before transplanting, the following fertilizer may be sown broadcast: Lime superphosphates (strength 18-20), 440 pounds to the acre; potassic chloride, 310 pounds to the acre. These figures for potassic compounds may appear rather high, but it should be borne in mind that the object is to produce a firm, keeping onion of medium size.

When the nursery plants are about six inches high, they should be dug out with spades, and the uprooting facilitated by previously moistening the soil by a very light irrigation. The points of the roots and the tips of the plants should be removed with scissors. Planting is performed with dibblers, the bulb being barely buried beneath the surface and four to five inches separating each plant, according to the size of the onion desired.

The Growing Period.

The laborers engaged in planting press the earth firmly with the hand around each bulb to bring the roots into immediate contact with the soil. After the plants have taken root 330 to 400 pounds of nitrate of soda to the acre should be sown over them, but this quantity should not be exceeded, to avoid too great development in size.

During the whole period of growth the onions must be kept scrupulously clean of weeds, which, under the influence of sun, air, fertilizers and irrigation, multiply with alarming rapidity.

The number of irrigations should be limited to what is absolutely necessary, taking into account the natural moisture of the soil and the rainfall. The first irrigation should be applied immediately after transplanting, and the last one some three weeks before harvesting, in order to give the crop time to absorb and assimilate the water, and acquire the necessary firmness and consistency before uprooting.

A few days before harvesting, the onion tops should be rolled flat to aid in maturing and seasoning the bulbs by greater exposure to sun and atmosphere. Onions intended for storing should be carefully cleaned of all adhering earth and organic matter, which would interfere with their conservation.

Irrigating Practices.

In the opinion of Valencia farmers, no other crop grown there robs the soil of such an extent of the constituent elements of its own growth, and no other will yield such poor results the second year if repeated on the same land.

The choice between planting in furrows or on flat surfaces depends on the abundance or scarcity of irrigation. Long experience proves that water, when scarce, goes much farther in irrigation in furrows than in flooding practically the whole surface of a field planted on the level.

However, where irrigation is abundant, the great majority of onion growers prefer flat planting, as they believe that this method favors the crop in resisting the great heat and dry winds common to this region during the summer months. For irrigation purposes, in flat planting, the land is divided into strips two or three yards wide, and as long as the level of the ground will permit, surrounded by a low ridge to contain the irrigation water.—Consul Frazier of Valencia.

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—best by every test

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The mauufacturers of Pioneer Roofing have published a 32-page booklet, which is effectively illustrated. The booklet is both interesting and instructive. It tells how to lay roofing—and what weight or thickness of roofing is best suited to the various kinds of buildings. The booklet and samples of roofing will be mailed free upon request.

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Home Grounds Beautiful

SANITATION IN THE FARM HOME.

"Living in the country" should, of right, be the panacea against all diseases arising from impure air, impure water and adulterated or unfit food. But, population considered, there would appear to be little difference in the extent to which such diseases prevail in country or city. As says a contemporary:

"Every case of tuberculosis, city or country, proves that with pure air 40 miles deep over our heads we have chosen to breath impure air. Every case of typhoid fever—and we cannot deny that the farm home has them—proves that the drainage from stables or outbuildings has somehow gotten into the well, or that our worst enemy, the common housefly, has washed his dirty feet in our food. Every case of diphtheria proves that filth is not far off."

Lack of ventilation in sleeping and living rooms—a superstitious dread of cold air—is probably responsible for a large majority of the cases of tuberculosis occurring on the farms. People who sleep practically out of doors—that is, with windows wide open—seldom contract tuberculosis. So long as the bed is warm, it matters little how cold the room is. The arctic traveler, ensconsed in a fur sleeping-bag, and with no canopy but the stars, takes his rest under almost ideal conditions. The Eskimos never have consumption until brought south and compelled to live in houses like ours.

Typhoid fever will never originate on a farm if the water supply is kept pure. Such purity is assured by the "driven well," sunk deep enough to be secure against the contamination of surface drainage. And it often happens that such a well is cheaper than a dug well, the security of which against seepage from barns and outhouses is always a matter of doubt unless tests have proven that the drift of contaminated under-surface waters is away from and not toward the well.

As for the house fly, the protection of the house by screens over doors and windows, and the quick removal to the fields of the manure heaps, of which it breeds, will add not only to the healthfulness but to the general comfort of the home.—C. R. Barns, Minnesota University Farm.

BEAUTIFYING HOME GROUNDS.

Samuel Armstrong Hamilton has given some good suggestions about planting to beautify the home yard in the Woman's Home Magazine, which are very applicable to conditions on the coast, except that we have great advantages in our evergreen vines and shrubs, ornaments in themselves when properly placed.

It will always be the case that there are some features to be concealed, and some to be beautified and improved. The first must be considered. Is there a tumbledown fence, a rickety old building or outbuilding to cover or conceal? A neglected summer house to cover, or trellises to restore to their former state of beauty? If so, they demand the first attention. Use some of the quick-growing annual climbers, as the Wild Cucumber Vine, Cobaea Scandens, Cypress Vine, Dolichos, Morning-glory, and any of the ornamental gourds. Any of these planted as late as the first of June in very rich soil and kept freely watered will make a quick growth, and by the middle of summer make a fine showing. If the soil is not naturally of the best for these vines enrich it with one-third its bulk of well-rotted cow manure, and run the spade down deep in digging, even if some of the subsoil comes up with it.

The next thing to consider is the matter of screening, and the making of an imitation shrubbery. If the back yard or vegetable garden is unsightly, or it is desired to cover any feature of the garden with a screen, plant rather closely (a foot apart) Ricinis, or Castor Bean. These must have soil the same as the climbing vines, and in addition be well mulched as soon as the dry season arrives, and they will require a great quantity of water to stimulate them into quick growth. By midsummer they should form a screen or hedge, or whatever shape they are planted in, six feet high, and impervious to the sight.

Of course, in the meanwhile the garden beds and borders have been laid out. One of them, in some out-of-the-way place, but in a sunny location, must be kept for a nursery bed in which to start the young seedlings, while the others will be given temporary blooming plants, to cover them while the young plants are maturing. The best plants with which to get the earliest covering bloom are the Marguerite and Dianthus Pinks.

The soil for them must be very rich and porous. Aerate it well by turning it as it is dug and raked, and at once plant it broadcast with a mixture of Marguerite and Dianthus seed, which should be lightly raked in, be well rolled or patted with a board, and then thoroughly watered with a fine spray nozzle.

In four weeks the beds should be a mass of fine fragrant blooms, a perfect riot of shades and colors, with which you will be loth to part, but they must give way to the regular bedding plants later on. The principal difference between this kind of a garden and a regular one is that the time of planting out bedding plants is set forward six weeks, while we use a cover crop in the meanwhile.

GLADIOLUS.

One of the best summer flowering bulbs is the gladiolus. The bulbs may be purchased from any reliable nurseryman or seedsman. They should be planted about the same time sweet corn is planted, and given much the same cultivation as any other garden crop. Plant three to four inches deep in rows thirty inches apart, and six or eight inches apart in the rows.

The blooms may be cut when the first bloom opens, and the buds will continue to open for a week or two, if placed in water. At the end of the growing season, dig and dry the bulbs until the bulbs and bulblets can easily be separated. Store in any cellar where they will not get wet or dry out. The small bulblets may be saved and sowed like peas in the spring, producing flowering plants in about two years.—LeRoy Cady, Minnesota University Farm.

Fresno business men are making big preparations for a raisin day campaign April 29. Eight thousand dollars has already been secured.

A Farmers Club is being organized in Ukiah, Mendocino county.

Always Fresh——SANBORN'S SEEDS——Always Reliable

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PLANT NOW. 8 CALIFORNIA CRACKERJACK SWEET PEAS FOR 25 CENTS

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Send us 50 CENTS, silver or stamps, and we will send you the following Seeds by mail, postpaid:

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NOTE--Tennyson Tomato seed sold out. Plants ready March 15, 1911.

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Clipper Lawn Mower Co Dixon, Illinois.

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It is estimated that over 75,000 almond trees have been planted in the vicinity of Arbuckle, Colusa county.

THE NATIONAL ORANGE SHOW.

It is not often that California grumbles at rain, but last week the management of the National Orange Show at San Bernardino, felt it had real cause for a grouch at the weather man; it had rained much of the week before and the opening night found a drizzle still coming, and it continued for more than half the week of the show; the close was, however, under smiling skies. The show was opened on Monday evening by signal from the office of Governor Johnson in Sacramento, and from that time on to the end the attendance was fair though the storm prevented the immense crowds which would have been there if the weather had been favorable. Every evening audience was large. The tents in which the exhibits were made leaked most distressingly; some exhibits were ruined and all were more or less injured, but with it all, the true spirit of boosting for everything citrus obtained, and everybody was happy.

Instead of being held in the usual pavilion, one paved street was closed and tents erected over the pavements, making an excellent exhibit place. There were two large tents, one given over to citrus exhibits, the other to mechanical appliances. The central feature of the latter tent was a fully equipped packing house in operation, with box-making machines, brushers, sizer, press for putting down box lids, and several girls packing. The packing house was in operation for a purpose, for one of its features was taking orders for California oranges to be delivered to any part of the East at shippers' prices, all charges paid Other exhibits in the mechanical tent were orchard ladders, clippers, new appliances for brushing, cement coated nails, and a long line of orchard working implements. Fertilizer companies were present with complete exhibits. The pathological laboratory at Whittier had a fine exhibition which was nearly ruined by the storm. It consisted of fruit from the orchards showing various blemishes and injuries, and alongside were the insects or fungi which caused the trouble. Two high-power microscopes were on hand so that Prof. Smith, Dr. Coit, and assistants, could make examination of citrus troubles and give expert answers on the ground. Had it not been for the rain affecting this exhibit so seriously, it would have been one of the most valuable made.

The exhibits were beautifully arranged and in the construction of feature exhibits but little low grade fruit was used. In quality exhibits and commercial packs we do not believe the equal was ever brought together, though the Los Angeles shows of several years since were made up of greater quantity than this:

The awards were as follows:

Best 25 boxes of oranges—Sweepstakes, loving cup, goes to the Highland Orange Growers' Association; second, banner, Gold Buckle Association of East Highland; third, banner, Etiwanda Exchange.

Best 25 boxes of oranges—Sweepstakes, loving cup, goes to the Corona Chamber of Commerce; second, banner, Rialto Packing Company.

Best feature exhibit—First, $50 cash, Gold Buckle Association of East Highlands; second, banner, Rialto Chamber of Commerce; third, banner, Redlands Board of Trade.

Best five-box lot of oranges—First, loving cup, Highland Orange Growers' Association; second, banner, Gold Buckle Association of East Highland; third, banner, West Highland Citrus Association.

Best five-box lot of lemons—Banner, Etiwanda Exchange.

Best five-box lot of Seedling oranges—Banner, M. C. Mascart of Redlands.

Best single box of oranges—First, banner, Highland Orange Growers' Association; second banner, Gold Buckle Association of East Highland; third, banner, Etiwanda Exchange.

Best box lot of Valencias—A. F. Leightfuss of Orange.

Best single box of lemons—First, Corona Chamber of Commerce; second, Arlington Heights Fruit Company of Riverside; third, Gold Buckle Association of East Highland.

Best single box lot of grape-fruit—First, Gold Buckle Association of East Highland; second, A. C. Denman & Son of Redlands Junction; third, Alta Cresta Groves of Riverside.

Best packed box of oranges—First prize, a loving cup, Rialto Lemon & Orange Association; second, Gold Buckle Association of East Highlands; third, Highland Exchange Association.

Best packed box of lemons—First prize, a loving cup, Arlington Heights Fruit Company of Riverside; second, Gold Buckle Association of East Highlands; third, Etiwanda.

Best tray of 25 Washington Navels—Highland Orange Growers, Association.

Best tray of 25 Mediterranean Sweets—E. C. Wilson of Etiwanda.

Best tray of 25 St. Michaels—E. C. Wilson of Etiwanda.

Best tray of 25 Bloods—Riverside Trust Company.

Best tray of 25 Seedlings—Montague C. Mascart of Redlands.

Best tray of 25 Tangerines—Priestly Hall of Riverside.

Best tray of 25 Valencias—A. C. Denman & Son, of Redlands Junction.

Best tray of 25 oranges — First, Highland Orange Growers' Association; second, Bloomington Fruit Association; third, Highland Exchange Association.

Best tray of 25 lemons—Riverside Orange Company.

Best tray of 25 seedless grapefruit—P. T. Carter of Moreno.

Best tray of 25 seedling grapefruit—A. C. Denman & Son of Redlands Junction.

Best tray of 25 Washington Navels grown in the city of San Bernardino—J. N. Corbett.

Best tray of 25 seedling oranges grown in the city of San Bernardino—John Brown, jr.

Best exhibit of Citron of Commerce—Sparr Fruit Company of West Riverside.

Best exhibit of Navel Bloods—Riverside Trust Company.

Best exhibit of navel grapefruit—R. C. Hunt of Rialto.

Best exhibit of Kumquats—James Dickson of Rialto.

Best exhibit of Pearlines—James Dickson of Rialto.

Best exhibit of products manufactured from citrus fruits—Kingsbury Fruits Incorporated, Redlands.

Largest orange—W. H. Pettibone of Redlands.

Large grapefruit—A. C. Denman & Son of Redlands Junction.

Best exhibit of citrus nursery—First, H. H. Linville of Highland; second, Tetley, Merriam & Childs of West Riverside; third, M. C. York of Highland.

RUBBER.

Rubber has many peculiarities in its crude state, according to P. W. Litchfield, general superintendent of the Goodyear Tire & Rubber Company.

"The crude rubber we get from Ceylon comes in entirely different form from what we get from Brazil," stated Superintendent Litchfield during an interview at the factory. "Yet it is the same kind of rubber—Para rubber—and of practically the same quality. Seeds of the Hevea tree, which produces the Brazilian Para rubber, were taken to Ceylon some years ago and planted in soil very similar to that to which it is indigenous in the valley of the Amazon.

"Some day these young trees are going to be just as good as those in the Amazonian forests, and in the trade it is believed to be only a matter of time when what is called the cultivated rubber crop will be sufficient to supply the needs of the world; and probably at a much lower cost than manufacturers have been paying.

"In 1908 this cultivated crop of rubber from Ceylon did not exceed 2000 tons; the next year it was 4000 tons; last year it had grown beyond 8000 tons, and this year's crop is estimated as likely to reach 14,000 tons. A few years hence the cultivated crop will equal the wild or natural crop of South America."

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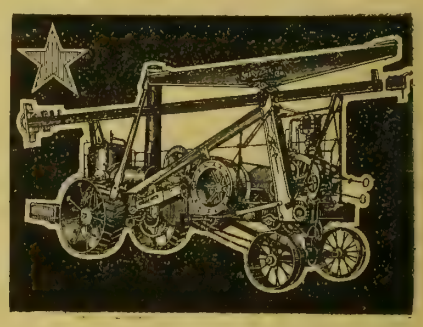
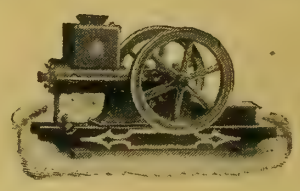


THE EMPIRE LINE



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Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

THE PIGS.

By Mrs. M. E. Sherman.

A morning paper gives the records of the amount of hogs dressed for food during the year 1909 as 36,443,000 while the grand total of all animals used for food was 68,403,000. These returns coming from packing and slaughter houses naturally fall below the real count. The farmers butcher twenty hogs to one beef, taking the country at large.

The importance of the hog industry makes it deserving of better planning on the part of the farmer. The present careless way of placing the hog house on a convenient patch of bermuda or salt grass or in some tule swale, without regard to the surrounding fields is not the best way. The labor may make it costly, when the hog lots are not arranged to make the feeding as little labor as possible. While the bermuda assures them of a dry place in the winter time and they do enjoy rooting it, when the ground is soft, still it is not an economical way to clean the land, as some seem to think. The bermuda grass enjoys it rather than resents the intrusion of piggy's snout as a cultivator. The next season it shows up more smiling and green for the winter's experience.

The Land.

Twenty to forty acres in a square or in a long piece makes a system of handling possible. The land is fenced and cross-fenced, using good hog wire, making two central homes for the brood sows and the boar. Shade trees, poplar, willow or other tree that loses its leaves in the winter is desirable. In California the sun should shine into every corner in the winter time, and be well screened by leaves in the summer if the pigs are to be kept healthy.

Five lots or the double of this gives the best results. One lot has the houses, including the brood sow's homes, the feeding troughs and water in it. The home for brood sow is built and subdivided according to the owner's ideas on this matter. The other four lots are planted for feeding the pigs. Let us number them one, two, three and four, for convenience. Sow lot No. 1 at once to alfalfa; lot No. 2 with oats and peas; lot No. 3 in barley, and lot No. 4 in peas. Use the common tall growing varieties of garden peas for this purpose, drilling them into well plowed soil a couple of inches deep. As soon as the barley on No. 3 is well up, turn the pigs in for a few hours every day. When this is eaten off the oats and peas in No. 2 should be ready to feed. Plow lot No. 3 which has been fed off and sow to sweet corn. When the oats and peas are eaten off No. 2 sow that lot to sorghum and use the peas in lot No. 4 for feed. When lot No. 4 is eaten off the alfalfa stand should be ready. It is not well to pasture this the first season but cut and feed over the fence. When the peas are off lot four it is sown to sorghum. The sweet corn on lot three can be planted to either pumpkins or pie melons after the sweet corn is off, for later winter feeding.

Care.

Naturally this sowing plan can only be suggestive but the above gives a good set of crops that are easily grown. The lots used for this feeding off will pay well the first season if a little commercial fertilizer is used on them, particularly on the corn and peas. After the first season the droppings of the pigs will enrich the land enough to render fertilizing unnecessary. All these crops are intended to be fed off, not cut, and this adds to the cheapness of the harvesting. This way of handling is on irrigated lands, where water is under control and abundant all year. Sorghum, when it is two feet high, will carry as high as thirty hogs to the acre for a short time, while an acre that is well irrigated will feed twenty growing pigs for a long period, often two to three months. When feeding sorghum it is well to balance the feed up with a little cut alfalfa or with some alfalfa hay, as all sorghum makes an ill-balanced food for growing animals.

Feeds.

The only feeds needed when hogs are handled in this manner are the usual ones of skim milk and rolled barley for the nursing mothers. These should be kept away from the stock hogs and a little green stuff fed them every day. Now, as fencing costs money, it may be well not to fence off the land into these smaller fields until the ability to produce good pigs has been tested out. When the dairy is combined with the pig raising, the crops may be grown in a larger way and cut and hauled to the pigs and cows alike. The other way is to have two of these small sets of lots and use them alternating for the hogs and calves and colts. During the winter time the sows must be kept in good order but not allowed to grow over fat. After the pigs are weaned give plenty of alfalfa hay with a little rolled barley and abundance of pie melons. The growing pigs should have soaked corn or rolled barley in the skim milk.

Barley.

We have been a long time in finding out that barley had a high value when fed to pigs. A gain of one hundred pounds in weight from four hundred and thirty pounds of rolled barley when fed with one hundred and ten pounds of skim milk, has been made. The rolling of the barley helps, for when the same amount was used, fed unrolled or whole, it took five hundred and forty pounds to produce a hundred weight of live pork. In comparing corn to barley it was found that by adding half corn to the barley, a quarter more growth was gained on a fifth less feed. Rolled barley fed with alfalfa hay gave better results than corn and alfalfa hay. It took four hundred and sixty-nine pounds of barley and fifty-nine pounds of alfalfa hay to gain a hundred pounds in weight. While another lot required five hundred and fifty-six pounds of corn and seventy-four pounds of alfalfa hay, rolled barley and alfalfa hay, therefore, will make a profitable feed for pigs on the ranch during the winter season if no provision has been made to pasture them in small lots.

Healdsburg will plant prunes to a greater extent than for some years.

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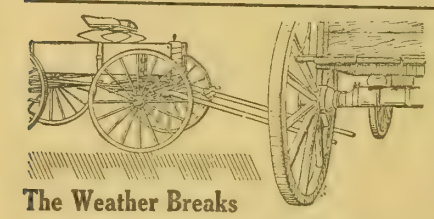

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Has just taken over all records and business of Percheron Registry Company of Columbus, Ohio. 215 breeders took membership in P. S. of A. during December and January alone. 137 more new members added thru recent acquirement named above. There is now but one recognized Society in the United States recording Percherons. For information address WAYNE DINSMORE, Secretary, Union Stock Yards, Chicago, Ill.

HYGIENE OF THE FOOT OF THE HORSE.

The teeth and the feet of the horse should receive special attention, for without these in a good healthy condition the animal's usefulness is in a large measure destroyed.

Many horses are so vicious or irritable that they will not allow anyone to examine their feet, to say nothing of cleaning, trimming or shoeing them.

The colt at pasture should have its feet cared for as closely as the matured animal, in order that he may grow to maturity with feet in a healthy condition. The foot of the colt grows so rapidly that the wall will often project far below the sole and cause it to split and form quarter and toe cracks. It is better to use a pair of hoof cutters and rasp, and have the feet pared evenly and avoid unbalancing the animal.

Any horse used on the road or street should be shod, but the shoes ought to be changed every five or six weeks and the feet trimmed in order that the natural growth of the wall may be removed. If the shoes are improperly allowed to remain on the feet for two, three or four months, and in some cases a year without changing them, the wall becomes excessively long and grows over the shoe. Pressure becomes too great on the sole and bars, resulting in corns, bruised soles and lameness.

A hoof hook should be included among the equipment of a well regulated stable. The feet of the horse should be cleaned every morning before he leaves the stable. The hoof hook will remove all litter, pebbles, or anything that may have become lodged in the foot. This precaution may prevent injury to the sole or sensitive structures of the foot. If the feet become very dry, pack them daily for a week with some form of clay. Then apply lard to the wall, to which may be added pine tar and rosin. This ointment holds the moisture in the feet and prevents further evaporation. —C. L. Barnes, Colorado Agricultural College.

DRIED BEEF.

The round, or other tender, lean portion of beef is best for drying. For curing 100 pounds use 5 pounds fine salt, 2 ounces saltpeter, and 1½ pounds granulated sugar. Mix all thoroughly, and rub the meat with one-third of the mixture each day for three successive days. Let the meat lie in a large jar for a week, leaving the liquid which forms from the meat's juices until the meat is cured. When cured, remove from the jar and hang up to dry.

After meat is smoked it may be kept indefinitely in a dry, cool, dark place, where insects cannot get at it. A dark cool room in an attic is a good place. A coating of pepper rubbed over the meat will aid in keeping flies and other insects away. Hams and bacon may be closely wrapped or sewed in cloth, which may then be given a coating of whitewash or lard. Hang up in storeroom so that pieces do not touch one another, or a mouldy spot will form where they touch. They will also keep well wrapped in cloth and buried in oats or other grain or in salt.

Self-knowledge, self-reverence, self-control,
These three alone lead life to sovereign power.
Yet not for power, power of itself would come unasked for,
But to live by law, acting the law we live by without fear.

—Tennyson.

SAND IN THE STOMACH.

By F. G. Matthews, V.S.

A year ago we lost three horses by pasturing on sandy soil while feed was short. They were on short green pasture all winter as we did not realize that injury would come of it. We noticed our horses were getting poor in flesh and lost spirit as well, acting "all tired out" and could stand to work only a few hours when they would begin to shake and be covered with sweat from the lightest work. At times they would act colicky, roll and lie on their backs with their feet in the air. One day we noticed one of the horses would go every little while and roll, get up and go to eating again, then repeat. Next day all the symptoms of spasmodic colic developed, and we treated him for same but he died in about two hours. Desiring to find out, if possible, what was wrong, an examination was made and a quantity of sand weighing about 25 pounds was found in the stomach. The sand completely obstructed the outlet of the stomach.

We then started to physicking the other horses with quart doses of linseed oil twice a week, but one was so far gone she died about two weeks later and we found her stomach in the same condition. We saved one colt of Percheron breed. He passed sand with every movement of the bowels for four weeks. Neighbors lost horses and cattle. One party lost six calves and when the sixth died he decided to investigate and found a sand ball in the stomach. Another party had eleven horses affected.

The Percheron colt we saved did not thrive, weighing only 900 pounds at two years and four months old. And it is only since getting him free from sand that he is beginning to grow."—Subscriber, Ripon.

This is indeed an interesting report, as it deals with a trouble which has engaged very little attention at the hands of veterinarians. At any rate, few reports on the subject have appeared in our veterinary publications. An occasional complaint has reached the experiment stations of the Southern states and these come from the sandy soil belt bordering the Atlantic and Gulf coasts.

Pasturing stock on loose, sandy lands and on grasses the leaves of which spread upon the ground results in the ingestion of varying quantities of sand. In case the soil is so loose the grass is pulled up by the roots in the act of grazing, more or less of the earth adherent to the roots finds its way into the stomach and it is easy to realize how the accumulated sand would have a detrimental effect. Even if fatalities did not follow, digestion would be hindered, resulting in a weak and unthrifty condition and retarded development in young growing animals.

It is said that Shetland ponies pass sand for some weeks after they are taken from the islands.

Horses which arrive in the markets with their front teeth worn short evidently from having grazed on sandy lands, usually present evidence of having passed an unthrifty existence and some remain constitutionally weak and unfit for hard labor. Hence the subject is of considerable importance, especially in districts where irrigation is practical and also where animals range on sandy soils producing short, scant herbage. Some in-

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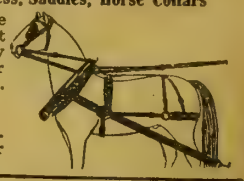

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vestigation along this line with the object of enlightening the breeders of livestock who happen to be so situated would certainly be time and effort well spent. The remedy employed by the correspondent, linseed oil in quart doses twice a week, is admirably appropriate. However, cottonseed oil will serve the purpose equally well and is less expensive. The treatment might be improved by adding a half pint of castor oil which would stimulate the bowel to more vigorous action, thus aiding the lubricant in expelling the irritant. Mild laxatives, repeated often, are preferable to vigorous purgatives.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Sow Vomiting.

Since weaning her second litter of pigs four weeks ago, a sow vomits soon after taking food. The vomiting occurs after eating either kafir corn or green alfalfa. The belly is drawn or "tucked up" in the flanks.—Subscriber, Visalia.

Where the act of vomiting occurs after feeding and during the time the stomach is in motion, we infer that some irritation within the stomach is the cause. This may be due to some foreign body accidentally swallowed, or the lining membrane of the stomach may be ulcerated. Steep one pound of linseed meal in a gallon of hot water and stir a pint of this into a feed of slop twice daily. Feed on slop free from solid particles. Start treatment by giving five ounces of Epsom salts as a purgative.

Worms in Horse.

Please give a remedy for worms in horses.—Subscriber, Ontario.

Starve the horse twenty-four hours, then administer three ounces of turpentine mixed thoroughly in a quart of raw linseed oil or sweet oil. Beginning four days later, give three times daily in the feed one heaping teaspoonful of a powder containing gentian, nux vomica and fenugreek, of each two ounces, and dried sulphate of iron three ounces.

Water Blister (Cyst or Abscess?)

Kindly advise a remedy to remove a water blister from my horse's shoulder, other than firing or lancing. It is located high up on the shoulder and was caused by an ill-fitting collar.—Subscriber, Arroyo Grande.

Collections of straw colored fluid under the skin are known as cysts and often result from bruises from the collar, blows, etc. It is my experience that they seldom appear above the upper third of the shoulder. In the region of the withers collections more often contain matter or pus and when opened may result in a fistula. Lancing a cyst is not a serious operation, however, and if not opened and drained properly they disappear very slowly. Blister the enlargement with red mercuric iodide, one drachm, mixed in one ounce of lard or vaselin. After two weeks repeat if necessary. —F. G. M.

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Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

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While these old machines have little actual value to the DE LAVAL Company, as the machines thus taken in trade are broken up and "scrapped" for old metal, such exchanges afford a practical example of the difference between good and inferior separators, and add to the prestige of the DE LAVAL in the neighborhood.

Now that you will soon be milking more cows, why not take advantage of this liberal offer? **See the nearest DE LAVAL agent,** and he will tell you how much he can allow on your old machine toward the purchase of a new DE LAVAL. If you don't know a DE LAVAL agent, write to the nearest DE LAVAL office giving make, number and size of your present machine, and full information will be sent you.

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 15,912 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, March 16, 1911

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Thos. R. Hanna
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W. B. Thomas
Edw. M. Ehrhorn
A. R. Ward
E. W. Hilgard
G. W. Shaw
R. H. Loughbridge
Ralph Benton
Dudley Moulton
G. P. Rixford
C. H. Rodgers
Geo. D. Kellogg
Edward Berwick
Gerald Geraldson
M. G. Keesling
N. C. Blanchard
C. C. Teague
H. J. Quayle
J. H. Norton
C. E. Bemis
D. G. Whiting
J. H. Reed
John Tuohy
C. C. Chapman
E. L. Dreher
E. L. Koethen
W. E. Wilsie
Arthur Fell
W. H. Schureman
John Burr
Malvern W. Iles
Mrs. M. E. Sherman

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CONVENTION NOTES.

Mr. Shamel's work in the development of a better Washington Navel will be watched with greatest interest. For the impatient one there will be a long wait, for as Mr. Shamel said at the San Bernardino convention, it may be five years before any very definite information can be given out. A perusal of Mr. Shamel's article in the next issue will be interesting as showing the line he is following.

It is almost amusing to sit in a convention and hear scientific problems relating to fruit culture discussed. First, the difference of opinion, then the conclusion that we know little about it anyway, bring to one's mind the question, "Of what value are these discussions?" But with all the confusion, it must be admitted that the clearest understanding can only be secured by looking at all sides, and this helps one to get on the ground of toleration, to see that the other fellow has a right to his opinion.

One question at issue in the late convention was the matter of chlorosis, and after discussion of the lime-magnesia theory, the need of more humus, the need of deeper tillage, the need of deeper irrigation, and other needs without number, the general admission was made by nearly every speaker, "We don't know what causes chlorosis or yellowing of orange and lemon leaves."

Referring to the need of the very best scientific education for a successful grower, Mr. E. A. Chase of Riverside remarked that the grower should be like Davy Crockett with his long gun, when he went into the woods for coon, the coon always came down and delivered himself up at once—it was usel ss to evade his aim. Too often our growers go gunning with a blunderbuss.

It is perhaps timely to take up one point made in the discussions at the convention, "Don't plow deeply at blossoming time." Root disturbance by tillage at such time shocks the tree and induces less growth and fruit holding capacity.

One speaker in referring to the necessity for deep culture especially in the breaking up of plow sole, described an appliance that did the work effectively and suggested that two good horses—if they were mules—would handle it all right. When it comes to deep soil culture, it is almost necessary that our horses be mules, or at least tough enough to stand hard draft day in, day out. The farmer who goes at orchard work with a light team will be troubled with many things, among them, chlorosis.

Kenneth McRae spoke of having kept a careful tabulation of sales of citrus fruits in the Eastern markets last year. In those sales were 700 ranging in price from 50 cents to $1.40. The orange grower doesn't need a very long pencil to figure out that the principal return to him from such sales is red ink and plenty of it. Our growers are putting up some excellent fruit, those going under the "Sunkist" brand, for instance, being exceptionally fine. But with this good fruit are constantly going forward culls. The picking, the freight, the storage, nearly all expenses connected with the sale of culls are the same as for fancy fruit—it doesn't pay.

Humus benefits soil physically, chemically and biologically. It gives better drainage, better aeration greater moisture-holding capacity, keeps soil warm, improves its texture; chemically it furnishes nitrogen directly, makes available other soil elements; biologically it makes possible myriads of life which convert insoluble plant food into soluble. As our good friend Shaw would say, "With all your getting, get humus."

Another important point in handling green manure crops at this season was brought out by Dr. Lipman when he laid down the law that in light, sandy soils the cover crop should be plowed under as deeply as possible; in clay soils, as shallow as possible and still have sufficient dirt to cover. In sandy soils the air will reach down to the decaying crop no matter how deeply plowed in, a healthy condition obtains and the plant food is put where it is most valuable to the roots. But in heavy soils, if plowed under deeply, the air is not admitted and an acid condition of the soil is produced. When these points are considered, with numberless others having to do with green manure crop growing, it will be seen that there has been occasion for the many failures made. It requires intelligence and knowledge to grow green manure crops.

A look at the citrus industry with its great increase this year, with its average of a carload of fruit leaving the state every ten minutes, and bringing fair prices, assures us that there never will be any overproduction of good fruit. Perhaps we should put the word, "good" in full capitals so that we may not be called later on this statement.

Mr. Maskew's work as deputy state horticultural commissioner shows the need of watching ports of the southern part of the state as well as that of San Francisco. Into San Diego, where Mr. Maskew has been working, enter three regular lines of steamers and numberless smaller boats, and everyone of these vessels brings fruit which may be infested with some pest. The most dreaded of these is the fruit fly, one member of which family is the orange maggot. Mr. Maskew has succeeded in capturing some of these in the baggage of poor Mexicans coming up on the smaller steamers.

Mr. Maskew said that sometimes this work was almost heartbreaking; poor Mexicans with practically nothing have purchased small quantities of fruit to bring to their friends in this country a little offering from the native land; they understand no English, and it is almost impossible to convey to them any reasonable excuse for taking away their little property; some will stolidly stare, while many will plaintively explain that the fruit is not being brought in to be sold, but to give to their loved ones; they cannot be made to understand the fearful cost to the fruit industry of this state if they should bring in the dreaded fruit flies.

DRONES.

Mr. E. A. Chase, in speaking before the citrus convention on the subject of selecting buds for trees, referred to the fact that the orange orchards of the state are afflicted with from ten to 25 per cent of drones, trees standing in the orchards, cumbering the ground, costing for fertilizers, irrigation and general care, yet returning practically nothing to the grower. The dairyman refers to his unproductive cows as boarders. Call them what you will, boarders or drones should be closely observed and eradicated. They appear in every calling, perhaps to the greatest extent in agriculture. Mr. Chase made the point that it is sheer carelessness on the part of orchardists to allow drone trees to remain. In passing through the orchards he sees these non-productive trees and consoles himself with the assurance that next year will be their full year, while some other trees will be taking their rest, but he fails to mark these particular trees, and the following year, when they again show their light crops he passes them on in the same way, hoping that another year they will give full crops.

The careful work being undertaken in the orchards of the Chases is showing that these drones are chronic cases, and the tree which bears a full crop one year is almost sure to bear a full crop the next. This statement will be combated at once by those who, thinking they have observed closely, have "seen" otherwise. Careful record of each tree will bring money to the orchardist just as the Babcock test has brought money to the dairyman. Keen competition is bound to relegate poor fruit to the cull pile, and the trees which produce light crops almost invariably produce culls, and those that produce culls one year will produce culls the next. The sooner the orchardist makes careful observations and rebuds his trees, the sooner his grove will yield a competence.

JOURNAL OF ECONOMIC BOTANY.

The Pomona College located at Claremont has for the past few years been issuing a valuable publication in the Journal of Entomology which has been largely quoted in scientific publications. Beginning with the first of February another valuable publication in the Pomona College Journal of Economic Botany as applied to sub-tropical horticulture, is to be issued quarterly. It is to be of a less technical nature than the Journal of Entomology. The first issue contains: Avocado in Southern California, Withertip in Ventura County, Biological Expedition to Southern Mexico, and The Botanical Garden of Para. It is well printed and beautifully illustrated, this first issue containing 72 pages. Professor C. F. Baker of Pomona College is the editor.

EFFECT OF STOCK ON BUD.

The effect of the stock on the bud or the fruit of the bud, as discussed in recent Cultivators, was taken up and discussed quite fully at the convention. Like those who expressed opinions in the Cultivator, the speakers were not positive as to influence exerted. The veteran nurseryman, Mr. E. A. Chase, said that he did know there were certain influences both of stock on bud and of bud on stock and root. For example, he referred to the Siberian Crab bud or graft being known to have a material influence on the root, causing much different growth from that of a Baldwin on the same root. The question was asked as to whether anyone had observed similar effect of bud on sour or sweet root. One speaker maintained that he had seen material influence of root on bud, and of course all admitted the ill effects of the China lemon root.

Imperial Valley settlers and others in sections where agricultural conditions are similar should write to the Experiment Station at Berkeley for copy of Bulletin 210. It is entitled "Imperial Valley Settlers Crop Manual," and is edited by Dr. J. Eliot Coit and Walter E. Packard.

Agricultural News Notes of the Pacific Coast

Northern California

Tobacco was successfully grown at Palermo.

Almond growers of the Sacramento Valley found greater profit in the sale of shelled almonds.

Boca, Nevada county, is harvesting ice at the rate of 10,000 tons daily. It is two feet thick.

The big hatcheries of Petaluma are now able to get abundance of eggs at the lowest prices of the season.

The Sutter-Butte Canal Company, capitalized at $1,250,000, has filed articles in Oroville, Butte county.

Healdsburg, Sonoma county, is advocating the holding of a harvest festival and water carnival the coming fall.

A million dollar dam will be constructed in the Carson river which will enable the irrigation of 11,000 acres.

A filing on 50,000 inches in the Consummes river has been made. It will supply water for the Volcano reservoir project.

Amendments have been made to the Torrens Land Act passed some years ago which will make, it is hoped, a more practical law.

The California Fruit Canners' Association has purchased 750 tons of blackberries from the Sonoma County Berry Association.

Large numbers of orange and olive trees have been set at Palermo, Butte county, one nurseryman having set over 75,000 trees.

The country life commission of the state met at the University Farm last Saturday and laid plans for a state conference of farmers and educators.

The Sebastopol Apple Growers Association elected J. W. Turner, president; E. E. Murford, vice president; E. C. Merritt, secretary, and C. E. Hotle, manager.

Steps are being taken for the construction of a big reservoir and the perfecting of an irrigation system which will greatly increase value of lands in Big Valley, Lake county.

The Hayward Poultry Producers Association was addressed at its regular monthly meeting last Saturday by Prof. C. M. Haring of the state university on the diseases of poultry.

Colorado capitalists have filed on 250,000 inches of water from Turtle Bay in the Sacramento river near Redding. The waters will be used for irrigating lands in Shasta and Tehama counties.

"West Sacramento Reclamation District No. 800" which will be made possible by a bill passed by the legislature and signed by the governor, will reclaim a vast body of land near the city of Sacramento.

The fight of the farmers near Anderson, Shasta county, is claimed to be practically won over the smelter men who have installed smoke arresters which are proving successful, but at the same time very expensive for the smelter people.

Owing to the unfavorable season troubles have arisen between the Sonoma County Co-operative Poultry Association and the Sonoma County Fruit and Produce Company which have made it necessary to abrogate the contract for egg marketing.

Central California

The Kerman Creamery will open a branch at Los Banos.

Turlock growers are buying melon seed and getting ready for a big season.

The state's raisin output was about 65,900 tons, of which 7,500 tons were exported.

Raisin packing has been resumed at the packing house at Armona, Kings county.

Exeter, Tulare county, decided to incorporate last week by almost a unanimous vote.

Porterville Chamber of Commerce plans for a big exhibit at the Los Angeles Land Show.

Burning of sulphur under prune trees has been recommended as a means of destroying thrips.

Last season's fig crop of the San Joaquin valley has been practically all closed out at 3½ cents.

The Turlock Irrigation District received during 1910 $386,242.30 and the disbursements were $281,900.74.

Watsonville is about to have a new fruit magazine devoted principally to apple conditions of the Pajaro Valley.

One rancher at Corcoran sank an artesian well to the depth of 1721 feet and secured a flow of 88 miner's inches.

It is feared that the driving rains of the recent storms may have injured the blossoms of early peaches and of plums.

The annual convention of the California Association of Mutual Fire Insurance Companies was held last week in Tulare.

Fresno county produces 8,000,000 gallons of sweet wines, 2,000,000 gallons of dry wines, and 1,500,000 gallons of brandy.

Ducor, Fresno county, had a carload of ornamental trees quarantined by Commissioner Schulz because of scale insects infesting them.

San Jose has a committee at work perfecting the organization of the Santa Clara County Fair and Live Stock Exhibition Association.

The continued rains have insured the hay crop for the coming season and, more, have knocked the bottom from the market for holdover hay.

Much farming land has been seriously injured by the washing away of soil by floods. On the whole the advantage is far greater than the loss.

The Santa Cruz County Egg Exchange opened for business on Saturday the 4th. Poultrymen all over the county are taking great interest in this organization.

At the last meeting of the San Jose Grange the lady members had charge of the program and discussed the part women have had in the larger agriculture of the world.

Many of those who had worked for the county fair bill are disappointed in the district bill which finally has been substituted for it, and feel that the bill should be killed.

The law making bonds of irrigation districts legal investments for banks, trust and insurance companies is pleasing to the members of the Turlock and Modesto irrigation districts.

Southern California

An alfalfa meal mill is in contemplation for Arlington, Riverside county.

The next two months will see California's greatest orange shipping period.

Many apples and apricots are being planted in the Banning, San Bernardino county, section.

The last storm gave a precipitation of from five to seven inches in different parts of California.

The new pipe line of the Fillmore Irrigating Company was badly damaged by the recent storm.

The Alamo Canal, supplying water to a portion of the Imperial Valley, is being improved by raising its levees.

Some cantaloupes have already been sold in the markets of Los Angeles, but they were imported from Mexico.

C. R. Mann, a specialist of the United States Department of Agriculture, is investigating citrus decay in Southern California.

The Santa Ana river broke from its banks and did much damage in Orange county, but it is now receding and is under control.

Landscape artists are busy with the laying out of grounds and planting of trees for the Panama-California Exposition at San Diego.

Lakeside, San Diego county, has just introduced a number of registered Holstein cattle to help build up the dairy stock of that section.

Many acres of valuable farming lands in Santa Barbara county were destroyed by recent floods in the Santa Inez river. The loss aggregates over $100,000.

The demonstration train through the orange belt and the Imperial Valley last week drew out the usual big crowds though the storm interfered in some sections.

The 1911 sugar beet crop of Orange county is declared to be by all odds the biggest the county has ever raised. Four big factories will be in operation in that county.

The National Orange Show at San Bernardino last week had strong competition in the stormy weather, but its success was such that another fair is already being planned.

High water and the breaking of levees along the lower Colorado have caused some apprehension on the part of Imperial Valley people of the possible flooding of the Salton Sea.

The conference between the water users of Riverside and San Bernardino counties was recently held to determine between pumping and riparian rights along the Santa Ana river.

The new board of directors of the Anaheim Sugar Company is composed of C. M. Warner, A. R. Peck, E. T. Stimson, I. S. Richards, C. O. Rust, Wm. McLauchlin, Richard Melrose.

At a recent annual meeting of the directors of the San Diego County Fair Association at Escondido the number of the board was increased to seven as follows: H. F. Lockett, Frank G. Thompson, Maurice Reidy and R. L. Huffman of Escondido; Joseph Richert, Pacific Beach, Joseph Foster, Fosters; W. B. Hage, San Diego.

The Coast

Baker county, Oregon, will ship 60,000 head of sheep.

Prime steers are selling in Portland at $6.75 per hundred.

There are still 41,000,000 acres of lands open to entry in Arizona.

Orchards in the Coeur d'Alene section promise an excellent apple crop.

One acre of celery at Hood River, Oregon, produced over $1,600 last season.

Snowfall at Spokane in the storm of the last of February was the heaviest recorded.

The Short Course work in Horticulture is now on in the state college at Pullman, Washington.

The horse fair association of Mount Angel, Oregon, will hold its third annual on Saturday, April 1st.

Farmers of Washington county, Washington, are perfecting an organization for the support of the parcels post movement.

The directors of the Fat Stock Show Association of Lewiston, Idaho, are planning for a great showing of fat stock the coming fall.

Stock growers of Baker county, Oregon, are happy in the fact that the county has paid bounty on 2,390 coyotes and on 111 bobcats.

Fruit growers at Elgin, Oregon, have organized for the coming year's work by the election of the former officers of the shipping association.

Prof. Forbes of the University of Arizona estimates that there is in that territory water sufficient for the irrigation of over a million acres of excellent land.

Members of the State Fair Association of Oregon are in arms because of the governor vetoing a bill authorizing the appropriation of $50,000 for buildings.

Experts of the geological survey and department of agriculture are making strenuous efforts to discover potash deposits in various sections of the arid West.

The president of the Washington Dairy Association insists that the laws of that state should be changed, maintaining that the dairy industry is discriminated against.

The attempt of an orchard company at North Yakima, Washington, to get control of water rights from Ahtanum creek is being fought by riparian owners along the stream.

Agents of the government are suing the Colorado Fuel and Iron Company for return of 5800 acres of coal land in Las Animas county, Colorado. It is valued at $3,000,000.

Apple growers at North Yakima, Washington, have fixed upon two grades for all apples shipped from that section and have established the brands as fancy and extra fancy.

The Northwestern Fruit Exchange with offices at Portland has conducted its first year's business most profitably for its members. It sold during the season something over 800 cars.

The burning of forest sections of Idaho and Eastern Washington last summer will give an impetus to the lumber industry for the coming year in that the burned timber will be worked into lumber at once.

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STRAY IDEAS ON POULTRY.

I have found the following a better plan for a hen house than having an open front, as has been so widely advocated.

Build the roosting platform along the back about three feet above the floor. Leave it open below the platform and make all the rest of the house tight. Put as much glass as possible in the south wall. Build a scratching shed on the north, with tight north side and ends boarded down even with the eaves. Enclose the opening of both ends with one-inch mesh poultry netting to keep out vermin. I have a netting at one end fastened to a frame and hinged, making it convenient to enter with feed and litter. I have self-feeders in this shed, and leave grain scattered in the litter, so the chickens can get down and hunt their breakfast as early as they want to without the necessity of the caretaker going out so early, and yet they are safely shut in. The door may be in the south and be left open pleasant days to thoroughly air the place. In a house of this kind there is always fresh air without the possibility of a direct draft on the fowls when they are on the roost. Nor can the rain ever blow into the house proper.

To make a light, portable roost, take a piece of quarter-round about two inches thick and four feet long. Bore an inch hole near each end of each flat side. Do not place the holes exactly opposite nor bore quite through. Insert four legs 30 inches long. Drive an eight-penny nail about half way into the upper side of each leg 12 inches from the lower end to support two more quarter-rounds. Such a roost will accommodate 20 or 25 fowls, and is easily moved when taking up the droppings, or quickly taken apart to be disinfected. A V-shaped trough made of ten-inch boards is convenient to lay the separate pieces in where boiling water may be poured over them.

Although I have used a fireless brooder with success I had trouble at first getting the chicks to go back in after eating. I found that by having a box the width of the brooder and three feet long for them to eat in the first few days, it was an easy matter to remove the cover of the brooder, and cover the feeding box so as to make the latter dark. The little chicks quickly go into the brooder where it is light. In this way they soon learn to go back and forth at will. A slot in the side of the box, one inch above the bottom, two inches wide and six inches long, and with a shelf in it, makes a convenient place to put a pie tin of milk or water for the chickens.

A teaspoonful of salsoda in a quart of hot water is good to wash the drinking vessels with every day.

In the summer time, if one has more skim milk than the fowls will drink readily, it is no trouble to let it sour, and make cheese of it. If it is heated and stirred, then left till cold, the curd will settle and the whey may be poured off without the use of a cheese bag. If, in cold weather, when it does not sour easily, the milk be warmed to about 86 degrees, and just enough rennet be added to make a soft curd, in about 20 minutes it can be stirred, the whey poured off and it is soon ready for the chickens. They like it as well as the sour cheese. Cornmeal can be mixed with both kinds to balance the ration.—Portland Oregonian.

IMPROVING THE QUALITY OF EGGS.

An active campaign for the improvement of farm eggs in the Middle West was undertaken last summer by the bureau of animal industry of the United States department of agriculture. This work was preceded by a general survey of the field in the spring of 1908, which showed that an enormous loss was being sustained annually as the result of spoiled and deteriorated eggs. This loss results from the ignorance, carelessness or indifference of the farmer and from the dilatory and unsatisfactory methods of marketing in vogue. The actual money loss is suffered mainly by the farmer, while the loss in quality is borne by the consumer.

The campaign of the last summer had for its ultimate end the improvement of conditions surrounding the handling and marketing of eggs, and consequently the improvement of the quality of the egg itself as it reaches the consumer. Coincident with such improvement there will be a saving to the farmer of a great part of the money loss at present sustained.

The efforts have so far been directed mainly to education in better methods, co-operation with egg buyers and state authorities, and experimentation. Incidentally they have given the farmers help whenever possible in the practical management and breeding of poultry, and have urged the keeping of purebred poultry.

CANKER.

Canker in the throat may be caused by eating unwholesome or sour food. Such food will make canker sores in the mouths of chickens, as it will in the mouths of children and people. But there is another kind of canker that is very much worse; this is diphtheritic in character. It grows in patches, on top of the tongue, under the tongue, and on the sides of the throat, and gives off an offensive odor. This is dangerous, and spreads rapidly through a flock. It is usually caused by fowls being compelled to live or roost in a filthy place; damp floors, damp interiors, filthy material, etc., will bring on this disease.

If it is of simple character, the throat can be swabbed or washed out with a solution composed of three parts of warm water and one part of vinegar. Another solution is one ounce of chloride of potash in seven ounces of water. Five per cent of carbolic acid can be used in very bad cases. However, this is apt to burn or blister. Make a paddle of soft wood, small enough to insert in the mouth. Gently scrape and clean off all appearance of canker; do this without causing the blood to flow. After the canker is removed, wash the interior of the mouth with one of the solutions before mentioned. After washing, dry thoroughly and apply powdered burnt alum. This is made by placing a piece of crystal alum on a pan or shovel and setting it on a hot stove until the alum dries into a coarse powder; this can be mashed up very fine and sprinkled on the sore

More Inventions by Lee

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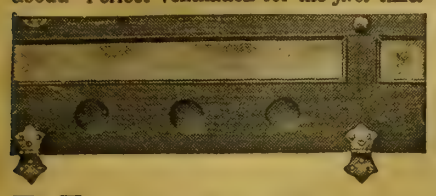

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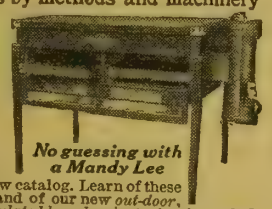

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places, or the sore placed touched or moistened with a few drops of peroxide of hydrogen.

If the canker is very bad and of a diphtheritic nature, it is better to kill all the fowls afflicted with it and burn their bodies. Clean up the premises thoroughly, disinfect with a solution of kerosene oil four parts, crude carbolic acid one part. This should be used as a spray. After the interior of the building has been thoroughly cleaned, spray this preparation into the cracks and crevices; paint the roosts with it and sprinkle or spray the inside of the nest boxes. Burn all the straw and other material of every kind that is in the building. Clean the floors and put clean, dry straw over them. Use Conkey's roup cure in the drinking water. Pour a tablespoonful of kerosene oil on top of the drinking water in which the roup cure is mixed.

If there are no muslin curtains in your poultry houses, take out a sash or two, put a muslin-covered frame in their places. All such diseases are avoided by perfect sanitation, dry floors, and fresh air.—Country Gentleman.

It has been calculated that a small, active fowl of between three and four pounds live weight, will consume between three and four ounces of food per day, and if the poultry-keeper has it all to find for her, a stone of food will last her 63 days, or 9 weeks, and if the cost per stone be 10d. or 11d., she will not be fed for less than a fraction over one penny per week, about 1¼d. if she be four pounds in weight. Should she weigh five and a half pounds, a calculation has been made that she would not be fed with less than four and a half ounces per diem. A stone would then last her seven weeks, bringing the cost to about three-halfpence per week. If she attained the weight of from 7 to 8 pounds live weight, she is supposed to be able to consume five and one-third ounces, which would make a stone last her exactly six weeks, and at top prices of a shilling a stone, the cost would be twopence per week. A big fowl will usually cost twopence a week, even if food is down in price a little. Something goes in waste, rats, mice, birds, etc.—Poultry Yard.

VALUE OF POULTRY MANURE.

Of all the manures, hen manure is the most valuable. It has twice the value of either cow or horse manure. This is due largely to the fact that it contains so much less moisture. Hen manure is especially rich in nitrogen, the element which the corn crop requires above all others. The nitrogen in hen manure is in a very readily available form. Hen manure is known as a hot manure, and should never be placed in contact with growing plants. It will not hurt the soil, however, in the slightest. We would not advise plowing hen manure under very deep. In fact, we would prefer shallow plowing or else harrowing it in on plowed ground. We do not know whether a manure spreader would spread hen manure successfully, but rather think it would not. It might be a good plan to mix the hen manure with cow or horse manure and apply them together with a manure spreader; or, the hen manure might be applied from the ordinary wagon by shovels.—Wallace's Farmer.

When a hen doesn't respond to good feeding and good care, it is a pretty good sign that she isn't "cut out" for profit in the poultry yard.

EGG-EATING HENS.

How many of our readers ever had trouble with hens eating their eggs? It certainly is a provoking habit with which the poultry raiser has to contend. During the summer time, when the hens are on the range and can supply themselves with the necessary variety of food, there is seldom any trouble with hens eating their eggs. It is in winter, when the fowls are closely shut up, perhaps with twice as many as the quarters ought to house, that idleness and a one-sided system of feeding will cause the habit to be learned.

Sometimes the habit is learned by the breaking of a fresh-laid egg on the house floor, but usually the hens crave a kind of food they do not get, and sitting around idly all day in the vicinity of the laying apartments, their curiosity and craving for food leads them to peck at everything in sight. When once the egg-shell is broken the whole flock rush to devour the contents.

To break the habit, feed the hens a proper amount of animal food—a meat ration. Beef-scrap is good. Green cut bone is excellent. Clover hay also supplies a variety of food elements which the hen needs. "Idleness is the mother of vice" applies as much to poultry as to anything else. It applies to the manager of the poultry as well as to the hens themselves. Then the best preventive measure for egg-eating is to supply the hens with the kind of food their bodies need and to keep them busy all the time. A laying hen should be as busy as a bee. She is usually busy in the summer time searching for insects, bugs, etc., shuffling in the cool dust under a dense bush, and searching for a secluded spot in which to deposit her egg. These conditions should be supplied as nearly as can be in the winter months.

Dark and secluded nests should always be provided. They should be raised above the level of the floor. The hen that wants to lay will delight to search for the place that suits her. The hens that do not lay will not bother a dark nest. Have the nests well filled with clean straw, so that the egg will not be broken when it is dropped.

Sometimes the habit of egg-eating becomes so firmly fixed on some hens that it is impossible to break them. They will forget to follow their practice during the summer time, but as soon as they are shut up at the approach of winter the habit recurs. A bad feature also is that these hens teach others the habit, and the whole flock practically are egg-eaters. The poultryman wonders why he gets so few eggs. The only way to kill the habit is to kill the hens that are the leaders. Such hens are sly and cunning and it will require a great deal of watching and deception to catch them in the act. These hens usually are not laying themselves, but watch the nests, and as soon as an egg is laid and an opportunity is offered they follow up their pernicious habit. No matter how valuable such hens are, send them to the butcher. Eating your eggs eats up the profit. Eggs are too expensive a food in winter to feed to grown-up hens.—Wisconsin Agriculturist.

The dust bath is one of the most necessary things that go to make up a fowl's life to rid it of lice. If the hens get the dust bath outdoors in the summer and it is good for them, then we must provide it indoors.—Denver Field and Farm.

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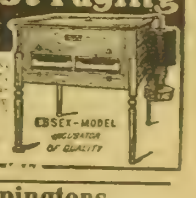

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THE WINTER LAYERS.

There are at least four things to consider about the question of winter production of eggs—the birds, the feeds, the places of shelter and the peculiarities of the weather.

The birds should be of what are known as the egg breeds, or at least be offspring of a flock of hens which are good layers. It is all the better if these parent hens are good winter layers. There may be nothing in the claim that there is an egg type of birds, but it is certainly true that the bird that looks like a good layer will usually lay more eggs in winter than the one that is of inferior appearance. Culls never make good winter layers, and if the bird looks like a cull she should be rejected. They should be matured at least by the first of November. For this purpose it is best to select the winter flock from those females which were hatched the latter part of March or in April.

As soon as possible the flock selected should be separated from the other birds and fed a ration which will encourage the development of eggs. The ration should be similar to that given the birds which are producing eggs. Feeds rich in protein should make up a large part of the ration. Lime and charcoal should be fed liberally.

The quarters should be considered, especially the place where the birds are to roost during the winter. One of the reasons the birds produce more eggs in the spring than in the winter is because the climatic conditions are more favorable. If eggs are to be received during the winter the quarters must be such that they will modify the extreme climate till it conforms nearly to that in the spring. This should not be interpreted to mean that the houses should be made air-tight, for the birds need plenty of fresh air. Fresh air is one of the principal essentials in the production of eggs in the spring. The house should be well ventilated and perfectly clean, but at the same time it should be warm and comfortable.

It is up-hill business to promote the production of eggs in the winter when the weather is damp and very changeable. Buildings can be constructed to modify the weather, raising the temperature many degrees, but to maintain a uniformity it is necessary that the weather be uniform in and outside the building. If the house is built to raise zero weather to the proper warmth in the interior, it will be too warm when the temperature takes a sudden rise of twenty to thirty degrees. As nearly as possible the would-be keeper of winter-laying hens should provide quarters which will admit of great variation of temperature on the outside; yet if he fails because of changeable weather he should not be discouraged.

PURE BREEDS ARE BEST.

Occasionally one comes across a farmer who believes that common scrub fowls are hardier and more profitable than the pure breeds, but the number is getting less every year.

It costs no more, after the first purchase, to keep a flock of improved fowls than it does to harbor dunghills or cross breeds. Either kind, when properly fed, will eat just about as much as the other. Or if there be any saving, it is so trifling as between one or the other kind that it is not worth noticing. If judiciously provided for and tended from the shell upward, as all fowls should be cared for, either of the larger breeds will make good eating poultry at the proper age, and the hens of any one kind will lay an abundance of eggs, take them as they average, throughout the year.—Kansas Farmer.

Irrigation and Forestry

PREPARING ALFALFA LAND FOR IRRIGATION.

By J. H. Squires, Agronomist, New Mexico Col. of Agri.

More crop failures on the irrigated lands may be traced to faulty leveling than to any other cause under the control of the farmer. Poorly leveled lands are expensive to irrigate, both with regard to the amount of water and the amount of labor required; and in addition, the plants in the different parts of the field are so unequally watered that unsatisfactory crops are the result. The machinery necessary for leveling on the small farm is simple and inexpensive, and should be kept in order that all spare time of men and teams can be used to the best advantage. On the small farm all that is necessary is a small Fresno scraper, a plow, and a plank drag.

In leveling, the first thing to do is to decide just how the land can be put into shape by moving the least amount of dirt. A good way to begin is to set stakes to represent borders, and see how they may be located in order to obtain the best results. It is not necessary that an entire field should be level, but only that the soil within a border be so; and each border may drop lower or rise higher than the one adjoining, without any serious inconvenience in either seeding or harvesting. Borders should not be spaced too wide. Forty-five to sixty feet will be a good width if the field is at all sloping; and it is not best to make them more than 100 feet apart, even when the land is level. Locate each border definitely, and mark it by throwing up a couple of furrows, or in any other way that is convenient. Then beginning the high end of the field, work out the first border, taking all excess dirt from the high places and spreading it where needed in the low places. In sandy soils the borders should not be more than 200 or 300 feet in length, but on clay soils no limit need be set for the length.

For the location of the borders, especially if they are long, it is almost necessary that a level be used. These may be purchased for about $18 to $20. Permanent borders should be built at the time of leveling. These should be just high enough to control the movement of water, and should be wide enough to prevent any danger of their being dragged down by machinery or washed down by the running water. A convenient and very satisfactory way to build such borders is to drag up the dirt with a scraper and deposit it along the lines of the border; where it should be smoothed into the desired shape. If the borders are built with a broad base and slowly sloping sides, crops can be grown along the sides and top without any difficulty. The base of such borders should not be less than eight to ten feet wide.

After all borders and the checks or cross borders, are complete, it is best to go over each section of the field and true up all slight inequalities that may have been missed in the first leveling. Here again the level is of great value, as it points out these errors much more closely than the best trained eye. If there is free and abundant supply of water, and the field will not need it for some time, it is well to give it a trial irrigation; making note of all the points that are either low or high, and correcting these as soon as the soil is dry.

One thing that must be borne in mind is that where any large amount of earth is hauled into a low place, the level of the land will be destroyed by this soil settling after the first few irrigations, unless allowance is made for this and a slight excess of soil is moved in. This is hard to estimate, and for this reason it is well that the field be not seeded to a permanent crop, like alfalfa, the first year after any decided leveling. The small grains are perhaps the best crops to try on newly leveled fields. They do not occupy the soil for a great length of time, and can stand an excess of water in any place that happens to be low, perhaps, better than a majority of the crops grown in this region. Then, too, the surface is left in an excellent condition for correcting slight inequalities in level that may yet remain. When these corrections are made, the soil should be ready to put in alfalfa or any other crop that will be on the land for years, with no fear of drowning out the lower levels. Great advantage in operation results from the use of well-built boxes and gates for the turn-outs and other control of water.

THE SUEZ CANAL.

Owing to interest in the Panama canal at this time, the following answer in an eastern paper to an inquirer as to the Suez Canal may be of interest:

"The present Suez canal was devised by M. Ferdinand de Lesseps, who in 1854 was granted by Said Pasha the exclusive right to construct such work. He organized a company for its construction in 1858, and was guaranteed the exclusive right of way for a period of ninety-nine years. It is an interesting fact that the present canal follows very nearly the course pursued by a canal that was constructed some thirteen years before the Christian era by Rameses II., or his father Sethos, commonly known as the Pharaohs. The length of the canal is about one hundred miles, of which seventy-five is actual canal, the remainder passing through lakes that in places require dredging in order to secure sufficient depth. The width at the surface is from sixty-five to one hundred and twenty yards, and at the bottom about twenty-four yards. The level of the two seas being about the same, no locks are required. Before the waters were united it was generally believed that the surface of the Red Sea was at a slightly higher elevation than that of the Mediterannean, although scientific tests proved that it was not so. The canal cost about $95,000,000, of which sum the shareholders furnished $64,000,000 and the Khedive of Egypt the remainder. Work upon the excavations was begun April 25, 1858. The canal was completed and opened November 16, 1869. The greatest depth of excavation was about 85 feet. The canal is open to vessels of all nations on equal terms. The dues are about $2.60 per ton, $2 for each passenger and pilotage fees. The canal is now the property of the French and English, the 177 shares in the stock formerly owned by the Khedive having been purchased by the British government for $20,000,000. The French company still controls the remainder of the stock, 223 shares."

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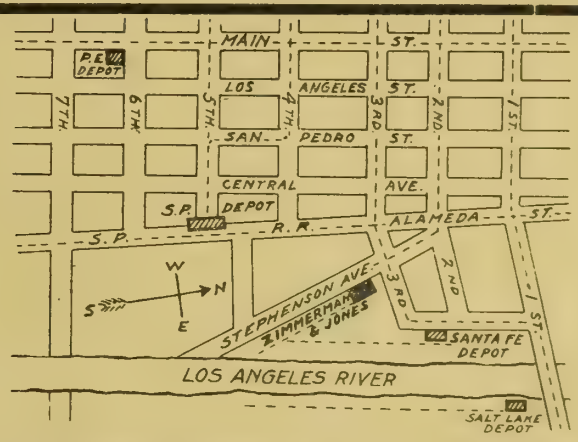

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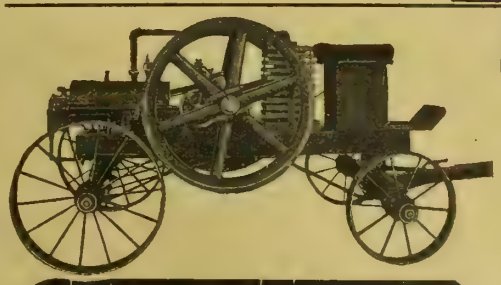

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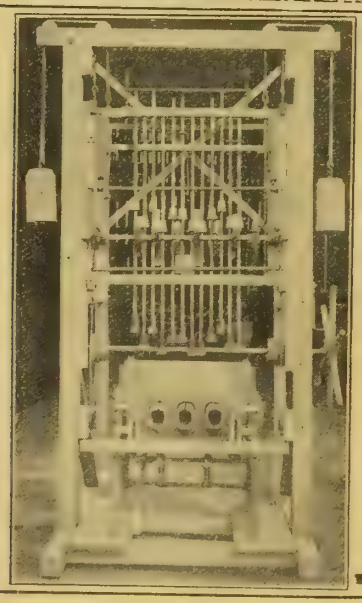

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Worms Attacking Beans.

I have five acres of Henderson's Bush Limas. Had an extremely heavy crop but a little white worm ate the greater portion, getting in its work while the beans were green. How can I prevent this another year? —Subscriber, Beeville, Texas.

This inquiry was referred to County Horticultural Commissioner E. O. Essig, of Ventura county, and he writes:

"In this district surrounding Santa Paula we have a similar condition as was referred to by your Texas subscriber. The worm is a small pink larva of a moth and bores into the pods and destroys the beans before they have an opportunity to ripen. The insect referred to in Texas is more likely the cotton boll worm, heliothis armiger, which also attacks the Bush Limas in the same manner, and which is common in Texas. Anyway, the methods of handling the insect would be practically the same, and as follows: By crop rotation and using "catch plants." In this county the Bush Lima is the only bean attacked, so the common Field Runner Lima would make a good rotation crop. Other crops may also be used to a great advantage in this way. The cotton boll worm is commonly handled by planting catch plants among the crops attacked which are preferred by the worms. Sweet corn is used for this purpose. The corn is planted in time to insure the formation of the ears before the pods of the beans are set. The moths in depositing their eggs favor the corn rather than the beans and by scattering the catch plants throughout the field much good may be accomplished in this way. In case the insect is the one referred to above it will be impossible to exterminate it unless the cotton fields and other hosts are kept free from it in the state. Your state entomologists at College Station, Texas, can give you the desired information regarding this pest in your own state.

Fencing Out Goats.

My neighbor has a bunch of goats that are in my orchard nearly every day. Am I compelled to build a fence in order to collect damages?—Subscriber.

Under the law in force for the last four years it is necessary for you to build a "substantial fence" in order to be able to collect any damages from trespassing stock. However, we assume this law will be wiped off the slate and the stock owner will have to keep his stock within bounds. At present you have only the estray law to act under and this stock may all be taken up and put in the pound or kept in your own barn at the expense of the owner. This may be done as often as the trespass occurs.

Fertilizers About Trees.

Is not too much horse manure buried around fruit trees and flowering shrubs injurious? Is a mixture of certain portions of several kinds not better, and how often and what time of year must it be applied?—Subscriber, San Diego.

Certainly, too much fertilizer is injurious, and one should be especially careful in not placing fresh, unrotted stable manure too close to stem or roots. A pile of freshly made stable manure thrown against the trunk of the tree may heat and destroy the bark, but if spread away from the tree and not worked in too close to the young roots, no great harm can be done. Above all, do not put stable manure in the fall around the root of young trees being planted. Some prefer to apply horse and cow manure mixed; others will apply these, and later, at time of cultivation, apply complete fertilizer. As the inquirer does not mention the kinds of plants or nature of soil, it is impossible to more than generalize.

Planting Orange Seed.

What is the proper time to plant seed for sour stock? What varieties of seed produce best sour stock for Washington Navel buds (or sweet stock)? What is the proper way to arrange seed in beds? How much space will a gallon of seed properly cover? Is it better to soak seed before planting? If so, how long?—Subscriber, Mesa, Arizona.

We refer our subscriber to article by Mr. Teague on citrus page of Cultivator of March 2nd, which gives full particulars regarding time and method of planting. Whether any seed is better than the sour depends somewhat upon the soil. If it is a fine, light, warm, sandy loam, either sweet or pomelo seed would probably be equal to the sour, but in heavy soil, where there is probability of continuous moisture at the roots, the sour stock has many advantages. Orange seed requires from 5,000 to 8,000 seed to the gallon, and 1,000 square feet will require about six gallons of seed. If the seed is kept moist from the time it is taken from the fruit until planted, soaking will add nothing.

Weevil in Beans.

How can I treat dried beans to keep weevil out? Wish them for eating.—Subscriber, Harper.

The only way to be sure of keeping weevil from beans is to put in cans or tight receptacle so the weevil cannot reach them. To destroy weevil now burrowing in beans, place in tight bin or receptacle, and on top of beans set dish containing carbon bisulphide. (One pound is sufficient for 100 bushels of beans.) If receptacle can be kept tightly closed for two or three days, so much the better. No light or heat must be brought near, as carbon bisulphide is very explosive.

Curl Leaf.

How often should peaches be sprayed for curl leaf? Hove sprayed once, but it has rained since.—Subscriber, Harper.

One spraying is usually sufficient, but if washed off soon after, another would add to the security. The later spraying is done before blossoming time, the better.

Winter Raspberries.

I note in the news columns of a former Cultivator that a Chico berry grower was marketing largely of winter raspberries. What variety of berry is this and where may plants be had?—Subscriber.

This is doubtless a case of treatment rather than of variety. The question was, however, referred to one of the best berry growers in the country and he writes:

"I have had no experience in growing winter raspberries, but several years ago a grower at Orange was sending raspberries to Los Angeles in considerable quantity in October and November and I was interested enough to make a trip to this man's place to

ascertain how it was done. I found him at home, but he had nothing to communicate on the subject of growing winter raspberries. Said it was a secret that he proposed to keep. He grew only the Cuthbert variety and on the way out of his grounds I interviewed a boy I found at work and learned it was their practice to cut off all blossoms in the early part of the season. I was there in the latter part of April and I noticed as the first observation when I entered the grounds that there was no sign of blossoms or fruit, and formed the opinion that it was simply a matter of treatment. That by preventing fruiting in the usual season they would easily come into fruiting at a later day, and after the talk with the boy, I felt positive my opinion was correct."

Sow Bugs.

Please give some means of destroying "pill" or sow bugs. They are hard on the back and roll up into a little ball when disturbed. They are destructive in gardens, and especially in adobe soil. Have tried different insect powders, but find tobacoc tea the most effective.—A. V. C., San Luis Obispo.

Sow bugs are usually found about soaked wood, but the sow bug cannot roll itself into a "ball," though it does curl up when disturbed. They are not usually found in sufficient numbers to cause any great damage, though in a very wet season they reproduce rapidly. We presume tobacco dust would be the best thing to use. It is impossible to reach them by poison.

Dry Her Off.

I have a Holstein-Jersey four years old giving milk for over a year. She will be fresh late in April. Am feeding middlings and other rich feed, and she is in alfalfa. Is now giving about six pints, but we cannot make butter of cream. As soon as churning is begun the cream foams up and will not make butter.—Subscriber, Lincoln.

Dry her off at once, as the small amount of milk she is giving indicates that she should be dry now.—M. E. S.

Grafting Wax.

Please give formula for grafting wax.—Subscriber.

On first page of Cultivator of February 16 will be found detailed directions by Mr. Roeding for making grafting wax; also in query columns of same issue is another formula.

Sowing Eucalyptus Seed.

What is the best time to sow eucalyptus seed?—Subscriber.

Blue gum seed should be planted in August or early September. This brings plants to the right size for setting out the following spring. The slower growing varieties may be planted somewhat earlier, as they do not reach a size that makes them difficult to handle by the next planting season.

Rose Scale.

What is best to kill scale on roses and when should it be applied?—B., Pasadena.

Kerosene emulsion is effective. Formula for making and using is given in full in Cultivator of November 3rd.

Topping Nursery Trees.

In setting out young trees or shrubs should they be topped?—Subscriber, Wyandotte.

The tops of plants which are being set out must be reduced to offset reduction in the root systems. It is impossible to take up any plant without destroying some of the finer roots, and as ordinarily taken up in nursery many are sacrificed. Besides, it is often better to severely top the tree. The usual proceeding is to make a clean cut of the ends of roots which have been bruised in taking up, then after planting, tamping dirt and irrigating, the top is cut to the desired height. For example, if it is a prune orchard, some orchardists prefer to top every tree to sixteen inches from the ground; others slightly higher. In shrubs it would depend upon the variety.

Sprays.

What is the best formula (spray) for exterminating insects, scale, etc., on lemon and orange trees and rose bushes and vines?—Subscriber, San Diego.

See Cultivator of November 3, containing formulas for all sprays, and turn to section under citrus fruits, which will describe particular insect troubles to be reached by certain sprays.

"Bats in the Belfry."

"Bats in your belfry" and "bees in your bonnet" are common phrases; but we have both bats and bees in the walls of our house, and would like very much if you, or some subscriber, can tell us how to get rid of them. The bats are in the gable, located between the shingles and building paper. The building paper is put on studding before the 1x4 strips are nailed to studding, then the entire attic is ceiled with half-inch boards between studding and rafters. This leaves a space between paper and shingles, where they have located, acquiring access through a small opening in the shingles. The bees are in the angle of an addition level with the second floor. A practical method by which we can get them cleaned out will be very much appreciated.—Subscriber.

Neither of these questions can be answered by the wisest without more circumstances given, and even then we venture the guess that the problems would be difficult to solve. We do not think that fumigation would be successful. If where fumes can be confined, the use of hydrocyanic acid, generated by mixing an ounce of cyanide of potassium, two ounces of sulphuric acid and three ounces of water for every 100 cubic feet of space to be filled, will kill anything that breathes, but presumably the bats and bees are so located that it would be hard to conduct the gas to them. If the attempt is made, it must be borne in mind that the fumes are also deadly to humans. The bee question is the more serious, and unless one can tear away the siding and secure the queen and all brood from which a new queen might be hatched, the bees will persist in coming back. Of course, if all openings could be stopped, that would soon finish the trouble, but that is usually impossible.

Red Spider on Peach Trees.

At what time and how should I treat peach trees which have been defoliated in past years by red spider?—Subscriber, Parlier.

We question whether this trouble has come from the red spider though from the information given it would be impossible to be sure on this point. If it is, spring dust spraying with sulphur mixed with hydrated or air-slaked lime, three parts of sulphur to one of lime, will prove effective. It is possible the trouble was caused by some of the fungous diseases which should have been reached by Bordeaux spraying during the dormant period of the tree.

Guinea Fowl.

Where can I secure male guinea fowl?—Subscriber.

This query with many others like it we pass on to our subscribers. There is continual call for guinea fowls and doubtless some one could make money by keeping them and advertising.

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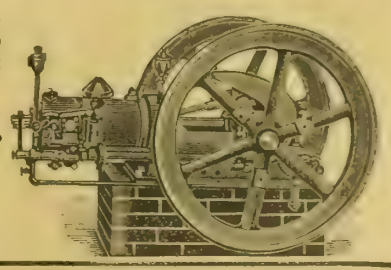

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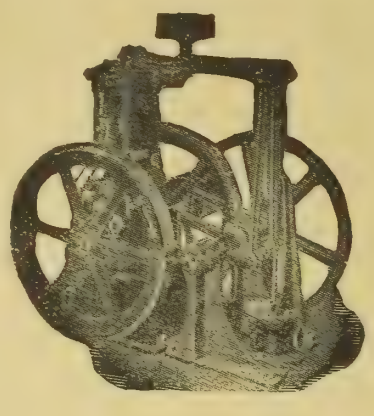

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By A. O. Gilbertson, Mason City, Iowa.

An Iowa farmer who has produced some wonderful records of profit by growing special crops, and who has shown by his methods of scientific farming that the possibilities of our soil are almost unlimited, was sent for by a delegation of bankers and manufacturers in one of our large cities, a few days ago, who were planning to form a company with large capital to put under cultivation a large tract of land. Their idea was to profit by this farmer's experience before investing their money, and they asked him a great many questions about intensive farming—and asked him why he thought it advisable to invest his money in the farming business. Here are the reasons this farmer gave, in his own words:

"There are two great facts staring the American people in the face today, first, the big, steady increase in the population of the country (an increase of more than sixteen millions of people in ten years), which necessarily increases the food demand, second, the limited farm area which produces this food.

"Did you ever stop to think how these two important facts affect the farming business? The big increase in population means a bigger demand for farm products; the limited farm area means that we simply must make our land produce more in order to supply enough of the food we farmers grow to meet this demand; this increasing big demand is bound to bring more men into this farming business, and this means smaller farms in time, for although it is true that the size of Iowa farms has increased during the last ten years, there is bound to be a decrease in the size of these farms, owing to the limited farming area and the increasing number of farmers to farm these lands.

"You ask me 'What is intensive farming?' To me, intensive farming means using thought and judgment in farming, rather than following custom and tradition, applying original ideas and ingenuity in our farm work instead of keeping in the same rut our forefathers traveled and using their ideas in the preparation of soil and growing the same line of farm products that was their custom years ago. By intensive and scientific farming I mean bringing up our soil to the highest state of fertility, and growing on this soil crops that there is a big demand for and a big profit in, thereby getting the most out of our soil—it isn't so much the number of acres a man has as it is what he gets out of each acre. If a man, by special preparation of his soil and by growing special crops or specializing, can make more money with forty acres of land than he can with eighty, or even one hundred and sixty acres, it is a good paying proposition to farm forty acres right instead of trying to farm a large tract of land.

"I will bring up at this time one special crop to bring out what quality means in crops to the man who is in the farming business, and also to show the profit there is in growing special crops. We started with one acre of onions more than a quarter of a century ago. This one acre has grown to forty acres, and we have never been able to supply the demand we have had for these onions. Our crop records for the last ten years show an average of 600 bushels per acre per year for these ten years, and the average price during this time was 64½ cents per bushel, making our average income for the last ten years for these forty acres more than $15,000 per year. I mention this to show the returns of intensive farming or specializing.

"Now I will show that points of high quality can be bred up or brought about by scientific selection and restriction, and what they mean in actual profits. When I started out, a good many years ago, to breed my special onion, I started with an ordinary flat Weatherfield, as globe onions at that time were almost unknown, and at the start I set up a certain standard to work for; first, long-keeping quality, so that this onion might be placed on the market after other onions were out of the way; second, size and increased yields, to make the venture profitable; third and fourth, a perfect globe and high color, to make the onion popular on the market; fifth, a small neck, to obviate the occurrence of decay caused by rains entering at this point; sixth, a mild, sweet flavor. In the selection of my seed stock or bulbs every year I always had these points in view, and selected my seed bulbs from year to year as near as possible so as to eventually bring about these conditions.

"Now we will take for instance the selection of the seed bulbs in producing a long-keeper. Of course I will take it for granted that you all know that onion seed is produced from the bulbs kept over one winter and set out the following spring. Instead of doing like the majority of seed growers in the North, freeze up my bulbs during the winter to keep them from sprouting, and setting out the frozen bulbs in the spring, I keep my bulbs in a warm cellar to bring out any tendency in these seed bulbs to sprout, and by rejecting every spring all bulbs that show any such tendency, and by carefully carrying out this practice from year to year, I have produced a strain of both red and yellow globe onions that I have on several occasions kept over one year, or, in other words, kept one season's crop until the next fall, when our next year's crop was matured, and by looking at the two different crops even an expert could not detect which crop had just been harvested and which crop had been kept over from the previous year.

"These other points of quality have been brought about in much the same way. This fall, when the price of ordinary onions was 90 cents per bushel, we were selling our onions at $1.25 per bushel, and are holding the biggest part of our crop to sell next spring, when we hope to get $2 per bushel. I have never had to accept the ordinary market price that is paid for ordinary onions, but always get a fancy price on account of these points of quality.

"I wouldn't advise any farmer to discontinue the farming of his present farm at once, and it isn't my idea to advise the farmer with the average sized farm to go into the truck gardening business, although there is money in it. My idea is to take a certain crop and specialize in it in connection with other farming. This crop wants to be something in the table product line and something there is the greatest demand for.

"Now, you gentlemen have asked me if I think it advisable to invest a large amount of money in the farming business. Your money is safer in the farming business than in any other business, but you want to put men in charge of this business that are experts in their line of work, because this is an age of experts, and this applies to farming as well as any other business, and the farmer of today is keeping in touch with modern methods by reading the up-to-date agricultural journals and all the literature he can possibly get on this important subject of farming."

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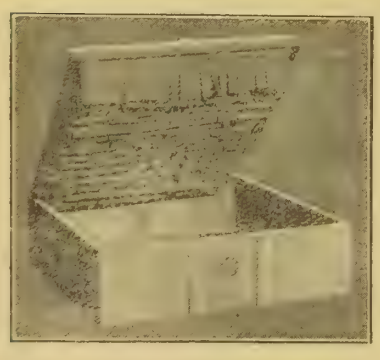

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Entomology and Bees

HOW I PRODUCE A CROP OF EXTRACTED HONEY.

By J. W. George, Imperial.

In order to make a crop of extracted honey, I begin operations at the close of the preceding season. The first step is to leave at the last extracting lots of honey to carry the colony over, and then some. About the first of December I again examine all colonies, by lifting, to see if by any possible mistake some had been left short on stores; any light ones I may find are provided with more stores, either by transferring combs from some that have a surplus or by feeding some of my own honey that came from my own bees, or sugar syrup, but it has been many years since I have fed any syrup. After having supplied all colonies with plenty of stores, my next move will be about the first of February, when I remove all supers and reduce them to one story. If there is more honey than can be put in the one story, then I leave as many of the second stories on as the exigency requires. After that step I go through all broodnests and mark my queens as to whether they are good, bad or indifferent. At the same time I rearrange the broodnest, by placing the brood next to the east side of the hive, leaving one frame of honey containing pollen next to the wall. My hives face north and south.

I hear some fellow say: "Why put the brood next to the east wall? It is better in the center." I thought so at one time, but listen: The sun comes up in the east, consequently will warm the brood earlier in the day on that side than in the middle or the west side of the hive, and, being warmed up earlier in the morning, your brood is affected more hours during the day by the above arrangement. Then, in the second place, by placing your brood on one side of your hive you conserve the heat generated in the nest, for the heat can radiate in only one direction from your bees, as the wall of the hive holds the heat in on one side. When my bees begin building up, I want them to go ahead as rapidly as possible.

The middle of February I again examine queens or brood, as it is by the brood we must judge our queens, and mark them again. I frequently find a queen that is marked poor at the first examination coming up at the second or third to a first-class showing. At the second examination of queens I make provisions for supplementing all of the queens that I am satisfied are poor, and quite often practice spreading brood. But let me say right here, in capitals, be very careful how you spread brood, for I have made very serious mistakes in this, and I have seen others do so, too. Now, I want you to keep this before your mind's eye, that I am simply stating "how I produce a crop of extracted honey."

One more examination of queens along the first part of March, and at this examination I eliminate all queens that are not "making good." By the first of April my colonies are boiling over with bees, combs are being whitened, and I proceed to put on my extracting supers. I use eight frames in my extracting supers. When I put my supers on I raise one or two combs from the broodnest that have new honey which is being stored, but no brood.

As soon as one-third to one-half of the honey in the hive is sealed over I begin to extract. I usually take every frame that has any honey in it out at the first extracting. I use a honey box that will hold the frames from three or four colonies at a time. My honey is wheeled in in a wheelbarrow. I use a hot honey knife for uncapping, and "George's" capping melter to melt the cappings. I use Root's automatic extractor, both the four and the six frame sizes, but I prefer the four frame size. I run my honey into a large tank, and let it remain there until I am ready to make another extracting. I extract not oftener than every two weeks. I use practically the ten-frame hive, with eight frames in the extracting super. Now, in conclusion, let me tell you what counts as much as anything with the production of a honey crop is to always be "on the job" personally.

The bee keepers convention in Los Angeles recently called out the largest attendance that organization has ever had.

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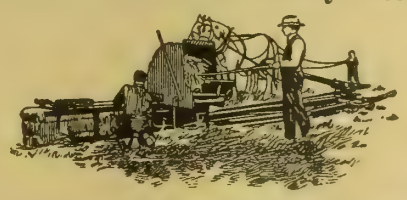

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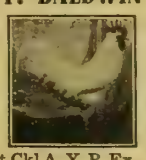

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Thousand Headed
KALE SEED

VALUABLE CHICKEN FEED

¼ lb ..... 25c post paid
1 lb ..... 75c post paid

Catalogue Mailed Free to Any Address.

California Seed Co.
151 Market St.
SAN FRANCISCO, CAL.

BEES HOW TO MAKE THEM PAY. The pleasures, the work and the profits of bee keeping are fully covered in "*Gleanings in Bee Culture*." 6 months trial subscription 25 cents. Write for book on Bees and free catalog—both free.
THE A. I. ROOT COMPANY, Box 49, Medina, Ohio

"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gangplow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

BOESCH LAMP COMPANY

ESTABLISHED 1869. INCORPORATED 1892.

1135 Mission Street San Francisco, Cal.

Crop Specialist Tells

How To Make Your Land Pay $500 TO 1200 Per Acre

That may sound like a story—but I am here to tell, to show and to prove that a profit of from $500 to $1,200 per acre is within the reach of every farmer or grower in the country. I have made this remarkable record on my farms for several years—other farmers who have adopted my methods are also succeeding—the same success is within your reach. The secret of this wonderful profit is scientific and intensive farming, special preparation of soil and the growing of special crops.

Write For My Two Free Books

Book No. 1 is my intensive farming book, not a catalog, published to sell for 50c; send and get it now free; tells of my experiments and experience for the last 32 years. It has taken 32 years to write and to complete it. If you will at least spend 32 minutes reading it it will prove to be the most profitable time you ever spent. This book explains my special method of soil preparation, how to rotate crops, how to make your land pay big profits as I have done by growing my Grandpa's Pride Globe Onions which have produced an average profit of $15,000 on 40 acres and other special crops.

Book No. 2 gives the history of the Alton Improved Red Raspberry which has produced an average profit of $1,200 per acre on account of its remarkable size, flavor, long fruiting season and vitality.

Write for my books today, they are free and will interest the man who is looking for big profits.

A. O. GILBERTSON, CROP SPECIALIST,
Box 615 Mason City, Iowa.

I Have Farmed For 32 Years

During this time I have experimented, my one aim was to produce special crops that would be out of the ordinary in quality and profit. One of the most successful experiments was with raspberries. Instead of growing the ordinary variety and taking an ordinary profit I propagated a special variety now known as the Alton Improved Red Raspberry that has stood the winters of Northern Minnesota, North and South Dakota and even as far north as Canada, without the least winter protection. The Berry is especially remarkable for its size and delicious flavor as well as for its long fruiting season, which on an average extends over a period of three months. If you only have a city lot or if you have a farm investigate this wonderful, large, delicious berry now.

This Pump

Will Interest the Irrigator

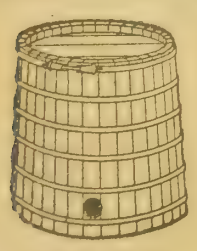
Pump has Water Sealed Gland, Enclosed Balanced Impellor. Will not cut out by sand. Can be placed in a smaller pit than any other pump. Our Bulletin, C12, tells all about it. The pump can be seen in operation at our places of business. We have a permanent branch house at

206 No. Los Angeles St., Los Angeles

Krogh New Type Vertical Water Balanced Pump

Krogh Mfg. Co.

149 Beale St. San Francisco, Cal.



Wine Tank

Tanks Tanks

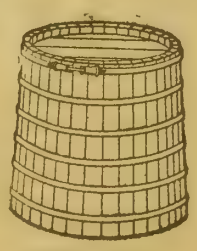
WINDELER'S PLANING MILL AND COOPERAGE

GEO. WINDELER, Prop.

Water Tanks, Wine Tanks made from carefully selected stock by careful and experienced workmen. "Tanks that are well made last a long time." It will pay you to get my prices before buying.

Geo. Windeler

144-154 Berry St. San Francisco, Cal.



Water Tank

Timely Ranch Suggestions

SEEDING SPRING ALFALFA.

The first thing to be considered in seeding either spring or winter alfalfa is the leveling of the land. Where the slope is such that the field may be laid off regularly it should be done in this way; but if the slope is irregular, it would be better to arrange the border so that each one is as nearly level as possible. Be sure that the land between the borders is level, and that the checks are at intervals frequent enough to insure holding a heavy irrigation on all parts of the field. For leveling, an ordinary farm level, costing $18.00 to $20.00, will be found to be very useful, and will save much trouble and expense in leveling large tracts of land and laying out ditches. Large borders are preferable, but should be shaped so that the harvesting machinery will pass over them easily and with as little jolt as possible. These may be built up on old sod by hauling in dirt, but it is much more economical to prepare them before seeding, by use of a Fresno or other scraper. The seed bed should be well fined, by the use of plow, harrow, and drag; and a clod crusher should be used if the soil is at all inclined to be lumpy.

There are two well accepted methods of seeding: in dry and in moist soil. When seeding in dry soil, the seed may be scattered with a breast seeder, wheelbarrow seeder, by hand, or with a grain drill. When seeding with a grain drill, care should be taken to avoid covering the seed too deeply. Set the depth to suit the alfalfa, and allow the wheat or other nurse crop to be seeded more shallow than if it were grown alone. The seed should not be covered an inch deep; ½ to ¾ inch being the proper depth. A very satisfactory method of seeding is with an ordinary force feed wheelbarrow seeder mounted on a sulky weeder. Such a machine will scatter the seed uniformly, and will cover them at the same time. Broadcasted seed should be covered lightly with a drag harrow, brush drag or other light instrument.

Seeding in moist soil may be done in the manner just described for seeding in dry soil, provided there is no danger of the surface soil drying out before the young plants are up; but the safer method will be to use a press drill.

Alfalfa may be seeded with or without a nurse crop. When such a crop is used, it should be wheat or barley, in preference to oats, as the latter has the disadvantage of drying out the soil very quickly. The rate of seeding the nurse crop should not exceed three pecks to the acre, and the crop should be harvested before maturity if the young alfalfa plants are showing signs of suffering.

The greatest danger to the young plants is at the time of the first irrigation after they are up. If the water is very muddy delay the irrigation, if there is any prospect of better water in the near future. Even with the best water, great care should be exercised on heavy land where the water is apt to stand in parts of the field for a day or more. Avoid, if possible, letting the water entirely cover the plants; and drain off any excess water from the lower ends of the borders in a very short time after the irrigation is completed.

As alfalfa is an expensive crop to seed, and is expected to occupy the soil for a number of years, the greatest care should be exercised to see that all the field conditions are as nearly perfect as possible; because faulty seeding is often the cause of poor stands and unprofitable crops. —J. H. Squires, Agronomist, New Mexico Col. of Ag.

WHAT TO DO WITH THE GRASSHOPPERS.

The present generation seems to have failed to make use of its opportunities. There is an important problem which we have not considered. This is man himself.

Grasshoppers as Food for Man.

John the Baptist ate grasshoppers and wild honey, and did mankind a service on the diet. We have known for a long time that grasshoppers have been and are eaten by many people in different parts of the world; but it is somewhat of a surpries to learn that this article of diet was used and advocated by an eminent entomologist in this country.

Mr. C. V. Riley, first government entomologist, and the founder of what is now the bureau of entomology in the United States department of agriculture, was entomologist in Missouri during the devastating raids of the Rocky Mountain locust that did so much damage in western Kansas and Nebraska nearly half a century ago. In his eighth report he tells his experiences and makes his recommendations.

He says: "It has long been a desire with me to test the value of this species as food, and I did not lose the opportunity to gratify that desire which the recent locust invasions into some of the Mississippi valley states afforded. I knew well enough that the attempt would produce ridicule and mirth, or even disgust, the vast majority of our people, unaccustomed to anything of the sort and associating with the word insect or 'bug' everything horrid and repulsive.

"Whenever occasion presented, I partook of locusts prepared in different ways, and one day ate no other kind of food, and must have consumed, in one way or another, the substance of several thousand half-grown locusts. Commencing the experiment with some misgivings, and fully expecting to have to overcome disagreeable flavor, I was soon most agreeably surprised to find that the insects were quite palatable in whatever way prepared. The flavor of the raw locust is most strong and disagreeable, but that of the cooked insect is agreeable and sufficiently mild to be easily neutralized by anything with which they may be mixed, and to admit of easy disguise, according to taste or fancy. But the great point I would make in their favor is that they need no elaborate preparation or seasoning, and that they really require no disguise; and herein lies their value in exceptional emergencies, for when people are driven to the point of starvation by these ravenous hosts, it follows that all other food is scarce or unattainable. A broth, made by boiling the unfledged Calopteni for two hours in the proper quantity of water, and seasoning with nothing but pepper and salt, is quite palatable and scarcely to be distinguished from beef broth, though it has a slight flavor

peculiar to it and not easy to be described. The addition of a little butter improves it, and the flavor can, of course, be modified with mint, sage and other spices ad libitum. Fried or roasted in nothing but their own oil, with the addition of a little salt, they are by no means unpleasant eating and have quite a nutty flavor. In fact, it is a flavor, like most peculiar and not unpleasant flavors, that one can soon learn to get fond of."

The objection that a fondness for this unusual article of food is due to an idiosyncrasy of the author is overcome by further evidence, for we read later: "I sent a bushel of the scalded insects to Mr. John Bonnet, one of the oldest and best known caterers in St. Louis, master of the mysteries of the cuisine; he made a soup which was really delicious, and was so pronounced by dozens of prominent St. Louisians who tried it."

Now let us be up and doing. It is plain that the philosopher is right when he says that the high cost of living is our own fault.—S. Arthur Johnson, Colorado Agri. College.

TREATMENT OF GRAIN SEED FOR SMUT.

By E. M. Freeman, Minnesota State Farm.

Not all smuts are alike. Corn smut is different from wheat smut and both are different from oat smut. Most of these smuts can be prevented by a simple seed treatment. Such smuts are among the most important. There is no excuse for such smuts on any farm in Minnesota. The simplest and cheapest method of seed treatment is the formalin method.

Smut Preventable.

The following smuts can be prevented by the formalin treatment described below: Wheat smut, (called also stinking smut and bunt, and the most common and worst smut in the state), oat smut, and the covered smuts of barley. Corn smut, the loose smut of wheat (blackheads), and the loose smut of barley, will not be prevented by this treatment. If you treat your barley with formalin you will not get rid of the loose smut. The best way to get rid of both barley smuts is to get seed from a field of last year that did not have any smut in it.

Treatment.

The following is the formalin method: Get good guaranteed formalin from a reliable druggist. The seed grain should first be very thoroughly cleaned. One pound (1 pint) of formalin should be poured into from 40 to 45 gallons of water, in a barrel. Then the grain, in gunny sacks or wire baskets, should be dipped into the solution, or the solution should be sprinkled upon the grain. Be sure that all of the grains are wet all over by the solution, as the object of the treatment is to kill all of the smut-dust on the outside of the grain. Everything which the grain touches should be very clean; sacks should be boiled; floors and shovels should be thoroughly washed with boiling water. If the grain is to be dipped, it may be put, about half a bushel at a time, into a coarse sack and plunged into the formalin solution. Now spread the treated grain on a floor or canvas which has been washed with boiling water; cover it for 12 to 24 hours, and then let it dry. Care should be taken not to allow the grain to freeze when wet, or to sprout.

Another.

The grain to be treated may, instead of being dipped, be spread out in a thin layer on a clean floor or canvas. Then, while one man rapidly shovels or rakes over the grain, another applies the formalin by means of a good sprinkling can, taking care to moisten every kernel. Cover 12 hours, as in the dipping treatment, and then dry.

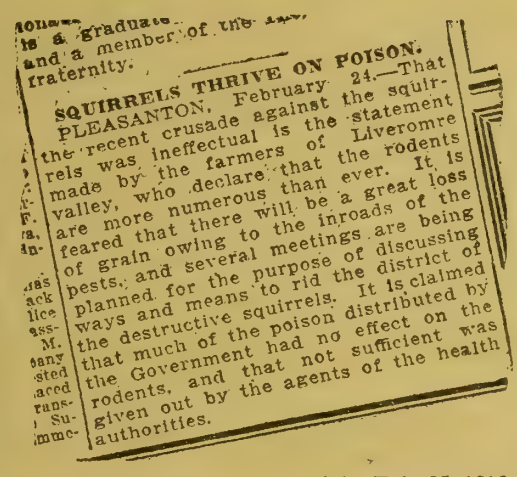
The grain may be sown at once, or may be kept for a month or more if thoroughly dried. Great care should always be taken not to let smut-dust get on it after treatment. Sacks, shovels and the seeder with which it is sown should all be carefully washed with strong formalin solution (1 pound to 10 gallons of water). If carefully done, this should prevent the occurrence of the three smuts mentioned.

STANDARDIZATION OF GRAINS.

The Dry Farming Congress has begun active investigation into the work that has thus far been accomplished along the line of standardizing Western grains. This is a subject which has not had as much attention as one might suppose. There is now a great demand for the establishment of standards that may be acceptable and helpful in maintaining better cropping results in the wheat-growing states.—Dry Farming Bulletin.

HALL'S SQUIRREL POISON

—READ THIS—



...and a member of the ... fraternity.

SQUIRRELS THRIVE ON POISON.

PLEASANTON, February 24.—That the recent crusade against the squirrels was ineffectual is the statement made by the farmers of Livermore valley, who declare that the rodents are more numerous than ever. It is feared that there will be a great loss of grain owing to the inroads of the pests, and several meetings are being planned for the purpose of discussing ways and means to rid the district of the destructive squirrels. It is claimed that much of the poison distributed by the Government had no effect on the rodents, and that not sufficient was given out by the agents of the health authorities.

Clipping from S. F. Chronicle, Feb. 25, 1910

IS NOT THE ORDINARY KIND

THIS IS A POISON PREPARED BY SPECIAL MACHINERY, WITH A HARD, SWEET COATING, SINGULARLY ATTRACTIVE TO THE ANIMAL, AND IS

A Remarkably Efficient Exterminator

SOLD AND USED SUCCESSFULLY FOR 20 YEARS.
IT IS NO EXPERIMENT
THE MOST ECONOMICAL TO USE, BECAUSE THE MOST CERTAIN

TIME SAVED LABOR SAVED MONEY SAVED

Don't Waste Time and Money by Trying New Exterminators.

HALL'S INSURES RESULTS

Sold by Druggists and General Merchandise Stores.

DISTRIBUTORS:

Langley & Michaels Company

SAN FRANCISCO

REPORT OF THE CONDITION OF

The First National Bank of Los Angeles

AT CLOSE OF BUSINESS MARCH 7, 1911

RESOURCES:

Loans and Discounts		$11,988,452.69
Overdrafts, Secured and Unsecured		24,857.23
U. S. Bonds to Secure Circulation		1,250,000.00
Bonds to Secure U. S. Deposits		305,000.00
U. S. Bonds on Hand		5,000.00
Bonds, Securities, etc. (bonds only)		962,325.00
Due from National Banks, (not reserve agents)	$ 2,033,491.19	
Due from State Banks and Bankers	250,022.54	
Due from Approved Reserve Agents	1,021,840.33	
Checks and Other Cash Items	142,960.72	
Exchange for Clearing House	424,833.94	
Notes of Other National Banks	63,930.00	
Fractional Paper Currency, Nickels and Cents	6,468.04	
Lawful money reserve in bank, viz.:		
Specie $1,978,486.00		
Legal-tender Notes 689,400.00	2,667,886.00	
Cash and Sight Exchange, . .		**$6,611,432.76**
Redemption Fund with U. S. Treasurer		62,500.00
Customers' Liability Under Letters of Credit		83,225.85
TOTAL, ...		**$21,292,793.53**

LIABILITIES:

Capital Stock Paid in		$ 1,500,000.00
Surplus Fund		300,000.00
Undivided Profits, Less Expenses and Taxes Paid		2,006,600.17
National Bank Notes Outstanding		1,150,000.00
Due to Other National Banks	$ 1,858,063.78	
Due to State Banks and Bankers	1,388,192.83	
Due to Trust and Savings Banks	1,330,990.27	
Dividends Unpaid	1,895.00	
Individual Deposits Subject to Check	10,367,692.37	
Demand Certificates of Deposit	524,341.39	
Certified Checks	60,934.41	
Cashier's Checks Outstanding	406,967.99	
U. S. Deposits	300,988.47	
Letters of Credit	86,386.85	
Total Deposits, ...		**$16,326,453.36**
Reserved for Taxes		9,740.00
TOTAL, ...		**$21,292,793.53**

STATE OF CALIFORNIA,
County of Los Angeles—ss.

I, W. T. S. Hammond, Cashier of the above named bank, do solemnly swear that the above statement is true to the best of my knowledge and belief. W. T. S. HAMMOND, Cashier.

Subscribed and sworn before me this 9th day of March, 1911.

Correct—Attest: W. N. HAMAKER, Notary Public.

J. M. ELLIOTT, W. C. PATTERSON, JNO. P. BURKE, JOHN S. CRAVENS, J. C. DRAKE and M. H. FLINT, Directors.

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Extra fine draft stallion. He combines the world's two greatest draft breeds. Sire is an Imported English Shire, weighing 2100 pounds, one of the best of this great breed on the Pacific Coast. Dam is a very fine, pure bred Percheron. This colt will be 3 years old in May, weighs 1750 pounds now, in ordinary condition. He will weigh 2100 or 2200 pounds at maturity. He has good, heavy bone, splendid conformation, excellent color, style and action, and is a horse that will please the most critical. Price very reasonable. Write for particulars. Geo. A. Smith, Corcoran, Cal.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

Polled Jerseys—Breeders names of Chas. S. Hatfield, Secy., Springfield, Ohio.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L448 Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Wanted—Sour and Trifoliate orange, apple, pear, cherry and plum seedlings. Elk Grove Nursery, Elk Grove, Cal.

Wanted—Good, young,- solid color, regis tered Jersey bull. Good record. D. W. Ellis, R. D. 6, Santa Ana, Cal.

Wanted—One thousand seedling orange trees from three-fourths to one inch in diameter, sour stock preferred. John S. Adams, R. R. 2, Box 20, Pomona, Cal.

MACHINERY.

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits complete or separate. Also wagons, buggies, harness, plows, scrapers, mowers, rakes, header, baler, road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

15 Windmill Outfits,
8, 10 and 12 foot sizes with tanks and pumps complete, or separate.
Several Gasoline Pumping Plants.
Tanks, Tanks, Tanks.
from 50 gallons to 50,000. Have special prices on two 30,000 and one 50,000 gallon.
Complete Brick Yard
including all modern machinery for 50,000 daily capacity, including one 100 H. P. Boiler, brand new, also one 60 H. P. boiler, and 50 H. P. engine, 50,000 new brick $3000 plant complete or separate. This material must be closed out immediately at sacrifice prices, as the S. P has purchased the grounds and material must be moved. Why buy new material when we save you half and guarantee all material. Get other's prices, see us last. Call at office of Demmitt Company, upstairs, 120 N. Main, Los Angeles.

Agricultural Implements—Vehicles.
Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

For Sale—One No. 3 Ames pump, 8 in. cylinder, $250; one Fairbanks-Morse 22 H.P. engine, $450. Also for a short time only I offer a 45 H.P. White & Middleton engine, air starter, for $700. 1½ miles north of Olive, ¾ mile south of Richfield. I. H. Gulick, Olive, Cal.

For Sale—Complete pumping plant consisting of Ames No. 2 seven-inch cylinder head; 180 feet of rods, 180 feet eight-inch O. D. casing, 12 H.P. Daniel Best engine; all in good condition. Will lift from 12 to 15 inches water. Price $350. P. C. Bashore, Covina, Cal.

For Sale—25 H. P. Fairbanks-Morse engine, has been used but short time. Will guarantee like new. Baillie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—9 H. P. portable gas engine on heavy running gear. Guarantee for one year goes with it. Machinery Exchange, Main & Bruno Sts., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

FARM LANDS FOR SALE.

For Sale—By owner, good farm land, $50 per acre, in Merced County, 9 miles from Merced and ½ mile from station on S. P. and 4 miles from La Grande on Santa Fe. This land is a rich, sediment soil, situated in the Artesian Belt and an abundance of water is thus assured. Is level and all under cultivation. No alkali, and is suitable for figs, corn, alfalfa, beans, and all farm crops. Will subdivide in lots from 40 to 1000 acres. This land is very cheap at the price. In fact, it is only one-half the price of other land in same locality. For further particulars, call or address Paxton, 612 Lankershim Bldg., Los Angeles.

Perris Valley—Quarter section of 154 acres fine level alfalfa or sugar beet land; station and side track on land, near new sugar factory. All in grain with sure prospect of good crop which goes with the land. $100 per acre, part cash. Another quarter, 160 acres, near Riverside, slightly rolling; grain, orange or eucalyptus proposition; $75 per acre, very easy terms. Address owner, Chas. S. McMillan, 300 S. Marengo Ave., Alhambra, Cal.

For Sale—In Dinuba, Tulare County, California, 20 acres, 2 miles from town in splendid location on main road to Reedley. 12 acres in Thompson seedless grapes, which come into bearing next year; 8 acres unimproved. Will sell this piece cheaper than any of the surrounding property in order to make a quick sale. Price $225 per acre. Write to Sibley & McCormick or Barrett & Green, or D. H. Kash, Dinuba, Cal., about this property, which is lot 36, Producers' Colony.

For Sale—$125 per acre, 160-acre ranch in Owens River Valley, 2 miles from county seat. 12 acres Stayman Winesap apples, 50 acres alfalfa, 60 acres farming, balance pasture. Entire ranch soil suitable for apples and pears or farming and alfalfa. 100 inches water continuous flow, non-assessable. Would consider one-half exchange in Southern California. Address Owner, Box 52, Independence, Cal.

24 Acres in the Famous "Orland Project," 18 acres alfalfa, 6 acres bearing oranges; all irrigated by the U. S. Government; Orland's best soil; small residence, barn, dairyhouse, etc.; right in town, and will double in value in a short time; worth $12,000 now if cut into city lots. Will sell for $8,000 for a short time. Address owner, J. Vance Wilt, Box 71, Orland, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Rent—475 acres, or any part thereof exceeding 100 acres, in the GREAT YAQUI VALLEY, Sonora, Mexico. You can get two full crops a year off this land and it is worth a profit of not less than $50.00 an acre per year. Tenant can have this land on 3-year lease at a very small crop rental. Address Box "O," Cal. Cultivator.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Imperial Valley Fruit Ranch to Let—160 acres in early table grapes, apricots, alfalfa and cotton; 2 miles from county seat. Tenant must have experience, and $3000 capital to furnish labor. Address Horticultural Dept., Box 2, El Centro, Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

I will exchange 13-room house and lot in the railroad town of Sparks for country property. Write for particulars to Mrs. R. Cook, Sparks, Nevada.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

For Sale—Two small farms, or both as one. Plentiful water supply. Good house and barn on one. Part in alfalfa. Ideal for poultry raising. Address owners for particulars. Leonard Coates Nursery Co., Morganhill, Cal.

Farms Wanted—Don't pay commissions. We find you direct buyer. Write, describing property, naming lowest price. We help buyers locate desirable properties free. American Investment Association, 12 Palace, Minneapolis, Minn.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns—8,000 Boston and Piersoni, 3, 5 and 6 in. stock. Also runners. Write for prices. California Fern Nursery, R. D. 1, Box 188, Los Angeles. Phone East 2541.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

White Wyandotte Eggs for Sale—From good strong, large, vigorous stock. My birds are pure white and typical Wyandotte shape. Price per setting of 15, $2.00; per 100, $9.00. All eggs carefully packed for shipment. M. B. Patton, 1124 Brent Ave., So. Pasadena, Cal.

Eggs from our famous winter laying strains of trap-nested bred to lay Rose and Single Comb Rhode Island Reds. $1.50 per 15, $6.00 per 100. A. L. Harmon, Glen View Poultry Yards, Pasadena, Cal.

Thoroughbred White Rock, Rhode Island Red, Buff Orpington eggs, $1.50 per 15, $6.00 per 100. White Leghorn eggs, $1.00. Thoroughbred Bronze Turkey eggs, 20c each. Orders taken for baby chicks. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

White Leghorns of quality from stock Hoganized by Walter Hogan, 200 egg strain. Hatching eggs, $4.50 per hundred, $1.00 for 15; baby chicks, $11 per hundred. Immediate delivery. Inglewood Egg Ranch, A. F. Monroe, Prop., Inglewood, Cal.

Buff Orpington Eggs for hatching from prize-winning stock, $1.50 a setting. Also White Leghorns (Howard) and Pekin duck eggs, $1.00. Miss Fletcher, Banning, Cal.

For Sale—Black Minorca eggs for hatching from extra choice stock. R. G. Page, 1227 West 10th St., Los Angeles, Cal. Phone Bdwy. 5594.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

Ancona Eggs for Hatching—Extra good stock. Eggs, $2.50 and $2.00 per setting of 15. Also White Mammoth Pekin Duck eggs $1.00 for eleven. C. S. Norton, Corning, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Eggs for Hatching—$1.00 per 15; $5.00 per 100. Barred Plymouth Rocks, R. I. Reds, Buff Orpingtons. Stamped envelope or cash with order. L. W. Neilsen, R. R. 2, Box A1, Petaluma, Cal.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Thoroughbred Light Brahma eggs for hatching, $2.00 per 15. L. C. Oakland, Chula Vista, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

CHICKENS FOR SALE.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

For Sale—Some A1 Silver Penciled Wyandotte cockerels, from blue ribbon winners. Some fine ones at $2.50 and $3.00. Higher priced birds a matter of correspondence. Eggs $1.25 per 13, $8.00 per 100. My stock are the winners of four first prizes, three second prizes and one third prize at the 1911 Los Angeles Show. W. C. Pagenkopp, Sherman, Cal.

S. C. White Leghorn Eggs—Eggs for hatching from stock bred for beauty and duty. All our birds are especially bred for heavy egg production as well as fancy qualities. Every egg is especially selected for hatching. Prices very reasonable. Place your orders now for future delivery. Geo. A. Smith, Corcoran, Cal.

S. C. Rhode Island Reds, young hens at $1.00 each. Chicks 15c each. Eggs $1.50 per 15, $6.00 per 100. L. Haynes, Madera, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Barred Plymouth Rocks hatched to order at $12 per 100. P. L. Simpson, Orland, Cal.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

Baby Chicks—Order now from R. I. Reds (Thompkins strain). S. C. Black Minorcas (Northrup strain). White Minorcas, Buff and White Leghorns. Eggs for hatching. C. U. Chamberlin, Los Gatos, Cal.

White Orpingtons—High grade stock. Heavy layers. Eggs $5.00 per 15; $25.00 per 100. Day-old chicks 75c each. H. E. Dickinson, R. D. 1, Napa, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

R. I. Reds—Phenomenal strain. See display ad, this issue, poultry department. The Luedkes, Anaheim, Cal., R. D. 1.

Greenleaf "Reds"—Single comb cockerels, and eggs for sale. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Pit Games, seven leading strains. Dead game stock and eggs. R. H. Crane, Jr., Santa Rosa, Cal.

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

DUCKS

Indian Runner, Muscovy and Buff Orpington Ducks.—Stock and Eggs. Rabbits and Guinea Pigs. Book on rabbits. Price list free. Caldwell & Co., R. D. 3, Los Angeles, Cal.

"The Indian Runner Duck Book." All about this wonderful breed. Public 200 egg record (without meat). Stiff paper, 200 pages, numerous illustrations. Price 75c, postpaid. Caldwell & Co., R. D. 3, Los Angeles, Cal.

Fine Mammoth Pekin Ducks for Sale—10 months old, $5 per trio, $2 per single bird. Buff Orpingtons, $6 per trio. Mrs. B. de Groot, Aptos, Cal.

NURSERY STOCK.

For Sale—Fine plants Asparagus Plumosus, two years old, $40 per 1,000. Also Springeri sane agi, $20 per 1,000. L. J. Goodman, R. F. D. 1, Box 22, Los Angeles, Cal.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

Nursery with 80,000 trees from one to four years old. Plenty water, land all piped. Big reservoirs on place. Place about 1500 feet from railroad station. There are twenty acres of land and good buildings on it. For sale right away. Price $20,000. Apply for address in the office of the Cultivator, Box R.

Nursery Stock—A full line of nursery stock at the right prices, more especially ornamental trees, Bottle, Italian cypress, Texas Umbrella and Camphor. We have a lot of Placentia Perfection walnuts, 5 to 10 ft., at a price you will pay if you want them. Write or phone us. Orange County Nursery, Santa Ana, Cal. Phone Blk. 5131.

Planters and Nurserymen, attention! Fine, thrifty fruit trees, our own home grown peach, plum and apricot. Prices right. Call and see them at 733 South Spring, or write C. A. Douglas, 912 East 46th St., Los Angeles, Cal.

Sweet Seed Bed Stock for Sale—I have about 4,000, 2-year-old, extra fine, hardy, grown in the open sweet seedbed stock, most of it big enough to bud. This has been grown in Imperial Valley and is healthy and clean and is a bargain. Apply to Francis Heiny, Brawley, Cal., Imperial Co., Box 326. Also have several thousands grape cuttings of vines of Persian and best varieties suitable to Imperial Valley conditions.

For Quick Sale—The finest lot of oranges, Washington Navels and Valencias; also Eureka Lemon Trees, ⅝ and up, ever grown in Southern California, at low prices in large lots; also 500 small Acacias at 8c; 500 Phoenix Palms at 15c; 500 Strawberry Guavas at 8c and 500 Eucalyptus Robusta and Rostrata out of 4-in. pots at 7c. All No. 1 stock. Act quick, enclosing check if you want these snaps. Address H. L. Bauer & Son, 737 So. Spring St., Los Angeles, Cal.

NURSERY STOCK.

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—First-class navel and Valencia orange trees. Jas. E. Alexander, Santa Ana, Cal.

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

TREES.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

For Sale—Eucalyptus Diversicolor, 25c, in gallon cans; Eucalyptus Polyanthema, 25c, in gallon cans; Eucalyptus Robusta, in gallon cans, 6 feet, 20c; Eucalyptus Rostrata, in quarts, 1½ to 3 feet, 5c; Eucalyptus Rudis, quarts and 3-inch pots, 1 to 3 feet, 5c; Eucalyptus Viminalis, gallon cans, 4 feet, 15c. Ballou's Nursery, Pasadena, Cal.

For March Delivery—First-class peach trees at 10c each; first-class apricot trees 15c each; first-class almond trees at 13c each; first-class prune trees at 13c each; first-class plum trees at 13c each. Sour orange seedbed stock at $12.00 per thousand. We pay freight on all orders of $10.00 or over. Address S. E. Courtney, Rose Lawn, Hanford, Cal.

Special prices on Tilton apricot, apples, Salway peaches, Satsuma plums, lemons, Navel and Valencia oranges, seedling walnuts. Grafted walnuts on own and black root. Anything in nursery line. Get my prices. A. R. Marshall's Nurseries, Cor. 3rd and Bush Sts., Santa Ana, Cal. Box 64.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eucalyptus Rostrata (Red Gum) in cans—3 to 5 feet, $1.00 dozen, $7.50 hundred, $60 thousand. Wippert Nurseries, Hemet, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

EGGS

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

Eggs from Select Trapnested Stock—No culls. Black Minorcas, Northrup strain; White Wyandottes, great winter layers; Barred and White Rocks; Buff Orpingtons; Rhode Island Reds; all $2.50 per 36 eggs, $6.00 per 100. White Minorcas, beauties, fine layers of the largest white eggs, $3.00 per 36, $7.00 per 100. White and Brown Leghorns, heavy laying strains, $2.25 per 36, $4.50 per 100. Enclose stamp for reply. W. D. Rose, R. D. 6, Santa Ana, Cal.

For Sale—Eggs from genuine White Indian Runner Ducks, $3.00 per 15, $6.00 per 50, $10 per 100. Fawn Indian Runner ducks and Howard strain White Leghorn eggs $1.00 per 15, $3 per 50 and $5 per 100. Dustins White Wyandottes, $1.50 per 15; fertility guaranteed. J. C. Carlisle, R. D. 4, Box 249, Los Angeles, Cal.

For Sale—White Muscovy, Indian Runner and Pekin duck eggs. Also fine Buff Orpington and White Leghorn eggs. Eggs $1.00 per setting. Mrs. Ungerland, Route 2, Box 300, Los Angeles. Phone Boyle 8080.

Lemon trees wanted in exchange for an automobile. Will accept scrub trees and give a good deal. Address H. H. M., 1154 East 23rd St., Los Angeles, Cal.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

TURKEYS.

Turkey Eggs for Sale—$2.50 per 13. From thrifty, vigorous stock. Order now for April delivery. Mrs. J. L. Jones, Cleveland, Merced Co., Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

$2.00 for 12 Mammoth Bronze Turkey eggs, $16.00 per 100. We can fill any order any day. Order now. Pioneer Hatchery Co., 108-118 E. 8th St., Los Angeles, Cal.

For Sale—Have three young Bronze Turkey Toms left, all grand birds. Your flock will be greatly improved by securing one. Mrs. A. C. Wisegarver, San Fernando, Cal.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S WHITE FOWL FARM, Moorpark, Cal

FREE TO CABBAGE GROWERS. A New and Sure Remedy for Green Worms to all who send 10 cents for a trial pkg. new "Early Snowball" Cabbage. TILLINGHAST THE SEEDSMAN, Scranton, Pa.

MISCELLANEOUS

45c brings you freedom from mites and other vermin, and consequent profits and peace of mind. Send right now to John S. Siebert, Box 835, San Diego, Cal., for full illustrated directions to make Siebert's Sanitary Roost and Dropping Board (No stamps).

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

Trees—Grafted Franquette, San Jose Mayette Walnut, 8 varieties Grafted Mammoth paper-shell pecans, assorted plums, quince, and general nursery stock at bargain prices. Tribble Bros., Elk Grove, Cal.

For Sale—Pure White Fan-Tail Pigeons, $1.50 per pair. F. o. b. express office. Bert L. Nunnaley, Yuma, Ariz., R. D.

Business

STOP IT QUICK.

Pattiway, Cal., Mch. 4, '11.

Cultivator Co.,
Dear Sirs:

Please stop my ad in a hurry and send me bill. I've received enough inquiries in one mail through my ad in your paper to sell this whole country. Your paper is surely IT when it comes to getting results. I may send you another ad soon.

Yours respectfully,
Wm. T. Mantz.

USE CONCRETE.

With the development of the farming industry upon a strictly commercial basis has come the use of concrete to a greater extent than ever before. It is at once firm, durable and sanitary to an extent equaled only by solid stone. But the expense is very much less. You can build your own blocks, make your own posts and construct irrigation pipe at very low cost.

Mr. T. A. McMurtrie, who has recently enlarged his place and moved into new quarters at 1085 Forty-fifth street, Oakland, manufactures machinery with which these various shapes in all sizes can be made with but little trouble and small expense.

You would do well to write Mr. McMurtrie for his catalogue. It gives illustrations covering his complete line, together with prices and descriptions. It is highly interesting and instructive.

BALDWIN'S WHITES.

Frank E. Baldwin of 38 Washington Avenue, San Jose, surely has a long string of blue ribbons for his magnificent strain of White Leghorns. His birds have won these ribbons, not only all over California, but at the A-Y-P Exposition and other out-of-the-state shows. Mr. Baldwin is not only breeding for blue ribbons; but for blue ribbon producers, and he is winning in his effort. His yards are located in The Willows, a sandy loam section of the Santa Clara Valley near the city of San Jose.

Factories for making sugar from beets have been established in 17 states, distributed generally throughout the West. The states having more than one factory are: California, 10; Colorado, 16; Idaho, 3; Michigan, 16; Utah, 5; Wilconsin, 4. Those having one factory are: Arizona, Illinois, Iowa, Kansas, Minnesota, Montana, Nebraska, New York, Ohio, Oregon and Washington. The combined area planted to beets is given at 420,262 acres. The factories utilized 4,081,382 tons of beets last year and produced 1,024,938,000 pounds of sugar. Sugar in the beets ranged from 14.24 per cent in Idaho to 17.61 in California and for the entire country gave an average of 16.10 per cent.

THE BIRD "THAT TAKES THE CAKE."

The American Eagle's a noble bird,
The American Turkey is great,
The American Goose is the "pick o' the flock,"
The American Duck's up-to-date.
The American Quail when served on toast
Is a bird that's not bad to take,
But the American Hen, with her cheerful lay,
Is the Bird that "Takes the Cake."

General Household Notes

"THE MAN WITH THE HOE."

Edwin Markham.

"God made man in His own image, in the image of God made he him."—Genesis.

Bowed by the weight of centuries he leans
Upon his hoe and gazes on the ground.
The emptiness of ages in his face,
And on his back the burden of the world.
Who made him dead to rapture and despair,
A thing that grieves not and that never hopes,
Stolid and stunned, a brother to the ox?
Who loosened and let down this brutal jaw?
Whose was the hand that slanted back this brow?
Whose breath blew out the light within this brain?

Is this the thing the Lord God made and gave
To have dominion over sea and land;
To trace the stars and search the heavens for power;
To feel the passion of eternity?
Is this the dream He dreamed who shaped the suns
And pillared the blue firmament with light?
Down all the stretch of hell to its last gulf
There is no shape more terrible than this—
More tongued with censure of the world's blind greed—
More filled with signs and portents for the soul—
More fraught with menace to the universe.

What gulfs between him and the seraphim!
Slave of the wheel of labor, what to him
Are Plato and the swing of Pleiades?
What the long reaches and the peaks of song,
The rift of dawn, the reddening of the rose?
Through this dread shape the suffering ages look;
Time's tragedy is in that aching stoop;
Through this dread shape humanity, betrayed,
Plundered, profaned and disinherited,
Cries protest to the Judges of the World—
A protest that is also prophecy.

O masters, lords and rulers in all lands!
Is this the handiwork you give to God,
This monstrous thing distorted and soul quenched?
How will you ever straighten up this shape;
Touch it again with immortality;
Give back the upward looking and the light:
Rebuild in it the music and the dream;
Make right the immemorial infamies.
Perfidious wrongs, immedicable woes?

O masters, lords and rulers in all lands!
How will the future reckon with this man?
How answer his brute question in that hour
When whirlwinds of rebellion shake the world?
How will it be with kingdoms and with kings—
With those who shaped him to the thing he is—
When this dumb terror shall reply to God
After the silence of the centuries?

FOWL MARYLAND STYLE.

Cut up a well dressed fowl in the usual manner, and place in cold water for a half hour or longer to whiten. Drain off the water, and, after putting in a kettle, add just enough water to steam until tender. Fry out the fat from a few slices of salt pork, dredge the pieces of fowl with flour, salt and pepper, and fry quickly until nicely browned in the hot fat. Pour a cup of thin cream over the contents of the frying pan, season with salt and pepper, and serve on a deep platter.

PAULINE'S TIGER.

She was a dear little slip of a girl, with hair that was almost golden, but not quite, and eyes so brown; but I must say she did have freckles, and her nose was just a wee bit inclined to be snub.

She lived in a little white house, in a pretty little town of just the right size for children to be happy in, I think; for there were broad, shady trees, where runaway horses were scarce, and motor cars were unknown in those days; for my story goes back some twenty years or more.

Pauline (I was so busy telling you in what a delightful place she lived that I really forgot that you did not know her name as well as I do)—well, Pauline went to school in a big, white, wooden school building, with a big, square bell tower on the top of it. Every day when the first bell clanged out, away ran Pauline, her book and slate under her arm. She loved flowers, and always carried the first lilac blossoms and the last glorious maple leaves in the fall to her teacher.

It was her second year at school. Now there were some big girls in the schoolrooms just above Pauline's room, who were very fond of her. They had taken her up, this spring term of which I write, and made her their particular pet. At recess they played that Pauline was their little girl or their scholar. They gave her bites of their cookies at noontime, and often—very often—took exceedingly large bites from her russet apples.

Now Pauline's mamma hardly liked this, and said it would be better for her to play with the girls of her own age, and that she was afraid the older girls would get her into mischief yet.

Well, one day these big girls asked Pauline if she wouldn't like to go to the Queen's Garden—the woods beyond the meadow—to gather wild flowers. They said they would come and get her in school hours and make it all right with Miss Bell, the teacher. Pauline, who had never been out in the woods before without her papa, or her big brother John, hesitated. She remembered the story her mother had been telling a few weeks before, of the wildcat she had seen in the woods when a little girl, and hesitated yet more. But just then Mary Jane Sykes said: "Oh just think, Pauline, how nice it will be to have a big bunch of flowers to give Miss Bell in the morning!" Then Pauline consented.

About two o'clock there was a tap at the schoolroom door, which Miss Bell answered. Mary Jane Eykes stood there.

"Please, ma'am," said she, "Pauline's mother wants her to come home now."

Miss Bell told Pauline she could go.

When Pauline heard the naughty story which Mary Jane told she was sorry; and then she thought of the woods and flowers. So she put on her little cape, and brown straw hat, and skipped gayly along with the other three girls.

Miss Bell looked out of the window, and I think she thought it very queer that three big girls with baskets, should come for Pauline to go home.

They walked to the end of the main village street, down a big hill, over a bridge, and across a beautiful, river-bordered meadow, right into the loveliest of big woods.

For a long time Pauline was very

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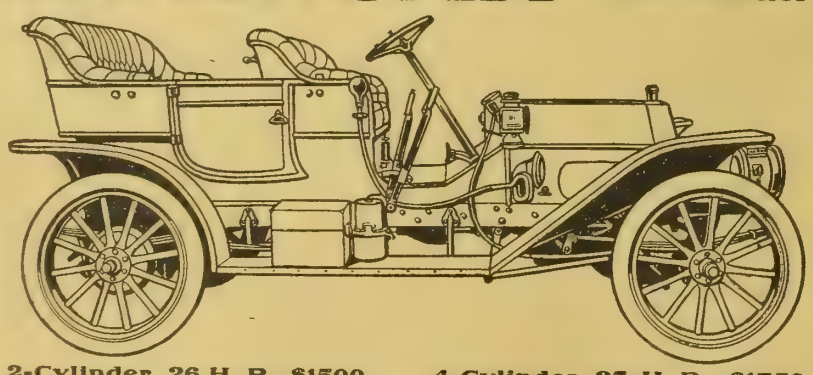

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happy. She was sitting near a big log, in the midst of a quiet patch of adder's tongues, picking as fast as her little fingers could fly. Not far away the other girls were busy in a violet bed.

Left alone, Pauline began to think what Mother would say; for her shoes were muddy, and there was a long tear in her new calico dress. Thinking of her mother made her recall the wild-cat story. Just then she heard a rustling, snapping sound. She turned her head, and there, staring at her from a hollow log, were two big, yellow eyes. Her blood ran cold. She felt her hair fairly rise up from under her straw hat. For a moment she was spellbound; then rushing to her feet, she ran, screaming: "Oh, girls! A tiger! a tiger!" The spring blossoms, wake-robins, blue-bells, violets, adder's tongues and anemones fell heedlessly to the ground as the girls rushed, terror-stricken, through the woods.

By this time school was out, and there were some big boys in the outskirts of the woods cutting fish-poles. The girls told them that Pauline had seen a tiger—a live tiger—in the woods. After much coaxing they persuaded her to go back and show them the place where she saw it. With a beating little heart she showed them the way, and, hearing no growls, they approached the log, and what do you think they saw? A tiger? No. A big, yellow-eyed, white owl, which was easily caught. The boys looked at poor little Pauline with scorn. Sobbing she picked up her fallen blossoms and went home and told her mother all about it.

Mother listened, but did not scold; for she knew her little girl had learned a good lesson that day.

The next morning Pauline took her flowers to Miss Bell. Miss Bell looked at the spring blossoms with one of her queer little smiles, and said, with her arm about Pauline:

"Pauline, my dear, were you happy in the woods yesterday afternoon?" Then Pauline told her all about it, and how she thought she was going to be eaten by a tiger for running away from school.

Although Pauline is a big, big lady now, she says when she feels like being naughty—and you know grown people do feel that way, too, sometimes, my dears—she thinks of those big, yellow eyes.—The Independent.

USEFUL HELPS FOR THE GIRLS.

You can make pretty and inexpensive jabots by cutting a plain linen handkerchief diagonally in half and then trimming the edges with pretty lace. These jabots are made by the folding of a central box pleat, with two or three small pleats in each side turned centerward and then pressed into shape.

If a white waist or any white article needs bleaching, wash clean, then rinse out the suds and put them to soak over night in clear water in which cream of tartar has been dissolved in proportion of a teaspoonful to a quart of water, then rinse and starch in the morning. You can clean a lace waist by rubbing magnesia thoroughly over the garment, rubbing it well on the most soiled places; then roll it up carefully in a cloth and lay it away for several days. Grease spots can be removed from silk and woolen goods by covering the spot with magnesia and then covering with brown paper and placing a hot flat iron over the paper.

To wash white or any delicate colored woolen goods, make a thick lather in cold water with a small quantity of soap bark; now add hot water till the whole is moderately warm, then it is ready for washing, and when clean rinse in clear water and dry in the shade.

For sore lips, chapped hands and roughness of the skin, there is nothing better than a cold cream made of melted and strained mutton suet to an equal part of glycerine with a few drops of oil of rose added, and this is cheaply and easily made.

To make the finger nails of good shape, push back the skin at the base of the nail with a soft, dry towel each time the hands are dried Each finger should be dried separately by pressing from the tip of the finger down to the palm. Some girls have ruined their complexions by using an injurious face powder, but many girls are preserving a good, smooth skin by using borated talcum powder as this makes the skin as white as desired and takes away the shine. There is nothing better to use than this powder if the skin is inclined to be greasy. Dust the parts of the body where perspiration is troublesome daily with this powder and there will be no odor. Dust the hands with powder before putting on the gloves and it will keep the skin soft and make it much easier to slip on the gloves.—A. M. H.

FOR SERVING ORANGES.

Oranges in their natural state are exceedingly wholesome and appetizing; eaten before breakfast, stimulating and invigorating generally. The old Spanish proverb says: "Oranges are gold in the morning, silver at noon, and lead at night;" but it seems this could be true only of those of weak digestion.

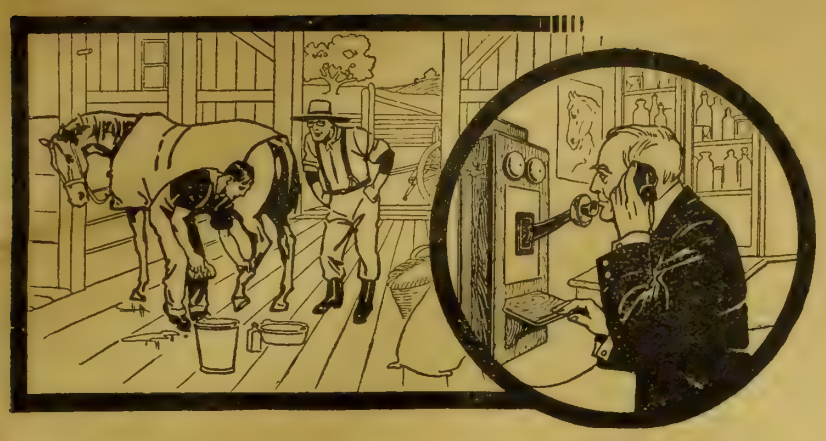
The plainest, easiest of all ways to serve oranges as a dessert is to cut them up with sugar; but even this can be done well or shabbily—be made delicious and attractive, or to look very uninviting. After peeling, every particle of the white, bitter, inner skin should be removed, and the fruit cut in moderately thick, uniform pieces. Granulated sugar should be liberally sprinkled along between the layers, and generously on the top. It should be made ready a full hour before serving. We all know how much prettier fruit, especially oranges, look in a glass dish than any other, showing the yellow through the crystal.

Cold Dessert.

A cold dessert of oranges is made in this way: Make a syrup of one pint of sugar and half a pint of water. Peel and cut up the yellow, inside pulps, enough to loosely fill a large bowl. Now, to the syrup add one ounce of dissolved isinglass, and the strained juice only of two lemons. Simmer for ten minutes and pour over the cut oranges till the bowl is full. When cold set upon the ice. Serve with sweetened whipped cream.

Another.

In a saucepan wet one heaping spoonful of cornstarch in a very little water. Over this pour one pint of boiling water, stirring constantly. Add a generous pinch of salt, and one cup of sugar, the juice of two large oranges and of one lemon, strained, with the grated peel of the oranges. Cook and stir for five minutes, then stir in the beaten yolks of three eggs, and cook for three minutes more, stirring briskly. Then remove from the fire, and stir in the whites of the three eggs, beaten to a stiff froth. Allow to stand till quite cold in the sauce-



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pan, and then put in a glass dish, to serve it from, and put it on the ice.

With Gelatin.

Another delicate orange dish is this: Soak one ounce of gelatin in a little cold water, and then pour over sufficient boiling water to make one pint. Strain this upon a platter, and when cold beat in the whites of three eggs till it begins to foam and stiffen. Then add a coffee cup of sugar, a good pinch of salt, and the strained juice of three large oranges and one lemon. Beat all together till very light, then put in glasses, with a spoonful of whipped cream on the top of each. Keep a while on the ice, to serve cold.

Pie.

Orange pie is a delicious dessert, and can be very good when plain as well as when rich. The plain rule is as follows: Grate the yellow peel off one large orange and mix with the juice of two, add one cup of sugar, and the beaten yolks of three eggs. Beat the whites to a stiff froth and beat into it one cup of milk, then mix all and bake in a puff paste. This is a richer pie: Four eggs, two spoonfuls of butter and one cup of sugar, all beaten to a cream; with the juice and grated rind of two oranges, and half a pint of whipped cream, added last, all beaten together, and baked in a rich paste for twenty-five minutes in a moderate oven.

Orange Cake.

Bake in four layers, as for any other jelly cake, the following: Two cups of flour, two of sugar, one-half cup of water, the yolks of five and the whites of three eggs, a pinch of salt, one teaspoonful baking powder, and the juice and grated rind of one orange. Some oranges give out so much more juice than others that no exact measure of flour can be given; but if two cups leave the batter thinner than ordinary cake, a little flour must be added. Bake delicately. Beat the two remaining whites to a stiff froth, add the juice of one orange, sweeten to the taste with powdered sugar, and spread between the layers of cake when cool. Desiccated cocoanut added to the filling makes a pleasing change. Or lemons may be used instead of oranges.

Orange Pudding.

Peel and slice three or four oranges and lay in a pudding dish, with half a cup of sugar; make a custard with one pint of milk, the yolks of three eggs, one spoonful of cornstarch and one-third of a cup of sugar. When cold pour over the oranges, beat the whites of the three eggs to a stiff froth, with powdered sugar spread over the pudding, and brown delicately in the oven.

A Rich One.

Stew six large apples and pass through a sieve; rub together a small cup of sugar and the same of butter, and stir into the apples while hot. After taking the skin and pith from four large oranges, chop very finely and add to the other ingredients. Beat the yolks of six eggs light and add lastly, reserving the whites for the meringue. Bake in a rich paste. Flavor the frosting with orange juice.

A FEW WORDS OVER AN UMBRELLA.

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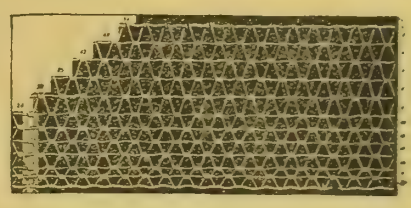

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 15, 1911.

Butter.

Butter has declined a cent, and the present market is not strong.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	26½
Firsts	25
Ladies	22
Country	18

Cheese.

Oregon Daisy	16½@17½
Northern	15@16
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Eggs show a 2-cent decline, with receipts somewhat in excess of the demand.

Paying price f. o. b. Los Angeles is:

Local ranch candled	22
Case count buying price	18
Northern	16@20
Eastern	21

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	17@19
Roosters	10
Broilers	25
Fryers	28
Roasters	19
Turkeys	23@25
Ducks	20
Geese	17
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.10@2.25
Salinas	2.50
Watsonville	2.35
Oregon, Early Rose	2.00@2.25
Northern Early Rose	2.10
Lompoc	2.75
Idaho Rurals	1.90@2.00
White Rose, local	2.25
Colorados	1.90@2.00
Sweets, yellow, cental	4.75
Sweets, white	3.75
New potatoes, lugs	2.00

Onions.

Wholesale quotations:

Oregons	2.75@3.00
Australian browns	2.50@2.75
Nevadas	2.75@3.00
Utah	3.00
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Asparagus, lb	17½@20
Beets, sack	90
Brussels sprouts, lb	12
Bell peppers, lb	25
Green chilis	15@20
Cucumbers, doz	1.00@2.25
Cabbage, sack	90@1.00
Celery, crate	2.50@3.00
Cauliflower, crate	1.75@2.00
Carrots, sack	1.25
Egg plant, lb	10@12½
Horseradish, lb	12½
Onions, green, doz. bunches	20@25
Leeks, per doz	40
Lettuce, crate	1.00@1.50
Oyster plant, doz	40
Peas, lb	15@18
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Radishes, doz. bunches	20@25
Rhubarb, Crim. Winter, box	1.25@1.50
Spinach, doz	20@25
Squash, Hubbard	2½@3½
Tomatoes, Mexican	1.15@1.25
Turnips, sack	90
Watercress	25@35

Citrus Fruits.

Navels	1.25@2.25
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.25
Tangerines	1.35

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.40@1.75
Spitzenbergs	1.75@2.50
Greenings	1.25@1.50
Pearmains	1.35@2.25
Newtown Pippins	1.35@1.75
Bananas	4½
Pineapples	10
Pears, lb	5@6
Winter Nelis	2.50@2.75
Strawberries	15

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	10@13
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.50
Black eyes	6.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.30

San Francisco Market

SAN FRANCISCO, March 14, 1911.

Butter.

Butter advanced slightly from last week's quotations. During the last week it took a decline to two cents below where extras now stand, at 27 cents. Firsts, however, have held the advance, and are now above last quoted prices.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	27
California firsts	25½
Seconds	22½

Cheese.

California flats, new	10@12
Cal. Y. America, fy, new	15@15½
Oregon fancy	12½

Eggs and Poultry.

Eggs stood at last quotations until Monday, when a half cent advance was made. The market is now firm.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	18
Firsts	17
Seconds	16½
Hens, doz	5.50@12.00
Fryers, doz	6.00@7.00
Ducks	6.00@10.00
Broilers	3.50@5.00
Roosters, doz	5.00@10.00
Turkeys	18@20
Geese	2.50@3.50
Pigeons	1.50@3.00
Squabs	3.50@4.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6¼
Cows and heifers	4@5¼
Calves, lb	5½@7
Hogs	6@8½
Yearling lambs	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.65@1.95
Salinas Burbanks, cwt	2.25@2.35
Oregon Burbanks, cwt	1.85@2.15
Early Rose	1.65@1.85
Sweets, cental	7.00

Onions.

Onions	2.45@2.50

Vegetables.

Wholesale quotations:

Asparagus, lb	10@15
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	2.00@2.50
Celery, crate	1.50@2.50
Bell peppers	10@20
Beans, string	25
Chili peppers, lb	25
Egg plant, lb	10@15
Lettuce, crate	75@2.00
Peas, lb	8@15
Rhubarb, Southern	75@1.25
Rhubarb, Bay, lb	6@7
Summer squash	1.50@1.75
Tomatoes, Mexican	1.50@1.75
Turnips	60@75
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.40
Grapefruit	75@2.50
Lemons	1.25@3.00
Limes, Mexican	6.50@7.00
Tangerines, halves	50@1.25

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.15@1.40
Spitzenberg	1.50@2.75
Bananas, Hawaiian	75@1.25
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 10¼@11½c; Apricots, 10½@12¾c; do, Moorparks, 14c; Peaches, 6@7½c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 8@8½c; Figs, 1911, 4@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6@6⅛c; Choice, No. 16, 5½@5⅝c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5c; do, 3-crown, 4½c; do, 2-crown, 4c. Dried Grapes, 2¾@3c. Seedless—Muscatels, 3¾@4c; Sultanas, 5@5¼c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.00
Pink	5.65
Black eyes	5.50@5.60
Small white	3.50
Large white	3.50
Kidneys	6.25
Garbanzos	3.00
Bayou	4.80
Horse beans	2.50
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	18@21
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the week ending today amount to 1,740 tons, as against 2,545 tons last week, and 4,167 tons the preceding week. It is now generally conceded that we will have a large crop of hay. During these heavy rains there has been a little more demand for hay in the interior, which will probably continue until such time as the rains cease, as a little sunshine will make grass grow very rapidly at this time of the year, and naturally cut out quite a little of the stock feeding in the interior.

Export demand has been quite good, several steamers having loaded this week for Hawaii, and the government has taken somewhat of hay for export.

Alfalfa seems to be in little better demand, and receipts are smaller on this commodity.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Wheat, No. 1	1.32½@1.37½
Barley, fancy	1.17½
Barley, good to choice	1.13¾@1.16¼
Barley, poor to fair	1.07½@1.10
Oats, white	1.45@1.50
Rye, new crop	1.27½@1.32½
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	24.00@26.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	24.00@25.00
Rolled oats, ton	29.00@31.00
Middlings	32.00@35.00
Oil cake, ton	40.50@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	25.00@26.00

Citrus Fruit Market

LOS ANGELES, March 15, 1911.

Instead of shipping about 200 cars per day, as was expected for the Navels, only about 125 is the average. This is caused by the storms preventing picking during several days. The shortage has also compelled a material advance, and Navels are averaging close up to the $2.75 mark, f. o. b. East. The shipping is now going forward at a much more rapid rate. Monday's shipments reached the big total of 272 cars, and within a very few days every section will be pushing forward sufficient to make up, in part at least, the loss during the first of the month. Some icing is being done, also precooling, which is caused by occasional showing of decay. On the whole, the quality of fruit is excellent.

The demand for lemons has been on the increase, though it has not yet reached the stage of causing material advance in prices. Every offering made is picked up, and the warmer weather over the East would cause advance.

Shipments.

Shipments of oranges to date since November 1, 1910: 13,205 cars; lemons, 1,753; total, 14,958. To same date last season: Oranges, 8,808; lemons, 1,411; total, 10,219.

LOS ANGELES, Friday, March 10.—Two cars navels sold.

NAVELS—	Boxes	Avge.
Bridal Wreath, Tustin P Co	303	1.30
Lucky, Sd	93	1.05
Bridal Wreath, Tustin P Co	266	1.27½
Lucky, Sd, Tustin P Co	130	1.02½

25c per box discount on second grades in car.

NEW YORK, Friday, March 10.—Nineteen cars navels, three cars bloods sold. Market strong. Weather partly cloudy.

NAVELS—	Avge.
Titus Rch, Fy, San Marino GPA	2.70
El Toreador, Sd, San Marino GPA	2.50
Elephant, Or, Elephant Orchards	2.75

CHICAGO, Friday, March 10.—Lemons are selling about as well as usual at this season. Market steady and firm. Boxes, California fancy, 300s, $3.35@3.50; 360s, $3.25@3.50.

Oranges—There is a good strong market. Receipts of Californias no more than fair and they are being absorbed by the trade. Boxes, California navels. Extra fancy, all sizes, $2.75@2.85; fancy do, $2.65@2.75; extra choice do, $2.40@2.60; choice do, $2.25@2.35.

LOS ANGELES, Monday, March 13.—Three cars navels sold.

NAVELS—	Avge.
RD 7083, Hawarden, Fy, Pachappa, 78 boxes; Arch 7083, Hawarden, Xc, Pachappa, 257 boxes; H C A, Sd, Pachappa, 37 boxes, shipped 11th, vent.	1.75
RD 7057, King Maker, Or, Riverside, 384 boxes, shipped 13th, vent	1.57½
Red Raven, Xf, Riverside, (standard sizes) to be shipped 14th	1.70

Note—25c per box discount on 299s and smaller and 80s and larger; 20c between Fancy, Choice and Standards.

NEW YORK, Monday, March 13.—Thirty cars navels, two cars bloods and four cars lemons sold. Market higher on oranges, strong on lemons. Weather fair, seasonable.

NAVELS—	Avge.
Golden Cross, OK Ex	2.95
Red X, OK Ex	2.60
Gold Buckle, RH, E High	2.95
Lochinvar, RH, E High	2.75
Violet, DM Ex	2.70
Alta Cresta, AH Pach	3.05
Tally Ho, SB Ex	2.60
Blue Globe, Riv Ex, Rix	2.90
Red Globe, Rix Ex	2.70
Outing, Riv Ex	2.30

CHICAGO, Monday, March 13.—Trade in lemons is fairly active and there are ample offerings. Boxes, California, fancy 300s, $3.35@3.50; 360s, $3.25@3.50; off sizes $3.

Oranges—Navels are firm. They are selling well and the offerings are not large. Of Floridas the offerings are small. Grapefruit sell fairly when fancy and desirable size. Large sizes dull. Oranges — Boxes, California navels: Extra fancy, all sizes, $2.75@2.85; fancy, $2.65@2.75; extra choice, $2.40@2.60; choice, $2.25@2.35.

BOSTON, Monday, March 13.—Nineteen cars sold. Favorable. Market strong and higher on oranges, easier on lemons.

NAVELS—	Avge.
Big R, SB, Rialto	2.55
Alta Cresta, A H, Pach	3.25

LEMONS—Ind Fy, Growers F Co, $3.20; choice, $2.75; Vista Del Mar, Ch, Randolph F Co, $2.40; Pet, S A Ex., $3.50; Gold Buckle, R H, E High, $3.15. TANGERINES, HALVES—Priscilla, $1.65. GRAPEFRUIT—Big R, $1.25.

PITTSBURG, Monday, March 13.—Twelve cars sold. Market strong and higher on navels, easier on lemons. Favorable.

NAVELS—	Avge.
Dirigible	2.60
Del Oro, Ch, Sparr F Co	2.40
Baseball, S T, Downey	2.25
Royal Knight, R H Red	2.85
Kennelworth, A H, Riv	2.65
Quail, O K Ex	3.00
Owl, O K Ex	2.40
Violet, D M, Mon	2.80
Golden, Riv Ex, Riv	2.65
Valley Beaux, S A Ex	2.50
Naralimo, Or, Sparr F Co	2.55
Newsboy, R H, Redlands	2.40
Downey, S T, Downey	2.10
Newsboy, R H, Red	2.40
Peasant, A H, Riv	2.45
Majesty, O K Ex	2.60
Iris, D M Monrovia	2.95
Jasmine, D M, Mon	2.60
Mt Baldy, Riv Ex, Riv	2.50
Greyhound, S A Ex	2.50

LEMONS—Commercial, A H, Arl, $2.30; Club, S T, Colegrove, $2.65.

PITTSBURG, Monday, March 10.—(Delayed dispatch)—Four cars sold. Market strong and higher.

NAVELS—	Avge.
Lochinvar, R H Ex	2.55
Mt. Baldy, Riv Ex, Riv	2.50
Belt, R H Ex	2.45
Jasmine, D M, Duarte	2.55

LEMONS—Parrot, $2.95; Mtn Crest $2.60. BLOODS—Violet, $2.75; Jasmine, halves $1.45.

PHILADELPHIA, Monday, March 13—Seven cars navels, three mixed cars sold. Twenty-three cars Floridas. Oranges, $1.25 to $4.05, average, $2.20. Grapefruit, $1.45 to $3.60, average, $2.40. Market firm on good fruit.

NAVELS—	Avge.
Parrot, S A Ex	2.50
Stag, Imp, ACG, Azusa	2.70
Sweetheart, A F, High	2.55
Mother Colony, S T, Anaheim	2.30
Native Sons, Ch, King F Co	2.50
Perfection Fy, High OGA	2.45
Clover, Xc, Red OGA	2.40
Native Sons, Imp, King F Co	2.70
Hawk, S A Ex	2.30
Pointer, Imp, A C G, Azusa	2.45
Pointer, A C G, Glen	2.50
Eagle, A F, High	2.55
Independent, Growers' F Co	2.50
Golden Rod, Ch, Highgrove	2.40
Constitution, Cleyhorn B	2.35
Salt Lake, Imp, Sd, King	2.55

TANGERINES, HALVES — Stag, $1.65; Stag, $1.80; Heart of Gold, $1.70; Dancy, $1.60.

ST. LOUIS, Monday, March 13.—Cool, clear. Market firm on good navels.

NAVELS—	Avge.
Hunter, ACG, Lateen S	2.30
Pointer, ACG, Charter O	2.70
Possum, ACG, Charter O	2.45
Sunlight, R H, Red	2.55
Mother Colony, S T, Anaheim	2.50
National, Xc, E Peycke	2.40
Baseball, S T, Downey	2.10
Hunter, ACG, Charter O	2.55
Belt, R H, E High	2.55
Gold n Circle, R H, Red	2.50
Carnival, S T, Anaheim	2.40
Dulce, Sd, Randolph F	2.35

LEMONS—Mocker, Or, Spence F, $2.45; Lochinvar, R H, E High, $3.15; Belt, $2.50. TANGERINES HALVES—Stag, $2.25.

CINCINNATI, Monday, March 13.—Cold. Market steady. Four cars navels, one car lemons and four cars Floridas sold.

NAVELS—	Avge.
El Capitan, S A Ex	2.10
Citrus Belle, Sd, Ind F Co	2.35
San Pasqual, H W Bailey	1.00
Ft Pitt	1.55
Golden Pheasant, Xc, Ind F	2.35
Golden Gate, Xc, Red G O	2.30
Duquesne	1.60

LEMONS—San Rafael, H W Bailey, $1.90; Touchdown, $2.95.

CITRUS GROWERS CONVENTION.

(Continued from Page 323.)

ity coming from the use of potash salts and acid phosphate. Besides, lime nitrate is equal, unit for unit of nitrogen, with sodium nitrate, and much safer for the correction of acidity in all soils, arid or humid.

Hall states that lime nitrate is laid down in English ports for $40.65 per ton, and "Berkeland calculates that the cost of manufacturing calcium nitrate containing 13 per cent of nitrogen is about $19.36 per ton, and that it can be sold at a profit of $38.72 per ton, which would be equivalent to nitrate of soda at about $48.40 per ton." California should turn a sufficient amount of the power of her mountain streams to account in the manufacture of calcium nitrate to meet the needs of her agriculture at a price but a little above the cost of manufacture and the local transportation.

As to the dangers to which we have referred being "purely fanciful and highly theoretical rather than a practical one," a problem in simple arithmetic will show that the addition of two pounds of sodium nitrate to the tree, with 100 trees to the acre, would furnish sufficient sodium for 120 pounds of black alkali or 160 pounds of sodium sulphate, were it all transformed. Where three pounds of the nitrate per tree is added twice each year, the sodium, if all converted, would make 360 pounds of black alkali or 480 pounds of the sulphate. Then 50 years of such applications with no removal by crop or by leaching would add five to 15 tons of sodium nitrate per acre, and if all were thus converted without removal by crop or leaching, would leave in the soil from 3 to 9 tons of black alkali or 4 to 12 tons of sodium sulphate per acre in addition to whatever may have accumulated from the irrigation water and soil decay.

We do not say or suppose that such large accumulations would occur, but this statement of the case shows truthfully the tendency and its theoretical maximum magnitude. We are mindful, however, that the agricultural life of California should be far more than ten times fifty years and it will be very much cheaper and more practicable to prevent the undue accumulation of alkalies than it will be to eliminate them after they have increased to the extent of greatly reducing yields or rendering the soils sterile.

We regard this problem of such grave import to the immediate future of orcharding that you should provide ample funds and then demand of your Experiment Station that they go into your orchards and determine positively whether or not there is serious increase of alkalies in your soils under existing practices. A trifling tax properly distributed would provide ample funds and would enable your station to lead practice, as it will be glad to do, rather than wait till fatal consequences develop, to tell you how and why they happened. The same provision would enable them to successfully attack and advance toward solution many of your other serious problems at the same time.

We must continue to bear down, even more heavily, if possible, upon the green manure crops, making them yield their utmost, but they cannot be expected to alone maintain the degree of fertility required for continuous heavy yields.—F. H. King.

Dr. Hilgard's Comment.

Prof. E. W. Hilgard's comment on the foregoing letter is:

Professor F. H. King has sent me a copy of a letter written to you with respect to the matter of black alkali as a result of the free use of nitrate of soda on heavy soils, and requests me to comment thereon as I may think desirable.

I would say, first of all, that Professor King's discussion and warning are entirely correct, as applied to heavy, undrained soils and scant irrigation. The latter is sometimes the result of deficient water supply; and others of improper or inefficient mode of application of the available supply. Professor King goes on the supposition that no leaching occurs in our soils under joint irrigation and natural rainfall, which, at Redlands and Riverside together, amount to about 35 inches per annum; an amount, by the way, in excess of that falling at Rothamsted farm in England. There should, therefore, under irrigation, be quite as good a chance for leaching out of objectionable salts as at the English locality, yet here a visible increase of alkali salts frequently occurs, even on soils not as heavy as those spoken of by Professor King, due simply to incorrect mode of application of irrigation water, as I have for many years tried to impress upon our irrigators. For in the heavier soils, especially, surface flooding and irrigation in shallow furrows allows of evaporation of nearly 50 per cent of the irrigation water used, which, though paid for by the irrigator, is wasted into the air. I have again and again insisted, both in print and by word of mouth, that in Southern California especially, where the water supply is scant, this mode of irrigation should, in orchards at least, give way to irrigation in deep furrows, which would save nine-tenths of the loss by evaporation from the soil surface, and by penetrating to much greater depths give trees an opportunity and a tendency to deep rooting, ensuring them a larger supply of plant food as well as moisture through the season, and with less liability to injury from delay in irrigation. Such deeper penetration, of course, will also tend to leach out whatever surplus of water soluble salts there may be in the soil.

There is, of course, no question about the formation of black alkali from nitrate of soda, or of the injurious effects of that compound upon the tilling qualities of the soil. I think I was the first to notice and discuss this effect, and to prescribe remedies for it. Black alkali, or carbonate of soda, is promptly transformed by gypsum (land plaster) in the presence of water into the relatively harmless white alkali or sulphate of soda. It is obvious then that if each application of the nitrate of soda were accompanied or followed by the application of the corresponding amount of gypsum on the land, the formation of black alkali would either not occur at all, or would be promptly overcome.

This is a precaution that those using large amounts of nitrate of soda on heavy soils should not omit; in fact, it would be just as well to use the two conjointly always, with the understanding that for the full neutralization of the possible black alkali promptly, for every 100 pounds of nitrate of soda used about 160 pounds of gypsum are needed. This is on the supposition that no leaching out whatever should occur.

When acid phosphate is used as a fertilizer it nearly always carries with it a notable amount of gypsum which, of course, will help to prevent injury from black alkali. But whatever is done the establishment of drainage is of the utmost importance wherever irrigation is practiced. The two should always go hand in hand, if only to prevent the accumulation of injurious salts from irrigation water more or less charged with the latter. With irrigation in deep furrows, natural drainage and leaching out will be established in most California orchard soils, for light and pervious soils are the rule, and "adobe" the exception in this state. But where orchards have been established on the latter, the owners will ultimately find it most advisable and profitable to follow the example of the Illinois prairie farmers, who have long ago found under-drainage the most profitable investment they could make in cultivating their heavy black prairie soils.—E. W. Hilgard.

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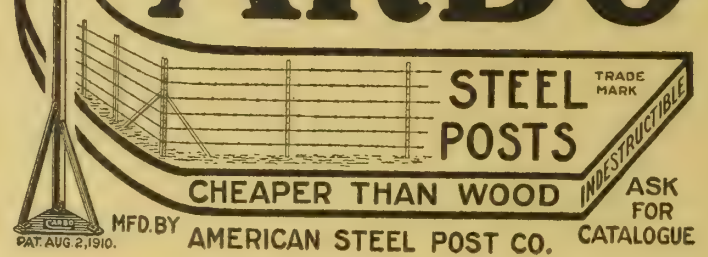

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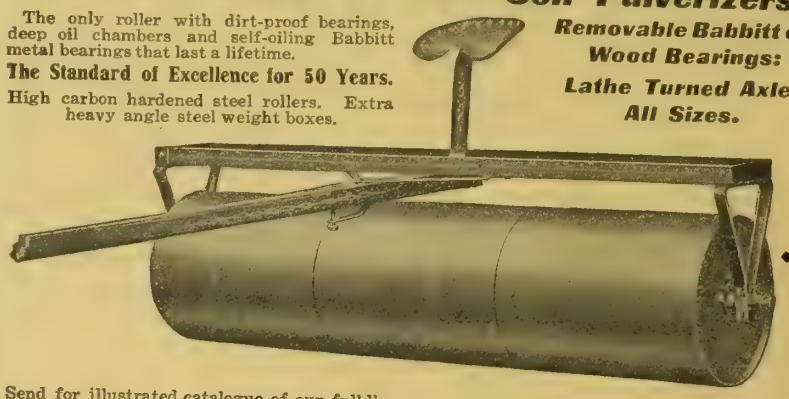

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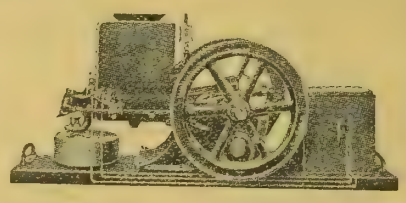

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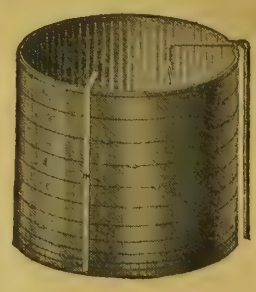

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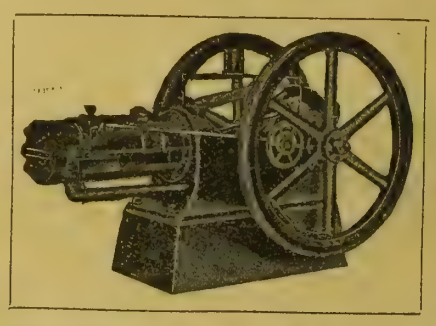

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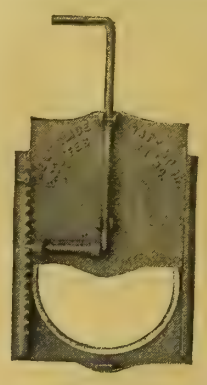

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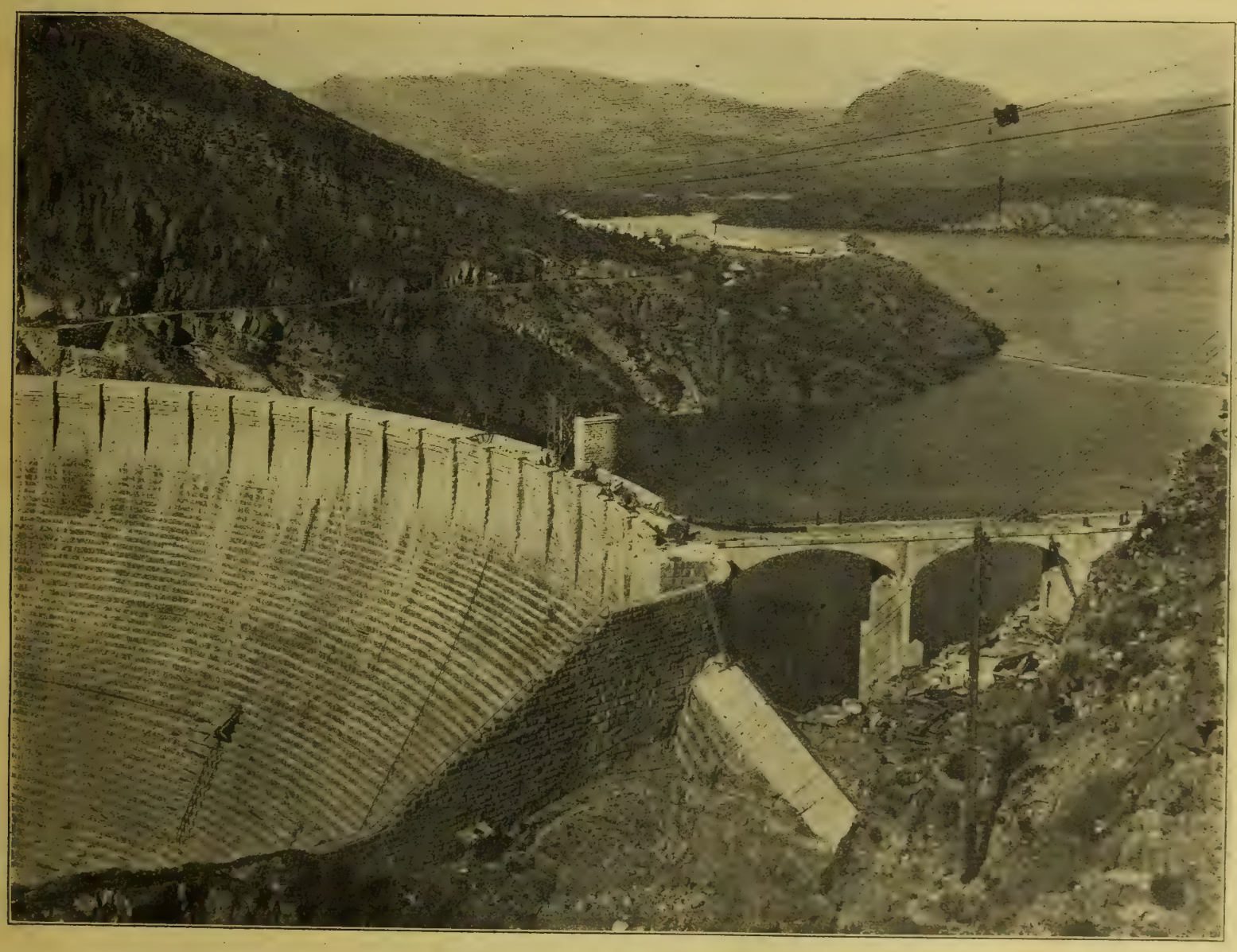

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Washington heard of the dam site and in 1896 Arthur P. Davis, then an engineer of the United States Geological Survey, was sent out to conduct field studies. He spent several months at the site and in that vicinity. Upon his return he made an enthusiastic report.

In 1900 the amount of land under cultivation in the Salt River Valley had increased so greatly that there was not nearly enough water to properly irrigate it all. There was sufficient water in the rainy season, but at such times freshets would carry away the flimsy brush and sand dams, which were all the canal companies could afford to build. Water enough to irrigate thousands and thousands of acres flowed away to the sea every year. When the river subsided so that the dams could be replaced the supply of water in the stream was usually far too small. Farmers were lucky if, in summer, they got stock water. They were forced to see their crops wilt and die.

Something had to be done and a county commission was appointed to devise some plan. Stored water was the only apparent solution. The reservoir site was available, but to build the huge dam required to make the reservoir a reality would cost millions of dollars. The farmers did not have those millions and no private corporation had ever undertaken such a stupendous irrigation enterprise. A little of its story may be seen on page 355.

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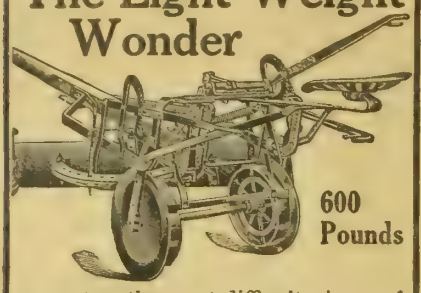

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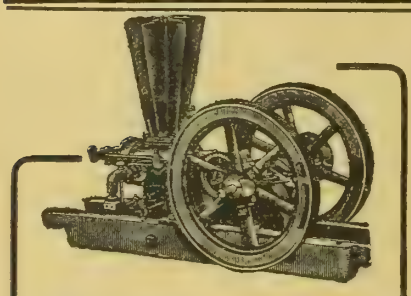

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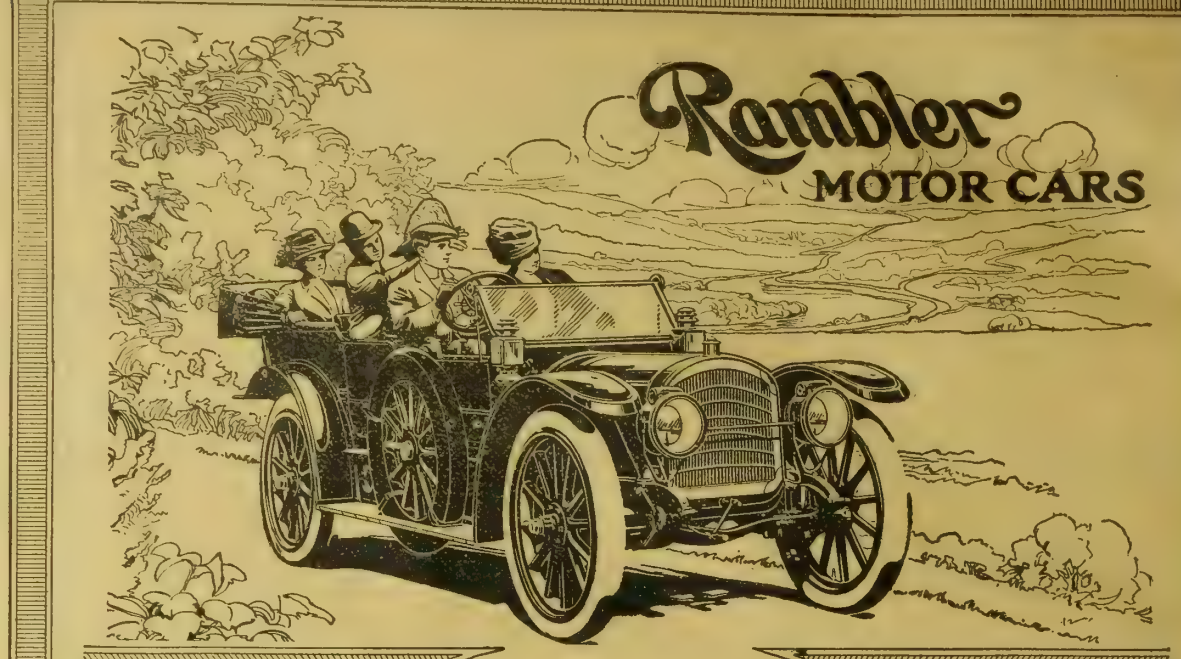

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California Cultivator

Vol. XXXVI. No. 12. LOS ANGELES: THURSDAY, MARCH 23, 1911 One Dollar the Year

The Dedication of the World's Greatest Dam

Ex-President Roosevelt Opens the Great Gates and the Floods are Loosened in Formal Dedication. A Happy Day for All Arizona and Especially for Farmers of the Salt River Valley.

Something over 320,000 acres of land in one of the richest valleys on the continent was made available for intensive cultivation when Ex-President Roosevelt threw on the current which raised the great bronze gates of the Roosevelt dam in Arizona on last Saturday. The lake formed by this dam is the largest artificial body of water in America, extending back into the valley over 20 miles and covering about 25 square miles. It will hold sufficient water to flood 2000 square miles one foot deep.

This immense dam, requiring over four years' work and costing in the neighborhood of $3,500,000, is 280 feet high, length of base 235 feet and top 1080 feet. The dam is higher than the Flatiron building in New York and would hide the capitol at Washington to the dome. Two four-in-hands can pass on the top. Most of the wall rests on stones big enough for a team and a wagon to stand on and weighing sixteen tons each. The lands below the dam which will be irrigated by its waters will make 25,000 farms, each able to support five people. It has been estimated that each one of these acres will yield crops from $50 to $150 in value. The cost of the project will be about $3.50 per acre a year, or about $800,000 a year, and the power alone, which will be developed, is worth more than $2,000,000 a year.

While the act of Ex-President Roosevelt formally dedicated this great project, last year while the work of construction was under way, waters were accumulated to the depth of 100 feet without in any way interfering with operations. While this was only 15 per cent of the capacity of the reservoir, it enabled the ranchers of the valley to produce over $2,000,000 worth of crops in one season, using only one-third of that storage water. At the present time the water in the dam is about 160 feet in depth, amounting to 450,000 acre feet of water, only about one-third the capacity of the reservoir, and it is filling rapidly.

The soil chiefly is a sandy loam, a clay formation appearing in places. For the intensive cultivation of semi-tropical fruits, cereals and alfalfa probably no section of the nation is more suitable. Five railroads will afford splendid transportation facilities. Thus with profitable markets almost adjacent the Salt River Valley is destined to become one of the thriftiest agricultural regions in the United States.

When fully completed the dam will have involved the expenditure of $3,009,991.33, and the 230,000 acres which will be irrigated by it are entirely in the Salt River Valley, Arizona. Dairying and alfalfa raising will probably be the greatest factors for some years, but many fruits will be found to do exceptionally well here. In the higher and more protected mesas oranges and lemons of highest quality have been produced. The elevation of these lands is from 1000 to 1300 feet and the average mean temperature is about 70 per cent.

A Bit of History.

While Washington heard of the possibilities of the reservoir site in 1896, many investigations were made and much effort was necessary on the part of territorial representatives. It was several years before active work was taken up. From Arizona, a magazine, we quote as to some of the earlier history:

"Two more years rolled by. Conditions had not improved, but the Salt River Valley farmers were still hopeful.

"Finally the Hansbrough-Newlands bill, better known as the reclamation act, was passed by Congress. It was approved by President Theodore Roosevelt June 17, 1902. There was grave danger for a time that the bill would be drawn in such a way as to exclude the Salt River Valley from its benefits. Originally the measure was designed to reclaim only public lands, and not those in private ownership. Earnest work by B. A. Fowler, George H. Maxwell and others resulted in an amendment, just prior to the bill's passage, permitting the construction of irrigation works for privately owned lands.

"At that time the Reclamation Service was only a bureau of the Geological Survey. The report of the service dated December 1, 1902, contained the initial plans for the Roosevelt dam, then called the Tonto dam, drawn by Mr. Davis. Afterward the plans were changed to provide for a dam thirty feet higher than Mr. Davis projected it. It was found that the cost of an additional thirty feet would be trifling, compared with the vast increase in the reservoir's capacity which would result.

"The Salt River project was tentatively authorized by E. A. Hitchcock, secretary of the interior, March 12, 1903. Preparations to construct the greatest storage dam ever undertaken proceeded apace. In that year the Salt River Valley Water Users' Association, which has since served as a model for similar organizations throughout the West, was incorporated.

"One of the first things to be done was to build a road from Mesa, the nearest railroad point in the valley, to Roosevelt, a distance of sixty miles.

"To build the Roosevelt road, now one of the most magnificent scenic highways in the world, cost $206,000. The cities of Phoenix and Mesa, realizing the great benefits which would accrue to them from the dam, contributed $71,500. Phoenix bonded herself for $67,500, and Mesa for $4,000. Since the completion of the road, $147,000 has been spent in betterments and improvements, making the total cost $353,000.

"In March, 1905, the road was completed. Already the Reclamation Service had a force on the ground making preliminary preparations for the building of the dam itself. April 8, 1905, the contract for the construction of the dam proper was let to J. M. O'Rourke & Co. on a scale of yardage figures that it was estimated would total $1,147,600. The company was to have the dam completed in two years to a height of 150 feet, provided the government did not delay in furnishing material. Various penalties for delays on both sides were provided for. Unforeseen delays were numerous and the contractors secured several extensions of time. Just what they received on completion of the work has not been made public.

"Two things were absolutely necessary before work could be commenced: They were lumber and cement. A government sawmill was established in the Sierra Ancha mountains, thirty miles to the northeast, and 3,000,000 feet of lumber was sawed and hauled to Roosevelt before the contract was fulfilled.

"Machinery for a cement mill was hauled from Mesa and Globe and the plant established at the dam site. It had a nominal capacity of 300 barrels a day, but an actual capcity of 450 barrels. This mill furnished 338,452 barrels of cement for use in the dam, at an average cost of $3.14 a barrel. The lowest bid the government had been able to secure was $4.89. To produce the cement which went into the Roosevelt dam cost $1,063,542.36, and the saving effected was $592,000, an average of $2.50 for every acre of land in the reservoir district. This is merely one instance of the foresight and business judgment used by the Reclamation Service officials.

"Power was required, and first a temporary steam electric plant was erected. Later it was replaced with a temp rary hydro-electric plant, and finally a permanent hydro-electric power house with a capacity of 800 horsepower was installed.

"In November, 1905, a coffer dam was being thrown across the river by the contractors. On November 27 a flood carried out the coffer dam as well as the flumes that were to carry the water over. Some machinery was also washed away. This caused the first delay. The flumes were never replaced. No excavating for the foundation was done until a sluicing tunnel had been driven through the solid mountain around the south end. The capacity of the tunnel was sufficient for the normal flow of the river.

"September 20, 1906, the first stone of the foundation was laid. The last stone of the coping on top of the dam was laid February 5, 1911. From the time that the actual laying of masonry commenced, progress was fairly steady. Delays intervened, but contractors and government employes toiled with a mighty persistency, overcoming one difficulty after another as it arose. Though the undertaking was from the very first known to be stupendous, no one had any conception of the work that must be done before the dam was a reality.

"One effect of the progress made was to inundate the site of the town of Roosevelt. When Roosevelt was built it was known that the very work in which its inhabitants were engaged made it a "city of numbered days." As the dam grew, the water behind slowly rose to the level of the town. Finally the entire population moved to the present site on higher ground.

"On its lower side the dam presents a sloping face, the structure gradually growing narrower from the foundation to the top. On the upper side the face is nearly perpendicular. At the top the dam is 680 feet long, and its total length, including the bridges over the spillways, is 1,080 feet.

"Water is released from the reservoir through three outlets. Turbines in the power house, a stone structure just below the dam, are fed by an immense penstock of steel, running through the dam about half way up its side. This is near the south end. Skirting the north end, almost under the spillway and driven through the rock, is tunnel No. 2, 115 feet above the river bed. Its sole purpose is for releasing water when the reservoir shall contain it above that elevation and when it is desired to release a greater volume than will pass through the penstock.

"Under the terms of the reclamation act the land owners of the reservoir district must pay back every cent the project has cost, excepting a stipulated sum the Indian Bureau will contribute because of the benefits the Indians will receive. It is also hoped that within a few years the revenues accruing from the sale of electric power, all of which goes to the farmers, will be sufficient to meet the annual payments. The debt must be paid in ten years from the date the dam is formally opened. A special arrangement has been made whereby the payments will not begin until two years after completion, following which they will be made in ten yearly installments. These payments will be made through the Salt River Valley Water Users' Association, in which each acre represents a share.

"During the years that he was president, Theodore Roosevelt took a deep interest in the undertaking, and more than once he made it possible for the Reclamation Service to secure money to carry on this, its "show project," when it was feared that a shortage of funds would force a temporary cessation of construction work. It was for him that the town of Roosevelt and the dam itself were named, and the reservoir is known as Lake Roosevelt. On March 18 Theodore Roosevelt will formally dedicate the dam which bears his name and which he did so much to make a reality instead of an irridescent dream."

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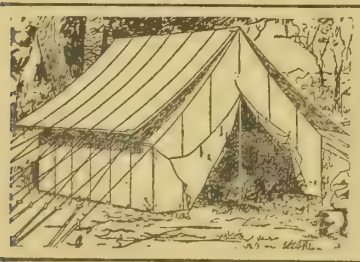

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Citrus and Tropical Fruits

GRAPEFRUIT IN SOUTHERN CALIFORNIA.

By C. F. Baker, Pomona College, Claremont, Cal.

When Americans began settling in considerable numbers in Cuba, their attention was early turned to the possibilities of citrus culture there. The island abounded in half wild seedling orange trees, many of which, however, bore very superior fruits. Scale insects of many varieties occurred there, but were held in check by fungous parasites and ladybirds, and though also other more serious pests, such as a pernicious root borer, exist there, still the settlers began the active planting of citrus fruits. They ordered stock in large quantities from Florida. Usually the orders were for certain definite varieties, which were soon exhausted in the Florida nurseries. The nurserymen then filled out the orders with anything that they happened to have in the nursery rows. The result may be imagined. In a single ten-acre grove may frequently be encountered trees of Pineapple, Parson Brown, Valencia, Navel, Joppa, Jaffa, St. Michael and several others. Exactly the same condition resulted among the grapefruits. Florida has always been famous for her grapefruit, and varieties have multiplied there. Cuba can produce just as good. But the difficulties in harvesting and marketing these orchard mixtures were colossal. Solid block planting is a necessity for the economical handling of most fruits. Apart from other difficulties, the growers did not know enough about them to correctly distinguish the various varieties which their trees turned out to be, and their fruit had to be marketed simply as "grapefruit," whether Marsh Seedless, Duncan, Pernambuco, Hall Excelsior, Walters, Royal, Triumph or McKinley, or a mixture of all of these.

It became my solemn and perilous duty while in Cuba to undertake the identification of these varied mixtures of oranges and grapefruit, and I carried this work on for several years with many very interesting results. I return to California, "where everything is done right," and I find here, too, a most remarkable job lot of grapefruit scattered through the groves. Moreover, I find many growers who do not know the varieties they possess. Others more confident, will name them, but if I carry the same fruit to others, equally confident, I am quite likely to get other names for it.

Now, it is my humble opinion that California is capable of producing just as fine grapefruit as either Florida or Cuba. Eventually, I believe that this state will yield a finer product, since we have here a more all-alive community, and more vigorous, radical and up-to-date methods. We are now awaking to the fact that we have never yet taken the first step towards broad, thorough, systematic effort in applying modern methods of plant breeding to our citrus fruits. A little haphazard and unsystematic selection here and there, tells the whole story to date. We are now at the opening of a new era, and I expect to live to see the day when we will have a Navel orange or a Marsh grapefruit better in every respect than the average of today, and in addition possessing but four or five sections. What breakfast fruits they will make, and how rapidly they will replace the sorts we are getting along with today! There may be bud sorts even now existing in some California orchard that will yield such fruits. I have already seen individual fruits that were definite promises of such possibilities. We can beat the world along these lines if we will get at the work actively enough.

The existing named varieties of grapefruit were each named from some single parent type, and that particular type carries the name always. However, every fruit grower knows of the wide individual variation that occurs within the limits of any variety, and also the wide variation from the type in some character, that may be produced by varied surrounding conditions. If the variation be not too wide, we still recognize the variety. And how? Simply by approximating it to the original type which it most nearly resembles. A great trouble has always faced us in the fact that neither our orange or grapefruit varieties have received the more systematic and careful comparative treatment that has, for instance, been given the avocados, by our Mr. F. W. Popenoe. With the works of Hume, DeLong, or even of Risso or Bonavia, in hand, one must simply flounder about among many closely related varieties, with about as even chances of being wrong as of being right in his conclusions. Some few varieties are marked by very conspicuous characters which are almost always unmistakable, such as the orange-likeness of Aurantium, the sweet flesh of the Royal, or the pink flesh of the Tresca. But for the most part decisions have to be based upon judicious examinations of the character of the surface and the thickness of the skin, the shape—especially form of base and apex—the number of sections and seeds, shape of seeds, character of pith, and so on, and also occasionally the character of growth and foliage. Taking the fullest descriptions of the varieties that have been given and carefully comparing them, we find many pairs of varieties that can scarcely be separated so far as the current descriptions go, by any characters that are of good diagnostic value. In Hume's work, for instance, compare the descriptions of Hall and Josselyn, Walters and Excelsior, May and McKinley, and Hall and Triumph. Nothing will take the place of being thoroughly acquainted with these things in the field. Have we any permanently established breeding gardens where one may see enough typical examples of all these varieties of authentic origin, and brought to characteristic and perfect development? Can we secure any firm foundation for breeding work or exact knowledge, by absolutely ignoring pedigrees? Hundreds of our growers would go far to visit such plantings. Certainly in the case of the grapefruit, such a fundamental knowledge must precede any really serious work in selecting or breeding. Indeed, I believe that such planting should exist in every distinct type of region that we have, the common property of the orange growers themselves, and governed by them, and such plantings would be of immense service and rich in information, apart from all other considerations. Our growers are now only definitely organized for the business side of citrus work. I believe that there are just as cogent reasons for organization to promote research, investigation and production. The condition of the grapefruit in Southern California today is only one of many evidences of our needs in this direction.

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CHLOROSIS AGAIN.

Referring to your remarks on chlorosis, presumably of citrus trees, in March 2nd issue, headed "Up a Stump," the subject is now being much discussed among the citrus fruit growers. My contentions in my Pomona paper have been generally sustained by later observations.

As a matter of fact there are many causes of chlorosis in citrus trees, one being too much lime. The amount of lime necessary to produce this effect will vary with other features of environment. For instance, a smaller percentage of lime will produce the effect if there is standing water about the roots of the tree; and possibly the water condition named might itself prove a sufficient cause.

I have found very few instances where lime has been sufficient to do harm in this way, and then it would be limited to one or two trees.

And yet we find incipient chlorosis or mottled leaf in nearly all the orchards in Southern California. We also find the thrifty orange orchards practically co-extensive with the condition of two or more parts available lime to one part of available magnesia when these plant nutrients are determined in solutions made with a weak solution of hydrochloric acid, in which the soil sample is boiled for not more than half a minute. I have found that in some few cases where the ratio is bad the orange trees are not mottled, though otherwise in bad condition. This is probably due to the magnesia being more amenable to solution in so strong a solution as that I use.

Without doubt this magnesia-lime question is one of the fundamental ones with the citrus fruit grower in this part of the world. As we all know, lime is in greater demand by plants than any other of the mineral nutrients, and thus becomes one of the basic needs of plants. It is also thoroughly established by Loew and others that the assimilation of lime by the plants is interfered with by a relatively large amount of magnesia.

Available lime is the crying need of the citrus orchards in Southern California, and it must be used in allopathic or even heroic doses; for when two tons of air-slaked or carbonate of lime per acre are applied, it is but a little over .02 of a per cent in three feet depth of soil.

With the present light on the subject I incline to believe the ground limestone is the cheapest form, while this and gypsum, finely ground, are the best for large applications frequently used, so as to bring up the lime content rapidly.—R. R. Snowden, Chemist and Soil Engineer.

We note Dr. Snowden's statement "Without doubt the magnesia-lime question is one of the fundamental ones with the citrus grower, etc." We hope he is correct, for it will simplify many problems now puzzling many, but we will have to take exception to his "without doubt." The discussion at the San Bernardino convention showed there is much doubt in the minds of many who have studied the problem of chlorosis as to whether lime or magnesia have anything to do with it. "When doctors disagree," etc., we laymen will have to wait awhile. The suggestion of the application of ground limestone is however excellent.—Ed.

Surely, none are so full of cares or so poor in gifts that to them also, waiting patiently and trustfully on God for his daily commands, he will not give direct ministry for him, increasing according to their strength and their desire.—Elizabeth Charles.

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We never select a design without comparison with dozens of other designs—without placing side by side the best models of New York and Paris to make sure that each "NATIONAL" Dress is finer, more beautiful, more satisfactory, as well as incomparably more becoming and stylish.

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And what of "NATIONAL" Waists, and Skirts, and Hats, and all "NATIONAL" Apparel for Women, Misses and Children? Of every kind your "NATIONAL" Style Book shows you the most desirable and most stylish—always the absolute best. It shows you

Waists . . 98 cents to $8.98
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Petticoats, 59 cents to $7.98
Misses' Wash Dresses and Misses' Tub Suits, $2.98 to $9.98

And the wonderful new Made-to-Measure Tailored Suits, prices $15 to $40. A liberal assortment of samples of the materials used for these suits will be sent you free, if you state the colors you prefer. Samples will be sent gladly, but only when asked for.

Your Style Book, the copy we are now reserving here for you tells you on page 90 "How and Where the New Styles Originate," pictures for you four "NATIONAL" Dresses in their Paris Home, shows you on page 69 the Paris Originals of "NATIONAL" Dresses; page 75 is a page of wonderful dress values—four beautiful Lingerie Dresses at $6.98 and $7.98.

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The "NATIONAL" Policy

The "NATIONAL" prepays expressage and postage to all parts of the world.
You may return, at our expense, any "NATIONAL" Garment not satisfactory to you, and we will refund your money.

NATIONAL CLOAK & SUIT CO.
270 West 24th Street, New York City
Mail Orders Only. No Agents or Branches

CITRUS Trees

If you intend to plant citrus trees this year, your orders should be sent to us at once to insure getting the best stock.

ORANGES Washington Navel, Thompson's Improved, Valencia Late.

Eureka, Lisbon and Villa Franca. **LEMONS**

We offer the above in carload and less than carload lots. We have the finest and largest stock of Citrus Trees of all varieties in the state. Write for prices.

ROEDING & WOOD Nursery Co.
P. O. Box A. EXETER, Tulare Co., Calif.

Citrus and Tropical Fruit Trees

5000 Eureka Lemon trees
5000 Valencia Late Orange trees
5000 Navel Orange trees
3000 Grafted Walnut trees

People who intend to plant lemon or grafted walnut trees this season will have to secure them from some source early as they are now very scarce.

A. R. RIDEOUT
Magnolia Nursery **Whittier, California**

FLORIDA SOUR ORANGE SEED.
and Sweet Seedlings For Sale
OTIS E. HYDE, 1314 W. 51st St., LOS ANGELES, CAL

ORANGE SEED BED STOCK
2 Year Old Sweet Stock.
Fine Fibrous Roots
JOHN M. CARSE, 121 N. Wilson Ave.
ALHAMBRA
Or J. G. Ogilvie, 207 S. Broadway, Room 222, Los Angeles, California

WEBER AND COLUMBUS WAGONS

STEEL SKEIN
CAST SKEIN
STEEL AXLE
ONE HORSE
ALL SIZES
AGENTS WANTED

ARNOTT & COMPANY, Los Angeles, Cal.
Write for Catalog 112-118 S. Los Angeles St.

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THE efficiency of your irrigation system depends on the efficiency of the engine that operates it. You may not need to use it for months, but when you do need it, your need is urgent. It means actual financial loss then if it doesn't work. Bear this in mind when you select your engine. Pick out one that is a known quantity—not an experiment.

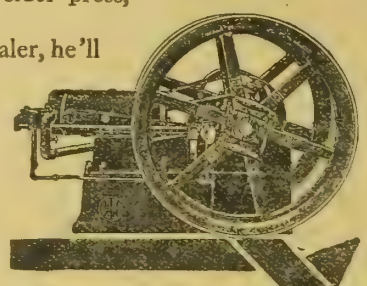
I H C Gasoline Engines are always a safe selection. Their efficiency has been proved. They have years of success behind them. There are thousands in use.

I H C Gasoline Engines

are made in all styles and sizes—1 to 45-H. P.—vertical or horizontal—stationary, portable, or traction. This makes it easy for you to get just the right type and size for your individual use.

Besides supplying power for your irrigating system, an I H C engine can be used for operating the feed grinder, fanning mill, thresher, separator, churn, washing machine, cider press, alfalfa cutter, etc.

If you will call on the I H C local dealer, he'll be glad to show you points of I H C superiority you ought to know about. Ask him for the I H C Gasoline Engine catalogue, or, write the nearest branch house.



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What is it? A clearing house of agricultural data.
What does it do? Helps farmers to help themselves.
How can it be used? By sending your farm problems and puzzling questions to the Bureau.
We are co-operating with the highest agricultural authorities, and every source of information will be made available to solve your difficulties. We shall be pleased to have an opportunity to assist you. Write the I H C Service Bureau.

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Chicago (Incorporated) U S A

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TREES THAT GROW AND BEAR TRUE TO NAME

We are wholesale growers of deciduous and citrus fruit trees, grape vines and eucalyptus trees.

Our stock this season includes 650,000 deciduous fruit trees alone. A large lot of these are on Eastern seedling root, which has proven to be almost proof against root knot.

Get the best stock available and at the most reasonable cost from a man who selects the buds and scions of the best strains.

Deliveries made from our sales yards at Fresno, Madera, Merced, Turlock, Banning and Chico.

Write for quotations on your order. Address Main Office, Fresno, Calif.

Wholesale 360 Acres Retail

Smyrna Park Nurseries

Ceres, California

A complete line of Nursery Stock. Special prices on Peach, Plum and Apricots. It will pay you to let us figure with you before placing your order for Spring planting. All stock guaranteed true to name.

Smyrna Park Nurseries

Campin & Moffet, Prop's.

Deciduous Bush-Tree Fruits

SPRAY FOR CODLING MOTH.

The spraying season for the codling moth of the apple and pear will soon be here. That spraying is necessary to the production of high-grade fruit no intelligent orchardist will deny, though it is but a few years since some maintained the natural enemies of this pest would be sufficient and allowed the pest to increase. So many markets will now refuse entrance to moth infested fruit that hog food is nearly its only outlet.

Of course, spraying is not an exact science and people who follow spraying are not always exact people, hence many failures. Some occurred in the Pajaro Valley section last year because many used an arsenate not suitable to that section. Thoroughly reliable arsenates are compounded and the spraying may be generally effective.

Be careful, be timely, use good chemicals, a fine nozzle and direct the spray downward into the end of fruit.

Some of the observations of Prof. C. W. Woodworth of the State University given at the Watsonville Apple Annual are timely at this season. Some of his statements pertain only to that valley but all are interesting. From his address we quote:

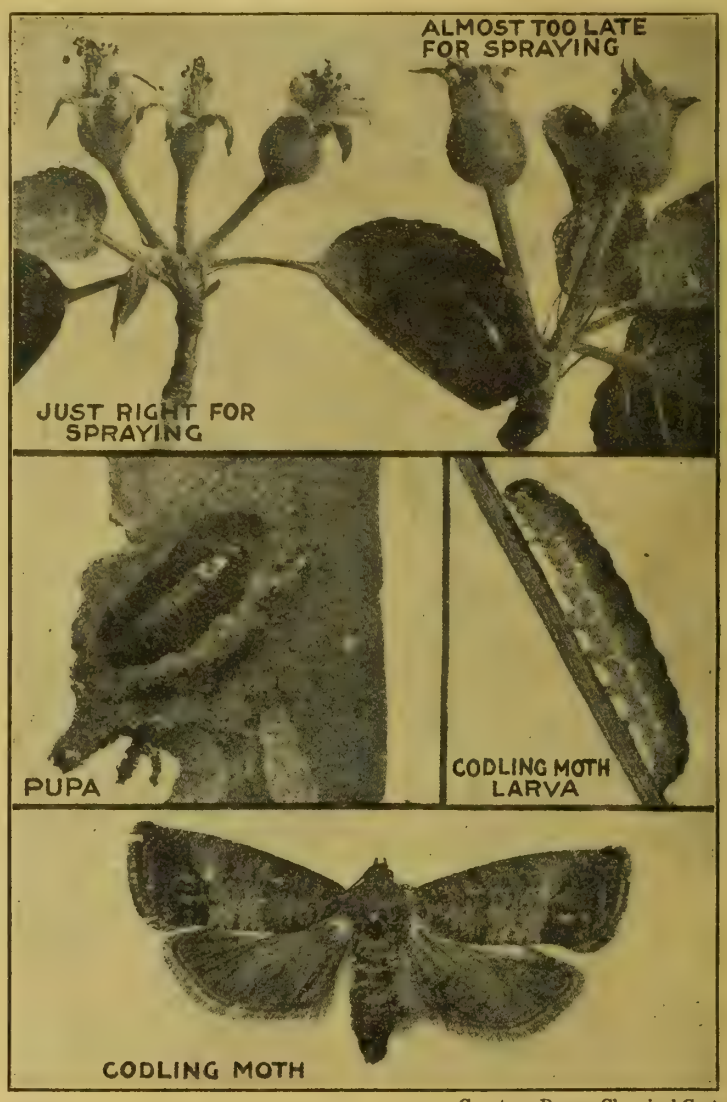
"We divided the work of codling moth control into three campaigns. The first to consist of the work of putting poison in the blossom cup, the second what other sprayings may be necessary to control the first brood of worms, and the third the sprayings against the later broods. The accumulated evidence of eight years of experimentation and observation all shows that the blossom cup campaign is of no practical value in any part of the Pajaro Valley.

"Upon this point the best practice of our growers stands in most striking contrast with that of many other regions and is most sharply opposed to the recommendations found in the greater part of the literature on the control of the codling moth. At the present time there is something of a controversy between advocates of numerous sprayings and of those who claim better results from a single spraying. Both parties believe in blossom cup spraying and the single spray advocates contend that if the blossom cup work is done thoroughly enough there will be no necessity for any supplementary sprayings. The outcome of the work in this valley is the discarding entirely of the blossom cup work. This does not in any way call in question the value of blossom cup spraying in other regions, indeed, the evidence seems to be conclusive that the single spray method in some regions produces results that are as good as can be produced by any method but simply emphasizes the difference corresponding to the climate of the different localities.

"One condition which renders the single blossom cup spraying an impossibility here in the Pajaro Valley is the long period of blooming. Before a tree is in full bloom one often finds fruit on the tree as large as the end of one's finger. If it were necessary to place the poison in every blossom cup at least three sprayings would have to be given during the blossoming period.

"A second condition rendering blos-

(Continued on Page 360.)



Courtesy Braun Chemical Company

CODLING MOTH IN VARIOUS STAGES

Grand Special Opportunity To Secure Strictly High Grade Trees At Especially Reduced Prices

This is our second and last stock of the season. Trees are all first class in their grade. They are thoroughly dormant and in fine shape for planting. Weather conditions for the handling and planting of trees were never more favorable. Trees planted within the next three weeks will do as well as any planted earlier in the year.

Give us your order for what you can use of the stock and we will make immediate shipment. DO NOT DELAY. NOW IS THE TIME TO ORDER. The season is very favorable for late planting and at these prices it is to your advantage to secure as many as you can set out.

You can order direct from this page as it contains our complete holding at the present time. No correspondence necessary.

We quote the following special prices together with the number of trees of each variety which we have on hand.

APPLES.

	Each	10	100	1000
4 to 6 feet	$0.25	$2.00	$17.50	$150.00
3 to 4 feet	.20	1.75	15.00	125.00
2 to 3 feet	.15	1.25	10.00	75.00

	4-6 ft.	3-4 ft.	2-3 ft.
Aiken	25	35	183
Alexander	...	92	275
Am. Sum. Pearmain	...	...	25
Ark. Beauty	15	5	...
Ark. Black	14	...	321
Baldwin	296	340	117
Ben Davis	...	...	30
Bismarck	...	25	75
Fall Pippin	...	...	12
Gano	43	85	123
Golden Sweet	...	33	3
Golden Russet	20	15	8
Gravenstein	78	98	63
Gr. Gol. Pip	139	289	243
Jonathan	153	683	844
Limber Twig	...	23	18
Maiden Blush	...	...	10
Mam. Black Twig	142	10	44
McIntosh Red	178	431	557
Ortley	875	940	898
Pewaukee	20	75	53
Red Astrachan	...	...	500
Red Beitigh	123	140	222
Red Siberian	...	21	38
Rome Beauty	...	222	377
Shackelford	18	...	8
Spitzenberg	...	...	700
Stark	18	15	23
Stayman Winesap	32	20	23
White Astrachan	1	50	130
White Winter Pearmain	...	...	70
Whitney	...	28	23
Winesap	...	120	244
Winter Banana	...	...	10
Wisconsin Russet	10	...	10
Yellow Bellflower	400	400	550

APRICOTS.

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$20.00	$180.00
3 to 4 feet	.30	2.50	18.00	165.00
2 to 3 feet	.25	2.00	15.00	

On Peach Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Blenheim	...	28	177
Early Rose	10	34	20
Hemiskirk	80	50	160
Newcastle Early	36	40	20
Tilton	17	10	7

On Cot Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Blenheim	1	7	16
Early Rose	60	10	13
Newcastle Early	30	3	1
Peach	260	...	40
Royal	...	2	52
Tilton	103	21	58

ALMONDS.

	Each	10	100	1000
4 to 6 feet	$0.40	$3.50	$20.00	$180.00
3 to 4 feet	.35	3.00	18.00	170.00
2 to 3 feet	.30	2.50	17.50	160.00

On Almond Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Jordan	...	14	10
Languedoc	3	125	25
Ne Plus Ultra	1	13	10

On Peach Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Drake's Seedling	...	13	...
I X L	21	5	9
Jordan	...	44	...
Languedoc	290	50	15
Peerless	860	...	228
Texas Prolific	311	540	...
Nonpareil	150	...	50

PEACHES.

	Each	10	100	1000
4 to 6 feet	$0.30	$2.50	$15.00	$110.00
3 to 4 feet	.25	2.00	12.50	90.00
2 to 3 feet	.20	1.50	10.00	75.00

	4-6 ft.	3-4 ft.	2-3 ft.
Alexander	151	...	...
Early Crawford	36	22	94
Elberta	773	...	149
Fay Elberta	247	237	65
Foster	133	38	50
Late Crawford	...	18	44
Levi	320	452	88
Lovell	3282	255	590
McKevitt	...	200	...
Muir	262	44	980
Orange	2732	...	...
Phillips	85	117	1020
Picque Late	150	100	100
St. John	1000	200	...
Salway	537	89	780
Strawberry Free	38	73	10
Susquehanna	1020	...	65
Triumph	202	8	30
Tuscan	590	319	170
White Heath	70	347	200

PLUMS.

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$20.00	$180.00
3 to 4 feet	.30	2.50	18.00	160.00
2 to 3 feet	.25	2.00	15.00	125.00

On Peach Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Bradshaw	147	40	45
Burbank	55	100	70
California Red	1300	440	80
Climax	357	2	...
Clyman	560	170	50
Diamond	417	40	110
Fallenburg	1	7	...
French	258	90	630
Giant	109	...	49
Grand Duke	16	...	215
Hungarian	10	10	693
Imp. Prune	18	30	25
Kelsey	171	58	40
Red June	99	75	25
Santa Rosa	...	...	90
Satsuma	376	117	4
Shiro	270	170	...
Sugar	217	30	...
Tragedy	27	3	7
Wickson	...	5	4
Yellow Egg	...	33	...

On Myrobolan Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Bavoy's Green Gage	56	...	...
Bradshaw	170	50	30
Burbank	...	...	44
Climax	108	...	10
Coes Gol. Drop	118	75	70
Diamond	...	35	35
French	260	...	...
Giant	75	...	...
Grand Duke	200	...	...
Hungarian	150	...	...
Imperial Prune	3	5	70
Imperial Gage	237	8	...
Kelsey	148	160	80
Santa Rosa	1208	106	25
Sugar	10	110	380
Tragedy	20	130	160
Wickson	2	...	...

On Mariana Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Bradshaw	108	66	60
Burbank	24	...	3
Climax	...	...	8
Diamond	20	5	61
Fallenburg	3	6	12
Grand Duke	2	...	25
Hungarian	20	92	10
Santa Rosa	...	...	36

CHERRIES.

	Each	10	100	1000
4 to 6 feet	$0.35	$3.00	$17.50	$160.00
3 to 4 feet	.30	2.50	16.00	135.00
2 to 3 feet	.25	2.00	12.50	100.00

On Mazzard Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Bing	45	5	...
Black Oregon	700	45	...
Tartarian	226	1	...
Early Chapman	...	...	6
Early Richmond	55	...	...
Lambert	50	...	5
Purple Guigne	100	...	...
Royal Ann	50	48	70

On Mahaleb Root.

	4-6 ft.	3-4 ft.	2-3 ft.
Bing	436	100	30
Black Oregon	...	11	...
Tartarian	...	18	...
Centennial	356	111	40
Early Richmond	58	...	...
Knights E. Black	...	4	5
Lambert	...	...	15
Purple Guigne	17	7	5

FIGS.

	Each	10	100	1000
4 to 6 feet	$0.50	$3.50	$25.00	$200.00
3 to 4 feet	.40	3.00	20.00	175.00

	4-6 ft.	3-4 ft.	2-3 ft.
Calimyrna	22	24	...
Capri	8	...	...
Mission	50	120	...
San Pedro	10	...	...
White Adriatic	11	2	3

GRAPES.

No. 1 Rooted Vines.

Each	10	100	1000
$0.10	$0.75	$3.50	$20.00

Black Ferrera	1500
Black Morocco	1350
Black Prince	599
Blue Malvois	149
Cornichon	4130
Fountanbleau	160
Emperor	100
Isabella	18
Malaga	60
Purple Damascus	1694
Rose Peru	100
Thompson Seedless	951
Rose Chassler	75
Dottier	500
Verdel	45
Zinfandel	1100
Mission	115

BLACKBERRIES.

	Each	10	100	1000
Rooted Plant	$0.10	$0.75	$2.50	$15.00
Lucretia				2100
Lawton				75
Mammoth Black				224

GOOSEBERRIES.

	Each.	10	100
Strong 1-year Plants	$0.20	$1.50	$10.00
Oregon Champion			2.95

PHENOMENAL BERRIES.

	Each	10	100	1000
Rooted Tips	$0.10	$0.75	$5.00	$35.00
Phenomenal				500

NECTARINES.

4-6 ft.	3-4 ft.	2-3 ft.
8	36	50

PEARS.

	Each.	10	100	1000
4 to 6 feet	$0.35	$3.00	$22.50	$200.00
3 to 4 feet	.30	2.50	18.50	165.00
2 to 3 feet	.25	2.00	15.00	125.00

	4-6 ft.	3-4 ft.	2-3 ft.
B. Clairgeau	30	2	20
B. Hardy	17	88	58
Comet	10	...	...
Comice	5	7	130
Howell	23	...	...
Bartlett	...	59	..

POMELO.

⅜ to ½ Inch Caliper.

Marsh Seedless	20

CURRANTS.

	Each	10	100
Strong 1-Year Plants	$0.15	$1.00	$6.00
Cherry			56
Fays Prolific			399
White Grape			399

PERSIMMONS.

	Each	10	100	1000
4 to 6 feet	$0.40	$3.00	$20.00	$175.00
3 to 4 feet	.35	2.50	15.00	125.00

	4-6 ft.	3-4 ft.	2-3 ft.
Hachiya	50	1000	...
Hyakume	50	900	...
Mammoth Goshio	200	1361	...
Tani Nashi	30	250	...

QUINCES.

	Each	10	100	1000
4 to 6 feet	$0.40	$3.00	$25.00	.....
3 to 4 feet	.35	2.50	20.00	.....
2 to 3 feet	.25	1.75	15.00	.....

	4-6 ft.	3-4 ft.	2-3 ft.
Smyrna	262	...	...
Orange	95	130	...
Reas Mammoth	198	...	...
Pineapple	150	...	...

WALNUTS.

Grafted on Black.

	Each	10	100	1000
4 to 6 feet	$1.75	$15.00	$125.00	.....
3 to 4 feet	1.50	12.50	100.00	.....

	4-6 ft.	3-4 ft.	2-3 ft.
Franquette	38	...	...
Mayette	10	...	...

WALNUT—SEEDLING.

Grown from Selected Seed.

	Each	10	100	1000
4 to 6 feet	$0.65	$4.50	$35.00	.....
3 to 4 feet	.50	3.50	30.00	.....

	4-6 ft.	3-4 ft.	2-3 ft.
Franquette	...	5	...
California Black	27	...	...
Mayette	161	62	...

PECANS.

Grafted.

	Each	10	100	1000
4 to 6 feet	$1.75	$15.00	$125.00	.....

	4-6 ft.	3-4 ft.	2-3 ft.
Stewart Pecan	...	7	...

ORANGES.

⅜ to ½ Inch Caliper.

	Each	10	100
½ to ⅝ foot	$1.50	$13.50	$125.00
⅜ to ½ foot	1.40	12.50	110.00
Washington Navel			273

LEMONS.

	Each	10	100
½ to ⅝ foot	$1.50	$13.50	$125.00
⅜ to ½ foot	1.40	12.50	110.00
Villa Franca			20
Eureka			10

STRAWBERRIES.

	Each	10	100	1000
Rooted Plants	$0.10	$0.50	$2.00	$10.00
				No. 1
Dollar Strawberries				1500

LOGANBERRIES.

Loganberries	500

RASPBERRIES.

	Each	10	100	1000
Rooted Plants	$0.10	$0.75	$2.50	$15.00

	4-6 ft.	3-4 ft.	2-3 ft.
Cuthbert			366
Hansel			480
King			500

Placer Nurseries

SILVA-BERGTHOLDT CO.

P. O. Box 237 **NEWCASTLE, CAL.**

TREES

True to Name

THE ADVANTAGES

of being able to get home-grown trees and vines from a reliable concern who use the greatest care and save no expense to supply their customers only healthy, clean stock, "True to Name," are very great. Our 28 years' experience in this business with thousands of satisfied customers all over the west, can best testify to our record for square dealing and superior stock.

We solicit your orders for nursery stock of all descriptions:

PALMS
ROSES
CITRUS
DECIDUOUS
ORNAMENTAL
SHADE TREES
VINES and PLANTS

Let us figure on your requirements.

LARGE PROFITS

Year after year can be made from a well kept up orange or lemon orchard. In fact, there is no more profitable crop that can be raised than oranges, provided the soil and climatic conditions are right.

Our citrus stock is grown under ideal climatic conditions in heavy black loam soil, insuring sturdy, strong, well matured trees with excellent roots.

Now is the time to place your orders as most planting is done in April. We are prepared to fill orders for almost any quantity, no matter how large or small your order may be.

Every fruit grower should have a copy of "California Horticulture" the fruit growers' guide. It gives the best methods and suggestions for planting, pruning and care of stock based on 25 years' actual experience. It is a veritable compendium of information. 120 pages. Beautifully illustrated. Price, 25 cents postpaid.

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It lists and describes over 2000 varieties of trees and plants carried by us. Will be sent free if you mention this ad.

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FANCHER CREEK NURSERIES
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Geo. C. Roeding Pres. & Mgr.
Box 12 Fresno California USA

SPRAY FOR CODLING MOTH.

(Continued From Page 358.)

som cup spraying inefficient in this valley is the fact that comparatively few of the worms enter the fruit at this point. This difference in the habit of the young worm corresponds with the fact that the fruit is almost always larger before the worm attacks it and in every district where worms attack larger fruit a large proportion enter on the side. Here it is the first generation that makes the side entrance and elsewhere the first generati n attacks the fruit when very small. The same cold, spring weather that causes the long protracted bloomings of the tree holds back the appearance of the moth still more and instead of all coming forth simultaneously, the over-wintering individuals are emerging during two or three months. Most of the eggs are not laid till the fruit is well advanced.

"The basis for the discarding of the blossom cup spraying however was not so much this observation of the peculiarities of the life history as the fact that perfect control, as good as is obtained by any method, is the result of a spraying program which absolutely ignores the blossom cup work. As far as is known none of the orchardists in this valley have ever practiced blossom cup spraying. Mr. Volck has employed the term 'blossom cup spraying' to describe the effort to wet the hairy portion of the apple just outside of the blossom cup, but this is not at all what is meant by the term elsewhere. Others mean the inside of the cup where the pistil and stamens arise.

"Almost complete absence of worms at picking time can be secured when no effort at all is made to control the first generation of the insect. This practice, however, is not to be recommended and is indeed not the present practice of any of the growers. However, if an orchardist desired to make a single spraying do for the year an application in August would give, in this valley, the best degree of control that could be secured by any single application. The reason that generally the first generation produces but little or no loss to the crop is due to the fact that the dropping of a few infested fruit in midsummer simply thins the crop and decreases the number of apples but not the number of pounds of fruit finally harvested. The wormy fruit found at picking time is practically all the result of the work of the later generations of worms and a thorough spraying in August will destroy the larger proportion of these.

"The reason why the single August spraying is not recommended is that while such spraying prevents a large part of the fruit becoming wormy it will not prevent the spots produced by the very young worms before they get enough poison to kill them. These spots are about as conspicuous as those produced by the San Jose scale and, of course, should be avoided as far as possible. A single spot of this kind does not at present cause fruit to be graded down, but it is certainly objectionable.

"The present practice of endeavoring to destroy as many as possible of the first brood is correct according to our present knowledge of the problem provided they are supplemented by one or more later sprayings. Such a large proportion of the apple orchards are sprayed that the wormy apples now allowed to rot on the ground or sent to the dryers are almost entirely due to the neglect of this very necessary part of the program of effective spraying.

"The spraying in August will justify itself in the financial returns from the crop at least equal to, and in most cases very much better, than any of the earlier sprayings. There may be some improvement possible in some orchards by increasing the thoroughness of the application and perhaps also in the better timing of some of the earlier treatments, but in the majority of cases the spring work is well done and all that is necessary to bring up the general average till it fairly approximates the best practice is the addition of the later sprayings. This is, therefore, the one point where we can expect to obtain rapid and tangible results. The general adoption of the autumn spray will add hundreds of carloads to the output of the valley and a corresponding amount to the profits of apple growing in this valley. In these later sprayings the necessity of using a strictly neutral arsenate is particularly apparent. The poisoning effect of the leaves is apparent to everyone, in cases where considerable quantities of soluble arsenic enter the plants; sometimes quite as serious results may come, however, without characteristic scorching. Chronic poisoning, showing itself only in the yellowing and dropping of the leaves early in the fall, presents the development of the full size, sweetness and crispness of the apple. This chronic poisoning of arsenic may result in extreme cases in an almost complete loss of the crop on account of their small size and inferior quality. Fortunately for the growers in this region a perfectly neutral arsenic is obtainable and it is possible to determine both by chemical and foliage tests the character of such an arsenical and there is no longer any excuse for omitting this spraying which otherwise would be so dangerous as to render it problematical whether their application would be justifiable. If next year is to see the same advance in spraying that the valley has experienced the last three years it can only be done by improving the spraying practice in the way here suggested.

"At the beginning of my remarks I stated that no equal area in the world showed so universal and efficient spraying. It should not be understood that there are numerous smaller areas that are better treated, indeed, it seems to be generally conceded that many of the smaller valleys in the Northwest produce fruit which averages much freer from culls than does the Pajaro Valley, it should be our ambition to not only maintain the pre-eminence of amount of spraying, but to produce fruit which will average equal to the best, notwithstanding the fact that in some particulars we have greater difficulties to overcome."

According to the experts of the North Dakota Agricultural College, damage to trees by rabbits gnawing the bark can be stopped in the following way: Make a thick whitewash; slacking the lime over night improves it. To each pailful of the whitewash add three tablespoonfuls of Paris green, and paint the trees with it. Stir frequently when applying it.

High hearts are never long without hearing some new call, some distant clarion of God, even in their dreams; and soon they are observed to break up the camp of ease, and start on some fresh march of faithful service.
—J. J. Martinneau.

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NURSE PLANT METHODS OF PROPAGATION.

The U. S. department of agriculture has issued a bulletin in which the subject of "The Seedling-Inarch and Nurse-Plant Methods of Propagation" in connection with tropical and subtropical fruits and ornamental plants is discussed.

The Seedling-Inarch Method, it is believed, is destined to prove of the greatest importance in a very wide range of plant industries in which the early fruiting of a variety is very desirable. This shortening by a year or more of the time required for the fruiting of a new variety is a matter of such unusual importance as to demand the widest publicity among all interested in the cultivation.

While investigating the asexual propagation of some tropical fruit trees and other plants, it was discovered that a large number of hard-wooded shrubs and trees are capable of a very rapid increase when propagated by processes which may be termed the seedling-inarch and nurse-plant methods.

These methods are inexpensive and, owing to their simplicity, may be used by persons without previous experience in the propagation of plants. The ever-increasing number of plant breeders will thus be enabled to save much time in determining the value of hard-wooded plants raised by means of hybridization. The methods can be used in manipulating seedlings of rare trees and shrubs intended for crossing, so that each plant will bloom in a much shorter time than if left to grow on its own roots. Seedlings of all hard-wooded plants resulting from collections made by travelers in foreign countries may thus be brought to the flowering stage and their value determined quickly.

The most remarkable feature of the new methods lies not only in their simplicity but also in the certainty of the unions which result. The writer has very few unsuccessful unions and none among those classes of plants where the most suitable stocks are known and in common use. Not only is it possible to inarch a seedling a few weeks old to a large stock, but a moderate-sized seedling stock can be inarched to a shoot of a rare shrub or tree having the same diameter as the stem of a seedling. A satisfactory union may thus be induced where other methods of asexual propagation have invariably failed.

Very young seedlings of hundreds of rare hard-wooded plants may be worked on the same or allied species or genera and their value determined much in advance of the time when they would flower on their own roots or on plants obtained by grafting or budding from the mature shoots of the seedlings.

Hard-wooded seedlings which need to be flowered in the shortest possible space of time, in order to determine their value, are used for inarching as soon as the first leaves attain a fairly firm texture; but when seedlings are used as stocks for the vegetative propagation of established varieties by uniting the stock to small branches, then larger seedlings are used.

The methods of propagation followed up to the present time have all been more or less faulty and cumbersome. The budding of seedlings in nursery rows requires the service of a trained propagator who knows what to do and how and when to do it. The average cultivator can hardly hope to acquire the skill necessary for the operation; moreover, there is always danger of loss from transplanting budded seedlings. Propagation by the older method of inarching on plants growing in 5 and 6-inch pots, sometimes for more than a year, is an expensive method, necessitating the erection of strong staging around the parent trees for the accommodation of plants in pots; moreover, the roots of the seedlings become curled in the pots and make it difficult to develop a good root system for the future tree. The method now described has the advantage of being by far the easiest to use. Each grower may be his own propagator. With a helper to prepare the seedlings he can easily inarch several hundred plants in a day.

NATURAL VEGETATION AN INDICATOR.

Extensive tracts of land, including thousands of acres that are doubtless capable of producing crops, remain unoccupied in the United States, especially west of the ninety-eighth meridian. In places where no attempt at tillage has been made the would-be settler or investor is often at a loss to know whether the land in view is adapted to a particular crop or even whether it has any agricultural value. In such places the character of the natural vegetation is usually studied as an index of its crop-producing possibilities, but mistakes are often made in using this indicator without sufficient consideration.

As the result of investigations carried on during the past three years in the Great Plains area, the U. S. department of agriculture has issued a bulletin containing definite determinations of the correlations between different types of vegetation and the physical characteristics and crop possibilities of the land occupied by each type. The chief object of the bulletin is to show how the errors resulting from hasty and inconsiderate conclusions may be avoided, and how new lands may be classified with reasonable accuracy on the basis of natural vegetation. The publication is not a report of a land survey, but rather a discussion of methods which can be utilized to advantage in making such a survey.

The work has brought out clearly that the general conditions, whether favorable or unfavorable to crop production, are indicated by the native plant cover.

It is wonderful what a change can be wrought in the appearance of a plain, unattractive farm-house by the simple expedient of building a porch around it, or on one or two sides, and planting some climbing roses. Many an unsightly home has thus been transformed to a thing of beauty.

We never miss an opportunity of giving innocent pleasure, or of helping another soul on the path to God but we are taking away from ourselves forever what might have been a happy memory, and leaving in its place a remorse.—Frances Power

---

Be simple and modest in your deportment, and treat with indifference whatever lies between virtue and vice.—Marcus Antonius.

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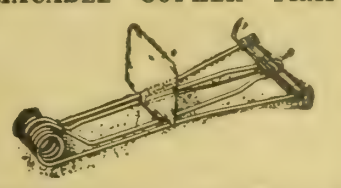

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Garden and Field Crops

MAKING THE HOME PAY.

"Marketing home products advantageously is of paramount importance," says Kate V. Saint-Maur in Woman's Home Companion for January, "and seems to be the point on which many beginners fail. Commission men and wholesale markets should not be resorted to, because home-grown products of all descriptions excel in quality and not in quantity; therefore, appeal to high-class private custom, who desire the very best, regardless of price.

"I have never sold through any of the ordinary market channels, yet have always had more orders than I could fill and received a little more than the ordinary prices. Naturally the location of the home and the quality of the wares must influence the returns to some extent, but not half so much as the method of packing and shipping. Nicety in these respects captures the favor of customers and they take pride in exhibiting things to their friends—which is the very best sort of advertising a home business can have.

"When I had reached the point where I knew that I could depend on a certain number of eggs regularly, I wrote to a doctor friend in the city and told him that I could promise to deliver six dozen strictly fresh-laid eggs twice a week for the whole year, at a uniform price of forty-five cents a dozen; customers to pay the express charges, which would be twenty-five cents on each six dozen. (Express companies return empty packages free of charge.) Within a month he had found four customers for me, who would take two dozen a week each, the box to be delivered at his house, where the other three customers were to call every Saturday and Wednesday.

"All poultry-supply houses have wooden boxes for sale with divided trays, made to hold three, six or twelve dozen eggs, for about two dollars apiece. Before the year was out each of the three other customers had interested one or two friends, with the result that three six-dozen boxes were shipped three times a week, and the following winter I had orders from the same people for butter and table poultry."

BERRY PRODUCTION.

The production of strawberries has been overdone in Southern California, especially about Los Angeles, until it is predicted that the lack of replanting will cause a partial famine this year.

The acreage planted this year in the principal strawberry growing sections of Southern California is estimated at between 700 and 800 acres, as compared with about 960 acres last year. This shows a decrease of approximately 16 to 27 per cent in acreage and will mean a like decrease in the amount of berries produced.

On an average, each acre will produce about 500 crates, which means that a total of 350,000 to 400,000 crates or 700 to 800 cars will be the yield.

Many of those withdrawing are Japanese, but despite this, the strawberry market this year will, as usual, be controlled by the Japanese. Probably 90 per cent of the strawberry crop will be grown by Japanese growers.

Regarding the output, a Los Angeles jobber is quoted in a daily paper as follows:

"Half or more than half the crop will be consumed at home. The remainder will be shipped to outside points.

"Most of the berries shipped away will go to Northern California, Oregon and Washington. A few probably will go to British Columbia. The Southern California growers have a great advantage over their northern competitors, as the berries mature much earlier here than they do in the northern part of the state and in Oregon and Washington. This gives the Southern California berries practically a clear field for one or two months.

"Many berries will be shipped to New Mexico and Arizona also. Some will go as far east as El Paso, Tex. About April 15 they will begin to arrive freely.

"The plants are looking fine and I have every reason to expect the quality will be excellent. The plants have been much benefited by the recent rains.

"This year, instead of shipping berries from the fields to Los Angeles and from here to outside points, we shall establish a station in the fields and ship direct from the fields to the North and East. Our shipping station will be in the Gardena-Moneta section. By experiment last year we found the latter method preferable."

PASSING OF SMALL FRUIT GROWER.

We can see a gradual sluffing off of the small fruit industry close in around Denver, and we mark the passing with a good deal of regret. Twenty-five years ago this neighborhood was resplendent with small patches of profitable fruits, and everybody pursued a happy course in bringing their crops into the perfection which hope dictated and the market bought at top prices. Then came the land boom of 1888, when owners became fidgety. Then speculators appeared on the scene, and the land was parceled out and sold to suburbanites and others with varying ideas. Those who continued the fruit business on these newly acquired lands found they could not make a profit, for the interest ate them up, and so they passed on. The rich suburbanites knew nothing about horticulture, and entrusted their grounds to hired help, with the inevitable result. The old-timers who remained in the business lost faith and became careless when the Dagoes moved in and set up fierce competition, so that things have been going from bad to worse until now not nearly so much small fruit is produced as twenty years ago to feed a population that has trebled in that time. All this means that the outside communities as far distant perhaps as a thousand miles are called upon to supply us, and every season the cry goes up from Macedonia that we have not enough fresh fruit to feed the hungry horde, and canned goods are not altogether inviting when we ought to be getting better things. This is a long story in a few lines.—Denver Field and Farm.

HOIST.

"I am sorry to be critical, my dear," said Mr. Lambkin, "but this pie is not the kind that mother used to make—not by a long shot."

"It's too bad, Henry," said Mrs. Lambkin, amiably. "I don't know what to do about it. Perhaps you'd better ring her up on the 'phone and tell her. She sent it over this afternoon."—Harper's Weekly.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

SELECTION OF A PROFITABLE TYPE OF DAIRY COW.

By Prof. W. H. Pew, Iowa State College.

The breeds of milk-producing cows are numerous. All have excellent qualities, some excelling others in quality of milk produced, and some excelling in the percentage and total quantity of butter fat produced. The breed which the farmer selects must be the breed which he particularly favors and the one which is peculiarly adapted to the kind of market which he is intending to supply.

All of the special purpose breeds of dairy cows have been given public tests and have proved themselves to be economical producers when properly handled. Any one of the breeds of dairy cattle, as the Guernsey, Jersey, Holstein or Ayrshire, if adapted to the production of the market demands and if properly handled and cared for, will yield the owner a good profit.

The dairy cow, of whatever breed she may be, is a machine which economically converts roughages and concentrates into edible products, as milk and butter fat. It is the good fortune of the Iowa farmer to be able to raise large amounts of roughage and some kinds of grain feeds particularly adapted to the dairy cow. Hence, in selecting a dairy cow, it is best to bear in mind a few facts which are given below:

1. She must be able to consume large quantities of roughage, as well as be able to consume sufficient amounts of concentrated feed.
2. She must be a cow of strong constitution.
3. She must be persistent in her milk flow.
4. She must convert her feed into milk and butter fat, rather than use her feed for the production of body fat.
5. She must be a regular breeder.
6. She must be of a good disposition, and be of temperament to produce dairy products.
7. She must possess a well-developed mammary system.

The dairy cow must be able to consume large quantities of roughage, because the roughage is the cheapest part of the ration and raised very extensively in this state. In order to produce large quantities of milk, she must eat large quantities of food, or, in other words, be a good feeder. The large muzzle, head of proper proportions, great depth through the chest and large size of barrel are all indications of feeding capacity. The cow with the contracted muzle, the narrow face and head, the shallow chest and lack of "bread basket" is the cow that refuses to do her duty at the feed manger.

By constitution is indicated the power to withstand the severe strain of producing large quantities of milk as well as be able to produce offspring. In order to do these things, the cow must have proper heart girth or space in which the vital organs can perform their duties. The strong, vigorous cow with large nostrils, the clear and healthful appearing eye. the deep chest and large barrel, is the cow which conforms most closely to the cow of strong constitution. Cows weak in constitution have been found to be:

1. Light feeders.
2. Easily thrown off feed.
3. Not persistent milkers.
4. Not economical producers.

Persistency in milk flow is one of the qualities which make a profitable dairy cow. The cow that starts in at freshening time to produce thirty or forty pounds of milk daily and fails to continue this flow for more than a short time is not the persistent milker. To be profitable, it requires a cow to give a large flow of milk through her entire lactation period.

Beef cattle will convert the food they receive into body fat. The best type of dairy cow will convert her food into milk and butter fat, and will even rob her body of fat in order to supply the pail. The type of cow that lays on fat instead of producing heavily is the undesirable type of cow for dairy purposes.

Regularity of breeding is another one of the requirements of a dairy cow in order to insure the heaviest of milk production. Of course, farrow cows will be persistent in their milk flow, but they will not produce the maximum quantity.

Docility is another of the important requirements of a good dairy cow. Ugliness and irritability are not qualifications at all desirable.

The term "dairy temperament' is applied to dairy cattle, indicating strong vitality and recuperative ability, enabling the animal to maintain her productive powers. Such temperament is found in cows open in their skeleton framework, having much space between vertebrae of the back and between the ribs.

The mammary system is of utmost importance in considering the qualifications of a good dairy cow. The udder, the center of milk manufacture, ought to be large, well balanced as to quarters, extending well in rear and forward on the abdomen; the teats of good size and squarely placed on the corners of the udder. The udder must be well nourished with blood, which carries the nutrient portions of the digested food. This blood reaches the udder through the pelvic region, and is carried away by the milk veins which appear on the abdomen of the cow and enter the milk wells. Hence the size of milk veins and milk wells is indicative of the amount of blood that is passing away from the udder. The skin of the udder ought to be soft, and the udder itself ought to be pliable.

The typical dairy cow combines feeding capacity, great constitution and large milk production in a body of quality, full of nerves, and not disposed to lay on fat during the production period.

THE SWAPPERS.

Silas wasn't quite sure that Jedediah's old horse was quite up in value to his cow, and he demurred.

"Wa-all I dun'no,' Jed-diah," he said, scratching his head dubiously. "That there old caow o' mine hez her good pints."

"Sure she has, Si," returned Jedediah, "but I calculate ye gotta agree that a caow's to be jedged not by her pints, but by her quarts."—Harper's Weekly.

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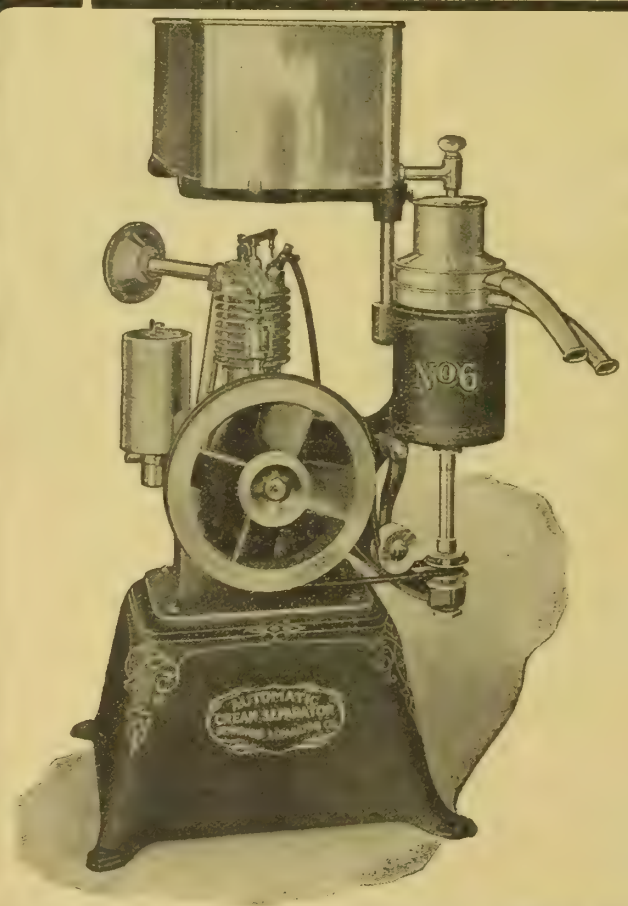

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THE PERCHERON SOCIETY OF AMERICA.

Has just taken over all records and business of Percheron Registry Company of Columbus, Ohio. 215 breeders took membership in P. S. of A. during December and January alone. 137 more new members added thru recent acquirement named above. There is now but one recognized Society in the United States recording Percherons. For information address WAYNE DINSMORE, Secretary, Union Stock Yards, Chicago, Ill.

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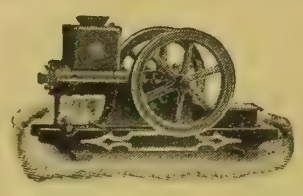

When you go out to buy a good cow, you are quite apt to ask about ancestry; now why not do the same when purchasing a cream separator? Why not enquire about its record; you would not expect to get a good cow from poor stock, and you cannot get a good separator made from poor stock. We wish every owner, or expected owner, of a Cream Separator could visit the Empire factory, and see the stock and material and skilled workmanship, in these machines. It surely would open your eyes and you would go back home and say to the good wife, "Well, they are worth the money, they are surely made upon honor, and will stand the test." Many a man has been immensely surprised in going through the Empire Factory to see the amount of work put into these machines—it's quality every time.

Empire Cream Separator Co., Ltd., 85 North 6th St., Portland, Ore.

PERCHERON SOCIETY OF AMERICA.

The most important move that has taken place in the history of record consolidations took place on February 9th, when an amicable arrangement was reached between the representatives of the Percheron Society of America and the representatives of the Percheron Registry Company.

By the terms of this agreement the Percheron Society of America has taken over all of the books and records of the Percheron Registry Co. and recognizes as pure bred the horses recorded by said Percheron Registry Company for which certificates have been issued, bearing the name of William Bell, president and Charles C. Glenn, secretary.

This move has long been recognized as desirable and will benefit every breeder of Percheron horses in America. While the number of animals recorded by the Percheron Registry Company is not considerable, amounting to but 4823 head all told, the fact that they have been recorded by a separate company has worked hardship to many breeders.

A most valuable publication of the society has just been issued in the Percheron Stud Book, Volume 12. It is in two parts, Number One listing stallions and Number Two, mares. These books contain pedigrees from 55,000 to 59,010, inclusive, and a number of other pedigrees hitherto unpublished. Part One contains proceedings of the annual meetings of '09 and '10, also complete constitution and by-laws. The books may be had at $5.00 by non-members, $3.00 by members. Former issues may also be had at same price. The growth in membership has been extraordinary, and with the absorption of the Percheron Registry Company, great solidity and popularity will be given. Any one desiring information regarding the organization should address Wayne Dinsmore, secretary Percheron Society of America, Union Stock Yards, Chicago.

FERRETS ON FARMS.

Every year thousands of bushels of grain are destroyed by rats and many fruit trees are ruined by rabbits.

For destroying the rats poison cannot be relied upon, and it is dangerous to use. Cats and traps will only catch a few of the unsuspecting ones. The gun and dog are of no use when the rabbit is driven into its burrow.

The value of the ferret for exterminating these pests is not appreciated by the majority of farmers. With the ferret there is no getting away. It will drive rats and rabbits and other small animals from all manner of hiding places. Being small in size and shape, it will go wherever a small rat will.

Ferrets are natural hunters and need little training. They are bloodthirsty and fearless, and follow by scent. Nearly all animals are in deadly fear of them and will make their escape if possible. A rat will not fight a ferret unless cornered, and then is sure to get the worst of it.

They are of two colors—white and brown. There is no difference in breeding and working, only a fancy as to color. The male is a little larger than the female and will stand more hard work. For hunting rabbits one is all that is necessary. For rats under barns or large buildings, several give best results. They are hardy animals and with proper feed and care will do well in any climate.

The best feed for them is bread and

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.

milk and fresh meat. A mash made from whole wheat flour is good, if fed carefully.

Every barn should have its pen of ferrets, and then when a rat shows up go after it.—The Smallholder, London.

DELAINE MERINO.

An interested reader wants to know what kind of a sheep the Delaine Merino is, and if it is very good as a producer of mutton.

Delaine comes from two words, "de," meaning from, and "laine," wool, or woolen. In the trade the term means a fine grade of wool used in making fine untwilled dress goods. In a more common application the term means the finer grades of wool produced. The Delaine Merino is one of the breeds which produce the very best wool on the market.

The standard of excellence calls for a sheep having a deep, round, wide and long body, showing a mutton capacity, carrying heavy thick flesh, the top and under lines being straight and the skin smooth, pink and well filled out. The head may have small horns, however, the present tendency is toward the polled variety. The nose and the legs are well covered with wool to the very toes. The fleece is from three to five inches long and a full-grown ram may yield as high as 25 pounds of wool at a shearing. Ewes yield as high as 15 pounds of unwashed wool.

The breed is fair for mutton. The wethers mature reasonably early. They do not dress quite as much as the true mutton type, but the quality is good and always sells well on the market.—Coleman's Rural.

SCIENCE OR IGNORANCE.

The finest intellects of the land consider at once that the farm cannot be understood for its own preservation and our best profit, unless the farmer calls to his aid the investigations of science. To deal with the forces of nature wisely and well, we must know something of what men of science have learned. That is a plain, common sense view of the case. If this view of farming be true, compare it and what it teaches with the ideas and beliefs of the farmer who is ignorant of what science teaches. How widely apart are the ends of the two roads. What has ignorant farming done? It has destroyed a large portion of the once abundant fertility of a wide area of this country. That was done by men who despised the teachings of science—what they called "book farming." Has science ever done so destructive a work? Has science ever bred for the production of scrub cattle? Science is not faced that way. And yet, with all this dark record before them, there are farmers today, even in our own midst, who try to bolster each other up in opposing what may be called scientific farming. The bottom principles of such farming is to so manage first and foremost for the upbuilding and preservation of fertility. Scientific farming says there is no real profit in any other kind of management. Science says you will not lose if you put your faith in right principles. Science says it is a good investment always to store up a surplus of fertility in your land.

But ignorance pursues another path. It says, farm first and always for the present dollar. Put your faith in the dollar that is in sight. Live for today; tomorrow you may die. Don't spend any money on the buying of knowledge. Don't buy fertilizers. Don't lend any money to the farm. Skin the farm and lend what surplus money you may get on a mortgage that covers some other badly skinned farm.

In the course of events the farmers of this country have come to a parting of the ways. The question before the house is, which will we follow, the teachings of science or ignorance? Which has the better record to recommend it?—Hoard's Dairyman.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Heaves—Cough.

My horse, which has the heaves, lightly has coughed all winter. There is an occasional discharge from the nose. I feed alfalfa hay, but changed to oat hay without noticeable improvement.—Subscriber, Chino.

Your horse will do better if fed more grain and less hay. Reduce the bulk of the food consumed. The grain should be oats if not too expensive. Give one drachm nux vomica, half drachm bella donna and one drachm chlorate of potash twice daily in the feed. Also give one tablespoonful of Fowler's solution twice daily mixed in the grain. (Measure the dose of Fowler's solution in a medicine glass). Continue treatment two weeks then skip ten days if it is desired to repeat the course.

Indigestion.

My mare, 4½ years old, has "lampers." She is fed oat hay and grain morning and evening and allowed to run on pasture during the day. I gave her corn on the cob and she ate the cobs with the grain. I often notice her eating earth. I examined her manure for worms and gave a course of worm powders. I do not like burning or cutting the "lampers." What does she need?—Subscriber, Occidental.

At the age indicated the corner front teeth of the horse are replaced by permanent teeth and as a consequence the gums may be inflamed. You were correct in not cutting or burning the gums as the practice is cruel and not beneficial. The grinders are often irregular at this age due to the fact that some teeth are not developed and others are just appearing. This condition of the teeth is often accompanied by unthriftiness which allows worms to infest the animal. Drench the horse with two ounces of turpentine in a quart of sweet oil and on the third day following drench again with one pound of epsom salts in a quart of water. Always give drenches carefully and through the mouth, never drench through the nose. After the drench has operated secure one pound of hyposulphide of soda and give one tablespoonful in the feed three times a day.

Each one of us is bound to make the little circle in which he lives better and happier. Each of us is bound to see that out of that small circle the widest good may flow. Each of us may have fixed in his mind the thought that out of a single household may flow influences that shall stimulate the whole commonwealth and the whole civilized world.

The truest self-respect is not to think of self.—Beecher.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

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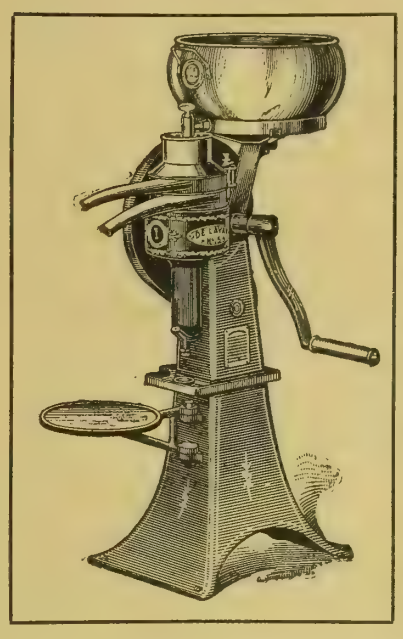

Exactly the same differences exist, on a smaller scale, in the use of farm separators. Owing to the fact, however, that most farm users do not keep as accurate records as the creameryman, they do not appreciate just what the difference between a good and a poor separator means to them in dollars and cents. Nine times out of ten the farmer can't tell whether or not he is wasting $50 to $100 a year in quantity and quality of product through the use of an inferior cream separator.

If you were in need of legal advice, you would go to a lawyer. If you were sick you would consult a doctor. If you had the toothache you would see a dentist. Why? Because these men are all specialists in their lines, and you rely upon their judgment and skill. When it comes to buying a separator why not profit by the experience of the creameryman? His experience qualifies him to advise you correctly. He knows which separator will give you the best service and be the most economical for you to buy. That's why 98 per cent. of the world's creameries use the DE LAVAL exclusively.

There can be no better recommendation for the DE LAVAL cream separator than the fact that the men who make the separation of milk a business use the DE LAVAL to the practical exclusion of all other makes.

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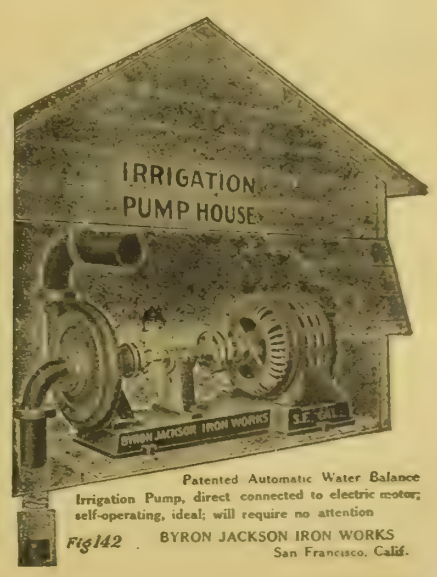

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A Journal of Horticulture and Agriculture.

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,064 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, March 23, 1911

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The quantity of barley on farms in the United States on March 1, 1911, was about 31,000,000 bushels, or 19 per cent of the 1910 crop.

The exports of farm products in February this year were far in advance of last year. The bureau of statistics reports 10,750,000 bushels of corn exported in that month as against 4,500,000 in February of last year.

The governor has signed the Benedict bill providing for county free libraries. This will open up possibilities of education and pleasure to people in all parts of the state. We hope the counties will take hold of the plan and make it a success.

The United States does not produce sufficient sugar for its own needs, and last year imported 4,250,000,000 pounds valued at $114,000,000. If more of California's counties would come up to the record of little Orange county, with its four sugar factories, we might produce our own sweets.

Prof. Shaw's bulletin on How to Increase Yield of Wheat in California should be in the hands of every wheat grower in the state. It is Bulletin 211 and a post card will secure it from the Agricultural Experiment Station, Berkeley. Prof. Shaw has developed some remarkable results with newly introduced varieties.

The total number of farms operated in the state of Kansas in 1910 by owners was 110,742 as against 110,443 in 1900. One thing noted, which is rather peculiar, is that the number of small holdings has decreased during the decade and the number of large farms has increased. The number of mortgaged farms has materially decreased.

The flax industry of North Dakota is threatened with extermination on account of diseases and difficulties now affecting the crop. The department of botany of the North Dakota agricultural college is taking up investigation of special methods of handling seed and soil and hopes to save the industry. Effort is now being made to secure seed free from disease to be distributed to farmers.

That old line farm paper, the Country Gentleman of Albany, New York, maintained for years exactly as it was founded, and considered one of the standby papers of the nation, has been sold by its present management and is now the property of the Curtis Publishing Company of Philadelphia. The news must have come with a shock to its old-time friends, for if the Curtis Publishing Company puts the same amount of ginger into this publication that it has into others it has purchased, the Country Gentleman will be a vastly changed paper.

In connection with the work of the University Farm School, the Cultivator has found it necessary to refer to moral conditions in the little town of Davis to which many young boys are sent for better education in farming. Small as the town is, it has had a surplus of saloons which did not tend to give an uplift to the youngsters living there. The people themselves refused to remove these temptations from the boys and now the state legislature has acted, drawing a line three miles from the farm within which no saloon may exist. The bill passed both houses, and it is probable that before this item is read Governor Johnson will have signed it.

It is yet a little early to begin to talk about fire protection, for between now and the actual danger time most people will forget it. The Cultivator will refer to it many times before then, and we now take time by the forelock and suggest that a campaign of education be started in every Farmers Club and Grange and Farmers Union, or other assemblage where people may be gathered, to impress the necessity for greater care with camp fires, matches and pipes. Probably one of the greatest dangers is the leaving of camp fires. Every known case of carelessness by camper or hunter should be reported to the proper authorities and severe punishment meted out.

Fruit growers and handlers are somewhat concerned over the new law prescribing eight hours per day for working women. Of course there is a provision in the law by which in time of rapid ripening of fruit and danger of loss these hours may be exceeded, yet it is felt the regulation will complicate the situation and make more expensive the handling of fruits. We hope this will not prove to be the case and that the eight-hour day will be sufficient. It has been insisted that if this law stands the gates must be opened to the Japs. We do not think this is the general feeling. If our own people are assured of permanent work, there will be plenty of Americans to handle the fruit of the state.

The Cultivator has often remarked that staples, and well proven varieties at that, are generally more profitable than the new or fancy. The paper-shelled almond has been considered far superior to the hard-shell, but investigations by Mr. Anderson, Secretary of the Yolo County Almond Growers Association, and Mr. Brown, of the horticultural department of the state farm, have led these gentlemen to conclude that the hardier varieties are more profitable than the paper-shells. They are "surer and heavier bearers to an extent that more than offsets higher prices accorded the choicer varieties." These nuts have proven exceptionally profitable during the past year.

The annual convention of the California Association of Mutual Fire Insurance Companies recently held in Tulare should give new impetus to this economical means of handling fire insurance of farm buildings. Under the state laws such an association cannot operate outside of the county in which it was formed, therefore separate organizations are necessary in each county, but each county can furnish competent men to handle this business. In nearly every instance in this state this association has been able to give insurance at much less cost than the old line companies. The officers for the coming year are: A. Sorrenson of Fresno, president; J. D. Musgrove of Yolo, vice-president; Geo. F. Cromer of Los Angeles, secretary and treasurer.

The Boston Work Horse Parade Association has inaugurated a novel and effective way of securing more humane treatment of city work horses, and incidentally more actual service for the owners, by a system of stable inspection. The association offers to inspect free of cost any stable entered for the purpose. The inspector visits and observes details of feeding, grooming, blanketing, etc., and confidentially reports to the stable proprietor. Defects of his management are pointed out and suggestions made. The inspections are made two or three times a year, and on the annual parade day silver medals and prizes are awarded to owners, foremen and workmen for best condition and treatment of horses.

G. H. A. GOODWIN.

Many of the older readers of The Cultivator will remember the work of G. H. A. Goodwin, for years its editor and proprietor, so closely identified with its early history that he is regarded as its founder. It is with regret that we chronicle Mr. Goodwin's death at his home, 175 Crown avenue, Hollywood, March 16th. He was yet a young man, not having reached his fiftieth birthday, one of those indefatigable workers who wear their lives out before their time. Funeral services were held March 18th at his home.

In 1889 Poultry in Southern California was first published by W. B. Nesbit and conducted by him until 1890 when it was purchased by Mr. Goodwin. At that time the paper had practically no circulation. We have heard Mr. Goodwin say that the entire office force from devil to editor was constituted of himself and his wife who helped out on mailing days when the "office force" was overrushed. Mr. Goodwin owned the paper alone until November, 1891, when Mr. W. B. Thomas became associated with him and a few months later the name of the paper was changed to the California Cultivator and Poultry Keeper. It was then a little nine by twelve monthly. In 1898 the partnership was dissolved, Mr. Thomas on account of his health going to the Hawaiian Islands where he is still raising pineapples. The circulation of the paper at this time was 4200. On January 1st, 1900, Mr. Goodwin began publishing the weekly Cultivator, remaining editor and manager until 1903 when he gave up newspaper business and engaged in buying and selling real estate.

LAND AND PRODUCTS EXPOSITION.

The first land exposition on the Pacific Coast was opened last Saturday in Shrine Auditorium in the city of Los Angeles. There were thousands of people filling the aisles of the great building and expressing wonder at the exhibits which had been gathered together in the few weeks of preparation. The exposition is primarily intended as an exhibition of California's lands and their products, but incidentally there are many exhibits of manufactures which hinge more or less remotely on agriculture. Those who have to do with sub-division of large tracts of land are making the best exhibits, though perhaps the most striking of all is that of a large nursery which shows plants from all parts of the world. Communities, counties, and even states, make extensive exhibits. Arizona is on hand with a magnificent showing made up largely of products of the Salt River valley. All told, it is a great show. It will be on during this week and next.

We are indebted to Mr. C. T. Hirst of Phoenix for photo from which engraving on front page is made.

Practically all of the hop crop has been disposed of by the producers.

The farmers packing house at Geyserville, Sonoma county, was destroyed by fire with a loss of $5000.

Agricultural News Notes of the Pacific Coast

Northern California

A $30,000 precooling plant will be built at Lodi.

Yolo county has planted 15,000 almond trees this season.

Petaluma flour is being shipped to Manila, Philippine Islands.

Two hundred elk are wintering in the lava beds of Siskiyou county.

Russian Valley farmers will plant over 200 acres of tomatoes this season.

Haywards, Alameda county, reports a rainfall of almost 29 inches for the season.

The "Eggs by the Pound" bill has been voted down in the state assembly.

The Farmers Union at Gold Hill is discussing building a co-operative cannery.

Oroville, Butte county, has definitely settled on November for its citrus fair date.

Shasta county has planted 10,000 grapevines in the Cottonwood section this season.

Yolo county never had as many reclamation projects under way as at the present time.

Canners are offering $7.00 per ton for tomatoes to be grown at Healdsburg, Sonoma county.

Sonoma county hop growers have disposed of all their hops excepting about 400 bales.

The pure food and industrial exposition at Petaluma opened Saturday and will continue until April 3rd.

A meeting of the state good roads association has been called for the last of the month at Sacramento.

The California Development Board is encouraging the movement to improve the quality of malt barley grown in this state.

Farmers having property in Amador, Calaveras and Sacramento counties met recently at Ione and formed an anti-debris association.

The three-mile dead line for saloons around the state farm at Davis has been established by enactment of both assembly and senate.

The senate has passed an automobile bill which will bring $800,000 of annual revenue into the state treasury to aid in the good roads fund.

Chico Farmers Union has received five gold medals, two blue ribbons and a gold cup for exhibits from the National Horticultural Exhibit at Council Bluffs.

The senate has passed the Gates fence bill, or rather amendment to the former bill, which makes it obligatory on stock owners to fence in their own stock.

Representative Kent is given credit for bringing about the abandonment of the Lake Tanoe contract which would have taken its waters into the state of Nevada.

The press reports that Prof. Babcock of the State University is testing out specimens of hardy Navel orange trees of a new variety furnished by the department at Washington.

The Shasta Power Co. has been sued by farmers of Sixty Hat creek for $255,000 for damages because of unlawfully taking 3500 inches of water which the farmers maintain is theirs.

Central California

There are 27 distilleries in Fresno county and 24 wineries.

Vineyardists feel that the recent rains give assurance of big crop.

Much damage to peach trees is reported from Fowler and Del Rey sections, caused by recent storms.

The prune orchards of Santa Clara Valley will soon be in full bloom and blossom festivals will be in order.

The destruction of many bridges and some farming land in Monterey county will cause a big rebuilding and repair expense.

The first step toward the 1911 Apple Annual of Watsonville was the holding of a meeting for preliminary arrangements last week.

On April 19th certain lands of Stanislaus, Merced and Mariposa counties, approximating about 36,000 acres, will be thrown open to entry.

The bill by the state legislature relating to the breeding of pheasants was passed. It is thought their increase will be much greater.

G. M. Homans, state forester, has made certain changes in California Redwood Park, amongst which is the discharge of the former warden and the foreman.

Some farmers along Gabilan creek in Monterey county go out with their pitchforks and fork in a number of carp which are caught in pools on overflowed land.

At a meeting of the West Side Irrigation District, recently in Madera, a committee was appointed to confer with government surveyors regarding difficulties of the work.

Representatives of 2000 colonies of bees met in county bee keepers meeting in Dinuba, Tulare county, last week. Suggestions were made for the formation of a San Joaquin Valley association.

With the forces of the U. S. government, of the state of California, and of various counties of the state, united in warfare against the poor little ground squirrel, life should soon cease to be a burden for the grain and fruit man.

It is reported that the manufacturing and larger fruit interests are combining to make a fight on the law prescribing eight hours as the legal day for working women, and it is announced that it may be declared unconstitutional.

The county superintendent of schools of Santa Clara county is urging the extension of agricultural teaching in the public schools and says: "The study of agriculture in high schools I consider one of the most important changes."

Dr. Rupert Blue of the Hospital Marine Service is making a strenuous campaign before various boards of supervisors to secure county cooperation. At the recent meeting with the supervisors of Kings county the board appointed an inspector for that county.

The Fresno Republican prize for the best suggestion for Raisin Day feature was won by Miss Mattie M. Webb, of Reedley, Fresno county. Miss Webb suggested as an excellent advertising feature that the public schools of the country inaugurate a raisin essay contest.

Southern California

El Cajon, San Diego county, reports strong movement of small ranch lands.

The spring floods of the Colorado are arriving much earlier than anticipated.

The capacity of the Anaheim sugar factory has been increased to 750 tons per day.

Orange county produced last year over 210,000 sacks of beans valued at $622,000.

One poultryman at Riverside has a 5400 hatch of White Leghorn chicks coming off.

The Land and Products Exposition in Los Angeles opens on Saturday of this week.

Fruit men of Villa Park, Orange county, will build a fruit storing and packing house.

Escondido has found it necessary to import many fruit trees for this season's planting.

Nearly every big bridge over the San Gabriel river was washed out during the last flood.

A new dairy farm entirely stocked with registered Jerseys was established at Imperial.

A 5,000,000 gallon reservoir has just been completed on the Yorba Linda orange lands near Fullerton.

Redlands is discussing the advisability of making an exhibit of her citrus fruits at some point in Canada.

Residents of the desert in Northern San Bernardino county are appealing for a share in the state good roads fund.

A meeting is being planned of boards of supervisors of the various counties to discuss good roads over Southern California.

The La Habra Walnut Growers Association received for its output last year $70,000 which is the record income of that association.

Last week was probably the biggest orange shipping week California ever saw; some days the shipments reached nearly the 400-car mark.

Cucamonga has formed a co-operative fumigation and supply company which is being encouraged by the horticultural inspector of that section.

Levi P. Chubbock, connected with the Department of Agriculture of the Division of Farm Management for the West, is investigating methods of citrus growers of Southern California.

Covina fruit growers are much concerned over the question of chemical and mechanical soil conditions. Experts are drawn on to give lectures before the Farmers Club and other gatherings.

On Wednesday, the 15th, the Santa Fe railway billed out of San Bernardino 200 cars of oranges; on the same date the Southern Pacific billed out of Colton 173 cars. These were the greatest daily shipments ever made over these roads, and would give an orange apiece to 25,000,000 easterners.

An enthusiastic Florida friend of a Riverside man sent him a box of the finest Indian River oranges on which he prepaid expressage of $6.40. They arrived all right but County Horticultural Commissioner Cundiff was unkind and discourteous enough to give the box a bath of coal oil and fire it before it was ever opened.

The Coast

Utah produced 7,000,000 bushels of wheat during 1910.

Fancy hogs are now quoted at Portland, Oregon, at $9.00.

Spokane's first Swiss goat dairy has just been established with imported goats.

Stock growers at Grangeville, Idaho, shipped 800 cars of fat stock during 1910.

The Oregon Agricultural College is giving for the first time a systematic course in apiculture.

The first annual Pacific Northwest Live Stock Show will be held at Portland, Oregon, March 20x22.

The fruit men of the entire Northwest are endeavoring to form a fruit exchange or selling agency.

Farmers near Dear Lodge, Montana, have failed in their fight against the Anaconda Smelter Company.

The first of the month gave heavy falls of rain and light snow over Spokane and Eastern Washington.

An artesian well was recently struck at Benson, Arizona, in a section where it was not known any water could be secured.

The farmers demonstration train visited 150 points in Utah and Nevada and entertained at its lectures over 40,000 people.

There are 3,800,000 bushels of wheat still in the hands of producers of Washington; this is about 26 per cent of the total output.

A large force is working on the Wahluke irrigation project seven miles above White Bluffs, Washington; 20,000 acres will be reclaimed.

The floods have caused much trouble along the Colorado and tributary rivers; part of the dam in Bee river, Arizona, has been washed out.

The supervisor of national forests at Provo, Utah, recently received bids for pasturing 9000 acres of national forest. The highest bid was for $1040.

At the Agricultural Fair held at Zamboanga, P. I., a two-hour hemp-stripping contest was one of the principal features, and many machines were in the contest.

The Hanford, Washington, Irrigation and Power Company will complete its canals and cement work in time for the present irrigation season which opens on April 1st.

Sheepmen of Montana have found excellent results in keeping corn. They only feed one-fifth of a pound per sheep per day but it is reported to add much to the thrift of the sheep.

From estimates of the Western Pine Manufacturers Association there is sufficient available timber standing in the Inland Empire of Eastern Washington to construct 17,000,000 cottages.

Settlers of the highlands in the Locke district near White Bluffs, Washington, recently held a mass meeting to inaugurate a movement to secure water for aproximately 75,000 acres.

The Pacific Homestead says that the dairy industry of Oregon within the past four years has not been so progressive as it should be. In 1907 the total value of dairy products was $17,000,000, since which time the value has materially declined.

THE PICK OF THE

"SUCCESS" Incubators

THE WORLD'S GREATEST HATCHING MACHINE

THE MOTHER OF MILLIONS

The 1911 Model of the famous **"SUCCESS" HOT WATER** Incubators in the best hatcher made today at any price. Custom ers say so, and they know. **Dan Webster, Rialto, California,** hatched 105 chicks from 105 eggs. **E. B. Walters of Lemo Cove, Cal.,** hatched 75% of common store eggs. **John Witthuas, 1844 E. 41st St., Los Angeles,** hatched 58 ducks from 68 egg and 37 chicks from 42 eggs in the SAME 130-egg machine. **John Frederickson, Arroyo Grande, says:** "Send me anothe 612 at once, I bought one 3 years ago, and must say it does splendid work." **Mrs. B. W. Wixom, El Centro,** has hatched ove 2300 chicks in her 360 Success machines; ask her what she thinks of them. **F. R. Williams, Perris, Cal., R. F. D. 1, says** "The Success runs very nice, in fact, as nice as any I have ever run, and I have run a LOT of other kinds." **C. A. Cheadle Berros, Cal., says:** "Enclosed find $40, send me one more 612 Success." **Mrs. R. M. Strange, El Centro, Cal., says:** "I neve tire in praise of your Incubators." **Chas. Peffefer, Campbell, Cal., says:** "The Success is all right I got 267 chicks, and they are strong, and I can raise them all." **Mrs. Chas. Wachtel, Folsom, Cal., says:** "The Success runs fine, I like it very much." **Chas. L. Jones, Soledad, Cal., says:** "The 360 I bought of you on trial is my property; the eggs were old and out of 272

FREE
48 PAGE CATALOG

Complete descriptions of all incubators and brooders.

Send Today.

We Pay the Freight.

WE PAY FREIGHT

60 Egg size,	$9.00
130 Egg size,	$14.00
360 Egg size,	$25.00
612 Egg size,	$40.00

BROODERS

75 Indoor	$3.00
150 Indoor	$5.00
150 Outdoor	$6.50

got 227 fine chicks." **E. C. Heaston, Bloomington, Cal., says:** "My Success arrived in fine shape, and I am well pleased wit it." **V. M. Smith, 16 Towne Ave., Santa Cruz, says:** "The Success is the best Incubator he ever tried." **Carl Matson Inglewood, Cal.,** runs 34 of the 612; ask him. **The Schellville Hatchery, Sonoma, Cal.,** has several of the 612; ask them. **Th Orland Hatchery, Orland, Cal.,** has 13 of the 612; ask them. **Mrs. T. W. Foster, Artesia,** has six of the 612; ask her. **Fran Smith, Compton,** has several of the 360; ask him. **J. W. Wheedon, La Canada,** has six of the 360; ask him. **Mr. Somes, L Canada,** has five of the 360; ask him.

Facts- These are people whom many of you know. Write and ask them what they have to say about "SUCCESS Incubators; enclose stamp . They will all answer you. All I ask is a fair Investigation of the merit of thes Incubators. I am the first man that sold a hot water Incubator at a reasonable price in the West. I am the only one toda making Incubators with removable nursery drawers, copper tanks, double compound heat retaining jackets, double walls (pape lined) inside, double packed top, and kiln-dried clear redwood, pressed lamp bowls (impossible to leak), slatted egg trays double glass in the doors, all fronts one and one-quarter inches thick, regulators made especially for these machines wit extra long levers, positively self acting. Get the free 48-page book today; it tells the whole story in detail. That's all I ask I make 60, 130, 360 and the 612-egg sizes. I pay the freight. Can ship any day I get the order—no wait and no delay. Writ your wants. I can and will save you money.

NO INCUBATOR

Made at any price can outhatch the "SUCCESS." Ask the man that owns one.

E. E. McC

110, 112, 114, 116, 118 I

WHOLE BUNCH

"SUCCESS" Brooders

THE WORLD'S GREATEST CHICK RAISER

THE HOME OF MILLIONS

Big Claims and What You Get.

These days it seems that the man that does the most business and has the most money is the one that can exaggerate the most. On every hand when you get ready to buy an incubator you will get catalogues, circulars, letters, recommendations, cards and all kinds of promises, guarantees and assurances of 100 per cent hatches every time. I have been among the incubator companies a long time and have hatched thousands and thousands of eggs, and you take my advice and look out for the chaps that advertise a guarantee of 95 per cent hatches, or to hatch every fertile egg. Any poultryman of experience knows better. I don't promise anything of that kind; I do KNOW that you can get good hatches every time if you use good eggs. It depends entirely on the eggs more than any one thing.

This picture gives you a clear idea of how the "Success" Outdoor Fireless Brooder looks when in use. When we took the picture we had 180 Barred Rock chicks in the brooder and the yard. There were so many that the artist tried to retouch them on the photo to make them show plainly and he nearly spoiled the whole lot. Artists have peculiar ideas as to what a baby chick looks like.

The brooder as shown here is made from kiln dried redwood lumber. Walls are double, roof is made slanting and is water tight. The box holds 150 chicks to three weeks of age, and 75 chicks to six weeks of age. After chicks are three weeks old you can place them in other boxes and they will grow right along. We furnish the YARD FREE with every brooder. It comes packed inside the brooder and makes a nice yard for the chicks to be kept in.

This is the heaviest fireless brooder made and is the lowest in price, considering the capacity of the same.

Most companies ask from $10 to $12 for the outdoor fireless brooders. Our prices on all brooders and all incubators are from $5 to $15 less than other companies ask. We make incubators and brooders in connection with our other business. We sell on the smallest profit of any company.

Price only $6.50. We pay freight.

150 Outdoor Style $6.50 Prepaid

We Make Indoor and Outdoor Styles.

Outdoor Lampless System.

"Success" Outdoor Lampless Brooders will successfully brood and care for chicks in any kind of weather without the assistance of a lamp or other artificial heat. Whether it rains, snows or blows, the chicks are just as comfortable—yes, even more so, than under a hen.

The advantage of a Lampless Brooder cannot be overestimated, insofar that there is no lamp to fill and watch, no lamp to be accidentally blown out, and no possible chance of the brooder getting too hot or too cold.

The construction of this brooder is such that 150 chicks can be placed therein immediately when taken from the incubator and kept there in perfect comfort.

If you will take my advice on the fireless brooders you will use the 150 size, as by putting at least 75 chicks or more you will have better luck, I honestly believe, than with a small 75-chick brooder. The reason for this is that 100 or 150 chicks will keep warmer than 75 chicks.

Experience will teach you that for the first few days to keep the brooder in some enclosure to help protect the chicks from the cold early mornings. In the day time the brooder can be picked up and carried into the sun easily. I honestly believe that all heated brooders made by all incubator and brooder companies will be done away with in the next two years. We make as good a brooder heated by lamps as can be made. It will not raise any more chicks than the fireless brooder, and takes more time to manage it. There is NO DANGER OF FIRE, no lamp to bother with, no oil expense, and you will save more and better chicks than any other way you can brood them. You may be skeptical and afraid to try a fireless brooder, but I will sell you one on trial. If it don't do the work as I say it will, send it back and get every cent. I know absolutely that you will raise the chicks if they are reasonably strong to start with. No brooder on earth will raise weaklings from pullets' eggs. Be sure you get good eggs to start with, and then you will know that your chicks will be good when you get them.

With ordinary care and following my simple directions in regard to feed, etc., you will raise 90 to 95 per cent of every lot of chicks you put in the brooder. Try one at my expense. If they don't do the work I will refund every cent. I sell my incubators the same way.

BUY AT WHOLESALE

When you buy here you pay no agent's profits. I sell a $20 incubator at $14. If you buy of any agent you pay him several dollars more than the incubator or brooder is worth, that's HIS profits. We sell direct to you from the factory—no agent's profits to pay at our low prices. Investigation is all I ask.

GUARANTEE

I guarantee the Success Incubator and Brooder to be exactly as represented in our catalogue. When good, fresh, fertile eggs are used, I guarantee a satisfactory hatch if you follow my simple instructions.

We agree to replace any defective parts on the incubator or brooder if delivered to us, free, any time within one year from date of sale.

LANAHAN

8th Street, LOS ANGELES, CAL.

PATRONIZE

The company that gives you the most for your money. THAT'S US.

60,000 "Queens" in the Contest

all along the line last year, and the Queen never fell behind. Friends, you will be interested in knowing about the uniform big hatches produced by the

Queen

It is the dependable hatcher under *all* conditions, in *everybody's* hands.

Let's get in touch with each other. Get my book to-day! I start people in poultry on the make-good basis. I'll set a Queen down at your station, freight prepaid, and give you the chance to test it any reasonable length of time. Test it 60, 90 or more days, till you are satisfied. 10 year straight guarantee now.

Send your name for my great Poultry Guide. Request on a postal brings it. Tells the truth about Queens—contains reports and pictures from the 61,000 who are making money. Sound poultry advice and rules. Get the book FREE. Address

WICKSTRUM, Queen Incubator Man, Box 53, Lincoln, Neb.

"Chicks well hatched are half raised"

CHICKS

Strong, healthy chicks that are well hatched from vigorous utility breeding stock.

	Per 100
S. C. White Leghorns, best grade	$10.50
S. C. White Leghorns, 2nd grade	8.50
S. C. Brown Leghorns	10.50
R. I. Reds	14.00
B. Minorcas	12.50

In quantities of 300 and over, 50 cents per hundred less.

San Jose Hatchery

Henry Langenschwadt *SAN JOSE, CAL*

Hunter's Improved 1911 Brooder House Stove is the Petaluma sensation—economical, clean and perfectly safe. Write for free folder.
HUNTER BROODER STOVE CO., Petaluma, Cal.

PHENOMENAL STRAIN OF

S. C. R. I. REDS

These hens equal any breed for laying purposes on the coast; this is their eighteenth month of steady laying, averaging higher in January 1911, than in January, 1910. Cup and ribbons to their credit.

Settings $2 and $5, by the hundred $6 $8 and $10

"THE LUEDKE'S"

R. F. D. No. 1 ANAHEIM, CAL.

WINSLOW'S REDS

S. C. Rhode Island Reds—Exclusively Heavy laying strain
Send for 1911 mating list
DR. CHAS. E. WINSLOW
Proprietor
Bx.368 Cor. Charlotte & Greystone
Monrovia, Cal.

SULLIVAN'S

Buff Orpingtons

1000 birds to select from. Trios, $7.50 and up. Eggs for hatching, $2 and $3. Special selection; prices on application. Mr. & Mrs. W. S. Sullivan, 50 Market St., Agnew. Santa Clara Co., Cal.

JAMES R. TOWNSEND

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Practical Poultry Culture

RAISING CHICKENS BY NATURAL PROCESSES.

While even the small grower of chickens in many cases uses an incubator for hatching, circumstances sometimes make it necessary to hatch and raise chickens by aid of the mother hen. To persons so situated an outline of the method practiced at the station before incubators had reached their present development may be helpful. An unused tie-up in a barn was taken for the incubating room and a platform was made along the inner side. The platform was 3 feet above the floor and was 2½ feet wide and 50 feet long. It was divided into fifty little stalls or nests, each 1 foot wide, 2 feet long, and 1 foot high. This left a 6-inch walk along the front of the nests for the hens to light on when flying up from the floor. Each nest had a door made of laths at the front, so as to give ventilation. The door was hinged at the bottom and turned outward. Across the center of each nest a low partition was placed, so that the nesting material would be kept in the back end—the nest proper. For early spring work paper was put in the bottom of the nest, then an inch or two of dry earth, and on that the nest, made of soft hay.

Whenever half a dozen hens became broody they were taken in from the hen house and put on the nests, each nest having a dummy egg in it; the covers were then shut up, and nearly every hen seemed contented. In a day or two 13 eggs were placed under each hen. Every morning the hens were liberated as soon as it was light, when they would come down of their own accord and burrow in the dry dust on the floor, eat, drink and exercise, and in twelve or fifteen minutes they would nearly all go onto the nests voluntarily. In the afternoons one would occasionally be found off the eggs looking out through the slatted door. If she persisted in coming off she was exchanged for a better sitter. The double nest is necessary, otherwise the discontented hen would have no room to stand up, except on her nest full of eggs, and she would very likely ruin them. There was no danger of this with the double nest, as she would step off the nest, go to the door and try to get out.

The advantages of a closed room in which to confine the sitters are many, as the hens are easily controlled and do not need watching as they do when selecting nests for themselves, or when sitting in the same room with laying hens. A room 12 feet square could be arranged so as easily to accommodate 50 sitters.

The most satisfactory arrangement used at the Maine station for the accommodation of the hen with her brood of young chicks consisted of a closed coop about 30 inches square, with a hinged roof and a movable floor in two parts, which would be lifted out each day for cleaning. This little coop had a wire-covered yard attached to it on the south side. The yard was 4 by 5 feet in size and 1½ feet high. Its frame was of 1-inch by 3-inch strips and was fastened securely to the coop.

The wire on the sides was of 1-inch mesh, but on top 2-inch mesh was sufficient. Such a coop is easily kept clean, and the coop and yard can be set over onto clean grass by one person.

The small run will be sufficient for the first few weeks, but soon the chicks need greater range, and then the fence at the farther end of the run can be lifted up 3 or 4 inches and they can pass in and out at will, while the mother will be secure at home and they will know where to find her when they get cold or damp or need brooding. Such a coop accommodates 15 to 20 chicks until they no longer require brooding, after which several flocks should be combined in one and put in a portable house on a grassy range.

Whenever the hen is allowed to hatch or to mother chicks, much care must be exercised to prevent lice from getting a foothold and ruining the birds. The free and frequent use of fresh insect powder upon the hen, working it through the feathers to the skin, is one of the best methods for destroying the pests. Grease or oil is effective when applied to the heads and under the wings of young chicks, but care must be taken not to get too much on them, especially during damp weather.—Bulletin 357, Maine Station.

THE INCUBATOR ROOM.

It is important that the incubator room be so situated that it can be kept at a fairly constant temperature. On this account an underground room is usually selected. For many weeks the well-lighted cellar under the wing of the farmhouse was used by the Maine station. A cold or badly ventilated cellar would, however, be poorly adapted for incubators. Ventilation is very important, and where several incubators are in use artificial ventilation must be provided, in order that the machines may be furnished with clean, fresh air at all times.

In 1905 the Maine station erected an incubator house which practically consists of a well-made, light, airy cellar with a house for the poultry man above it. The incubator room, which occupies the entire cellar, is 30 feet square. The room is 7 feet high in the clear, 5 feet of which is below the level of the outside ground. It is lighted by six 3-light windows, carrying glass 10 inches by 16 inches. The cement walls are finished smooth and the cement floor is slightly inclined toward the southeast corner where the intake of the drain is located. This enables the free use of water from hose in cleaning the room preparatory to starting the incubators. Two chimneys extend to the basement floor and contain ventilating flues that have no opening into the rooms above. Entrance to the room is through a covered outside cellar stairway leading into a shed at the rear of the building. The room now contains twelve 360-egg machines in addition to several of smaller capacity.

In the directions which accompany the hot-air incubators of the type used at the station it is stated that an artificial source of moisture is not needed in operating these incubators

Johnson Gets Only 7 Per Cent Profit on 100,000 Old Trustys

Johnson says tell you to sure send your name this time for his 1911 price—less than $10 for Old Trusty, freight prepaid (East of Rockies)—based on 100,000 capacity and only 7% profit.

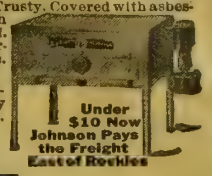
My 1911 Book Tells You

Take 30, 60 or 90 days' trial. Remember Johnson's 10-year guarantee on Old Trusty. Covered with asbestos and again covered with handsome sheet metal. 80% or better hatches guaranteed. Simple and sure.

Send Name

My big 1911 book has hundreds of photos. Every page a poultry sermon. Write postal to

M. M. JOHNSON Clay Center, Nebraska



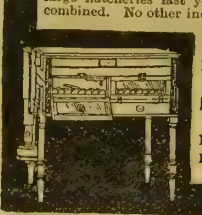
BABY CHICKS

Hatched from heavy laying stock of S. C. White Leghorn hens that have made Petaluma famous. Also baby chicks from selected S. C Black Minorcas, Barred Plymouth Rocks and Rhode Island Reds. Send for price list.

Western Hatchery, Petaluma, Cal.
Fred Dye and J. L. Fredricks, Props.

Incubators and Brooders

The evidence is conclusive that the PETALUMA is the best Incubator buy that can be made. The best value for the money ever offered and is appreciated most by those who have had varied experiences with other incubators. Why? Because it hatches such large, strong vigorous chicks. More Petaluma Incubators were installed in the large hatcheries last year than all other makes combined. No other incubator in the world has a hatching record to equal the Petaluma.



Write for our Free Catalogue. It is interesting.

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Petaluma Incubator Company
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F. BALDWIN'S WHITE LEGHORNS

Winners from Seattle down. **Bred as layers first.** Stock, any age for sale. Eggs $6 and $10, per 100. Settings $2 up. Send for New free folder and prices.

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Proven to be the most successful Brooder Stove on the market. Awarded gold medal for most Meritorious California invention at California State Fair, Sacramento, September, 1910 Burns distillate, perfectly simple and easy to manage. Write for details. **H. F. ARENBERG, Petaluma, Cal**

S. C. Buff Orpingtons

Eggs for hatching, Utility stock (no culls), $1.50 per 15; special matings $5.00, $10.00, $15.00, $20.00 and $25.00 per 15; Bridgewater's famous strain—won for us first and second pens at late Los Angeles Show—$2.00 per egg. No baby chicks for sale. No visitors on Sunday.

J. J. DEAN, Moneta, California.

WINTER'S WHITE INDIAN RUNNERS

The World's Greatest Egg Producers—First, California State Fair, 1909. First, display pen; first, breeding pen; first, drake; first, duck and second, duck, at the Los Angeles Show, 1910. Eggs $3.00 per 13, $10.00 per hundred. White and Barred Rocks and White Minorcas. Eggs $2.00 per 15, $8.00 per hundred. C. O. Winters, 5807 Washington Ave., Los Angeles, Cal. Phone Sunset East 1197.

When writing to CULTIVATOR advertisers **BE SURE** to say where you saw their advertisement. It will cost you nothing and **MAY** do you some good.

Rancho Mirasol White Leghorns

Eggs for Hatching, January to June. Day Old Chicks, March to June.

PASADENA, CALIFORNIA.

except in very arid parts of the country. It is said that in other places the normal moisture of the atmosphere is sufficient to insure the necessary moisture in the incubator. The experience of the station indicates that except in a rather wet season if no artificial moisture is supplied to the incubators there is too great an evaporation from the eggs. It is demonstrable that many eggs fail to hatch because of this dryness of the air in the incubator. It is not desirable here to enter into a detailed discussion regarding experiments on this point. It suffices to state the fact that in the nation's experience better hatches have been obtained when moisture beyond that normal in the atmosphere is supplied during incubation. The most satisfactory way to supply this extra moisture has been found to be by wetting the cement floor of the incubator cellar thoroughly two or three times a day, depending on the degree to which evaporation is taking place. During the hatching season the aim is to keep the floor of the incubator cellar moist at all times.—Bul. 357, Maine Station.

UNSANITARY CONDITIONS INVITE ROUP.

A correspondent of the Spokesman-Review asks: What is the matter with my chickens. About a week ago I noticed that one of the hens had her left eye shut, a white circle being under it, the head very hot, a swelling on the sore side a little down and forward toward the butt of the bill. The hen is drowsy and refuses to eat. I washed it several times with diluted peroxide. Since I noticed the first case they have become afflicted at the rate of one very day. I now have the sick ones in a place by themselves.

In the first stage they are droopy and drowsy, refusing to eat; in the second, the left eye usually closes, there is swelling, fever being present, a slight swelling appearing toward the butt of the bill; third, a total indifference to everything. They stand or lie about, and white spots appear under the eye. I have observed that death usually occurs about this time. This fall I walled in the chicken house about a foot thick, covering it also with manure. It is quite comfortable. There is no ventilation, save at the top and bottom of the door. Should there be a vent in the roof? The hens are just starting to lay. I feed hot bran mash in the morning, with a little red pepper, and all the wheat they will eat about 4:40 p. m. There are 50 in the house, which is 15x12x7 feet.

The following is the editor's reply: "There is no question but that the chickens are afflicted with quite a serious case of roup. The plan of separating the well ones from the sick ones is commendable, and the treatment perhaps could be improved upon by the use of coal oil, which often will affect a cure in its earlier stages. Those that do not readily recover from several treatments will generally linger along for some time and spread the disease among the well birds. The better way is to dispose of all such in some way.

"From the description of her laying house I feel very sure that the cause of this trouble with her fowls is traceable to an unsanitary condition of her hen house. She admits that the ventilation is poor, and from her description sunlight can not get into the room, and in a room 15x12 feet in size, 50 fowls is altogether too many. There should be the best ventilation. The house should be thoroughly cleaned and made sanitary by the liberal use of lime and other disinfectants. The south side of the house should be converted into what is called an open front, using muslin curtains only, thus giving the rays of the sun access to the rooms and providing the best of ventilation. There are more flocks afflicted with roup throughout the Northwest than with all other diseases together, and it is nine times out of ten traceable to the tight rooms, poorly ventilated, no sunshine and dampness. With an open front we get rid of the dampness and it is a rare thing that we hear of poultry being afflicted with this disease when they are kept in open-front roosting rooms where there is no draft. Remember always that the three walls of the room aside from the front should be absolutely tight and that the open front house should be not less than 12 feet deep.

SOME SIGNS OF THE GOOD LAYER.

The head of a fowl will indicate much respecting its good or bad laying capabilities. The head of the good layer is long and slender, often too long for the breed it represents when judged by standard requirements. The eye set in such a head is bold, sparkling, full of life, and as keen and piercing as a hawks. The head is set on a neck clothed in a close-fitting hackle. The head of the drone is short and thick, and is furnished with an eye that is dull, lifeless, small and sunken in the head, and is set on a neck both thick and flabby, and is covered by loose hackles.

Any Mediterranean breed of fowl possessing a long, lean head will produce more eggs than one of its own breed possessing a thick, short head, and the same remarks apply equally to the Asiatic breeds and their allies. Another point that is indicative of the good layer is the lengthy back it possesses. I have never yet handled a short-backed fowl that could pay for enough salt to season its food.

We like the exhibition Wyandotte to be cobby and as short in the back as possible, but the utility Wyandotte is quite a different type of bird. Her back is too long for standard requirements. Breeding for egg production has added length to that part of her body where the egg-producing organs are located. I have my mind's eye fixed on the photograph of a pen of Wyandottes that score top honors in laying competition, and the birds look in type as far removed from the show bird as the whippet does from the bulldog.

The good layer has a racy body. She broadens out from front to stern, like a good milch cow. The inferior is blocky in build, and may be likened unto the beef ox. There is often as much difference between the types of purebred laying hens of a distinct breed as there is between the recognized table bird and the unrecognized one.

The good layer of any breed is longer in back, neck and legs than the drone. She sings as she goes to business, is gentle in disposition, that is if she has been rightly handled during her growth, and does not cackle a lot over every egg she lays. When handled she will be firm in flesh, and when the thighs are gripped they will be hard in muscle, indicating stamina and activity, the latter features being the creation of a busy life in the fields or under the scratching shed. The flabby-thighed hen that can produce enough eggs to pay for her keep has yet to be born.—Coleman's Rural.

ONE MILLION BABY CHICKS

Barred Rocks
White Rocks
White Wyandottes
Buff Orpingtons
Black Orpingtons
White Minorcas
Selected White Leghorns
Utility White Leghorns
Brown Leghorns
Buff Leghorns
Black Minorcas
Rhode Island Reds
Light Brahmas
Black Langshans
Cornish Indian Games
White Orpingtons
Pekin Ducks
Indian Runner Ducks
Toulouse Geese
Bronze Turkeys

Is what we will sell during the year of 1911. Send today for 64-page book, "The Story of the Baby Chick." It's the finest book of its kind ever printed.

We sell all varieties listed in this ad. All are illustrated in our catalog. Tells prices, the way we ship chicks, hatching eggs, laying hens, pullets, cocks and cockerels, etc.

We are hatching and shipping thousands of chicks every day at present. Write us your needs.

We are the World's Largest Chick Dealers.

The PIONEER HATCHERY Co.

108–118–E.–8th LOS ANGELES

All Metal Incubators and Brooders

SIMPLE—SAFE—DURABLE
The result of 25 years experience, and the most Practical Incubator made.
Cycle Hatchers $6.50, Brooder Hatchers $8.50
FIRELESS BROODERS THE KIND THAT RAISE THE CHICKS
THE PHILO SYSTEM
Philo System Book and Poultry Review (one year) $1.00
READ WHAT OTHERS SAY:

117 Miles Ave., Oakland, Cal., Nov. 12, 1910
Cycle Hatcher Co., Oakland, Cal.
Gentlemen: A year ago we started with the Philo System, and raised as fine a lot of White Orpington pullets as anyone would wish to see. The two machines we purchased of you last season have given excellent satisfaction. We shall probably need more this year, and shall use the Cycle machines in preference to a larger incubator. Yours truly, S. N. Haines

Send for "Poultry Profits." Mailed on request.

CYCLE HATCHER CO., OAKLAND, CAL.
Warehouse at Los Angeles, Cal. Address all correspondence to Oakland.

MUSTARD AN EGG PRODUCER.

Of old, we have heard of the tiny grain of mustard seed that sprang up and flourished until the fowls of the air found lodging among its branches. But now come tidings of greater wonder still performed by this same mustard among the fowls of the earth. An English poultryman, whose chief delight lies in promoting the happiness and usefulness of his hens, has discovered that small portions of mustard mixed with their food will increase their laying capacity from 15 to 25 per cent.

The triumph is described by the London Globe, in part, as follows: "The experiment began on October 1, 1909. At the end of six months the birds fed with ordinary food had laid 369 eggs, whereas the birds fed with the mustard addition to their food had laid 532 eggs. At the end of the year the birds fed on the ordinary food had laid 914 eggs as against 1023 eggs laid by the mustard-fed birds."

Viewed from the present price of eggs in the states, the significance of such a discovery is great, indeed. The true fancier, however, will be more keenly interested in its scientific than in its financial aspects. As to the exact manner in which mustard heightens the hen's productivity, we are given no clew. Perhaps it adds zest to her appetite or aids her digestion, as is the case of human beings. It is said once to have been the custom among certain poets to write with their feet in hot mustard baths. Thus, according to their belief of those times, an excess of blood was kept from their brains, so that their rhymes and metaphors hatched more safely.

Whether hens are susceptible to the same influence as poets we know not, but it is certain that mustard is a most stimulating substance wherever placed, and there is no reason for doubting that it can stir and warm the ambition of a hen.—Atlanta Journal.

"Do not stuff your hens, thinking that you can make them lay. Throw feed in the litter and make them work for their meals."

Coulson's
MADE IN PETALUMA

Special chick food

If nature hatches the egg, you should save the chick. And you can do it with Coulson's Special Chick Food—the greatest life-saver known in the chicken industry.

This food is the result of years of study to get just the right ingredients in a proper mixture to save the largest possible number out of every 100 chicks.

Coulson's Special Chick Food is an investment, not an expense. It pays big dividends by starting chicks on the road to profit for you. Costs about one cent a chick for four weeks' feeding.

Coulson's Growing Chick Food must be used after the first six weeks, to keep up the steady growth of the chicks up to three months, at which time they are old enough to use Coulson's Egg Food—the standard feed for laying hens.

At your dealer's or from us. Write for the interesting book, "Poultry Feeding for Profit." It's free.

Coulson Poultry & Stock Food Co.
PETALUMA, CALIFORNIA

Germain Seed & Plant Co. Distributing Agents for Southern California.

THE RULING VOICE.

John: I say, old man, how would you like to come up to the club tomorrow and play golf?

Henry: Why—er—I can't say for certain till I—er—consult my wife.

John: All right! Let me know as soon as she makes up your mind.—Harper's Bazar.

ALFALFA SEED

Cheap Seed is dear at any price. But why pay high price for the best?
Write for our price and sample, stating quantity wanted.

New Seed Catalog also Incubators and Poultry Supplies.

West Coast Chick Feed

They can't beat it. Nothing better for the little ones.

TOMPKINS & CO.,
Proprietors of the

WEST COAST SEED HOUSE

And WEST COAST MILL,

111, 113, 115 WINSTON ST. between 4th and 5th near Main. **LOS ANGELES**

1889 **1911**

Barred Plymouth Rocks Ocean Blue Strain

Birds of our breeding made a phenomenal record in the hands of our customers this season

Won first place at five of the largest coast shows this season, besides many shape and color specials. Fourteen silver loving cups were won by this strain. Besides we won in every class at the big Los Angeles Show—something no other exhibitor of Barred Plymouth Rocks can claim. Every female in pullet pens for this season is a winner either in pens or singles. Every male heading cockerel mated pens this season is a winner either singly or in pens. We are ready now for your egg orders. Same old price—**$3 and $5.**

Mr. and Mrs. D. T. Wieland, Moneta, Cal.

Take Redondo car via Moneta avenue. Get off at Illinois street, right on ranch.

White Leghorns

A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Descriptive booklet of our stock and farm and recipe for mixing best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels.

On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

MODEL POULTRY FARM Irvington, Alameda County, California

This open front door makes perfect ventilation

Mandy Lee is Miles Ahead

It is the only Incubator without a "Sealed," Air-tight Egg Chamber. It supplies the life-giving oxygen freely, draws off the carbonic acid gas, and is saving the lives of millions of chicks.

READ the story of the Mandy Lee triumph in our new catalog. Other incubators are already preparing to imitate and profit by our great discovery.

No guessing with a Mandy Lee

You cannot afford to buy an old-theory incubator which may go out of date and be discarded next year. You should know the truth *now* about the great discovery. The book is free. Ask for it.

There IS Something New in Incubators

We have taken the boldest and most important step ever taken in incubator building. See the openings into the egg chamber? They mean the saving of chicks' lives. It is the key to *right* hatching. Ventilation in the Mandy Lee is now perfect. It goes on all the time, neither above nor below, but right *at the eggs*. Every minute of the hatch the life-giving oxygen is freely passing in to the eggs and the carbonic-acid gas is passing out. And correct ventilation is just one of the great Mandy Lee features.

We Don't Guess—We Measure

The Mandy Lee is as far in advance of other incubators in heat and moisture as it is in ventilation. We do not guess at anything. The sensitive regulator controls heat to the fraction of a degree and *we measure moisture* just as accurately with the Mandy Lee Hygrometer (one sent with every incubator). You know what you are doing. *You* measure and control moisture; *you* control the hatch. The Mandy Lee is the all-season, all climate, all condition hatcher, always producing the most and the strongest chicks.

NEW OUTDOOR BROODER
Heated—Storm-proof

Mandy Lee Brooders give direct contact heat to the backs of the chicks. That is *real* mothering, the most important thing in poultry. Hovers are raised and lowered as weather gets warmer or cooler—heated from end to end. Chicks do not pile up and smother. Write to-day for catalog and full information.

GEO. H. LEE CO., **LOS ANGELES, CALIF.**
225 West Second St.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Owing to the great number of queries which have come in, many will be found answered on stock and other pages. The number of queries which has been coming lately has been somewhat embarrassing, but we are answering as promptly as possible, though at the present time many are held over until the next week. We are glad to see this indication of appreciation, for it is proof of the help which The Cultivator may be to its readers.

Blood Meal.

What is blood meal made from and what is it fed to hens for, and in what proportions? Is a small quantity of black pepper a good addition to chick feed or is it harmful?—M. W., Ventura.

Blood meal is made from blood collected in the slaughter houses. It is run into vats, evaporated and the residue powdered. It is rich in protein and is fed to hens in small quantities to increase laying. A half ounce a day is sufficient for laying hen; mix with the mash. Small quantities of black pepper are stimulating to the laying hen, but we would advise care in its use and would not feed it to chicks.

Fertilizing Walnuts.

I write to ask your opinion as to the advisability of using superphosphate, also nitrate of soda in walnut orchard. When to apply, how much of each per acre, and what difference in quantity for trees 20 years old and trees 10 years old on same kind of soil? When a cover crop is grown and the fertilizer applied and plowed under at the same time as the cover crop, and there is an increase in the yield, which would you give the most credit to, the cover crop, or the superphosphate?—Inquirer.

Superphosphate will no doubt be of use to your walnut trees as the soils of this state are deficient in phosphorus. I infer that your orchard has not been fertilized heavily at any time and therefore will need heavier applications of phosphates now than it would if such fertilizer had been applied regularly. An application of the ordinary, 17 to 18 per cent available superphosphate at the rate of 500 pounds to the acre for the 20-year-old trees and at the rate of 300 pounds per acre on the younger trees should be sufficient. The best way to apply this is to broadcast it just ahead of the plow and plow under before the rain falls on it. In this way the phosphate is placed in the bottom of the furrow and when the water is turned on it will go down among the roots and not be fixed in the soil that is being constantly stirred by the cultivator. If green manure crop of vetch, or other leguminous crop is grown in large quantity it may furnish enough nitrogen, as these plants get nitrogen from the air, but if the trees are not making a good growth of dark green leaves an application of 150 to 200 pounds per acre of nitrate of soda put on after the heavy rains are over and about the time the trees are starting the spring growth, will be beneficial.

There are so many different conditions to be taken into account that it is not possible to state whether the great manure crop or the superphosphate should be given credit for increase in production, but if the soil is furnished the materials known to be low and the proper amount of water furnished to keep it moist to a depth of five feet at all times, but not so much water that the soluble fertilizers are carried below the roots and in this way lost, there is no doubt but a very material increase in production can be obtained.

There is not much doubt that if there is sufficient humus, decaying organic matter, in the soil and water applied so as to keep the upper five feet of the soil in a good growing condition there would not be much need of other fertilizers.—J. B. N.

Acetylene Gas Residue.

While cleaning carbide container in acetylene gas generator, I threw the wash water over an orange tree near by, almost dead from black scale. The tree soon began a strong growth, and is now a healthy, fine-looking tree. Is this good for the orange trees, and in what proportion should it be used in spray? Also, is the residue good for applying to soil about trees?—Subscriber, Covina.

It is hardly probable that the wash water caused the destruction of the scale, though the application to the soil might have been sufficient to create a condition favorable to growth. The residue is practically the same as lime. Upon this point Prof. John S. Burd, of the Fertilizer Control, University of California, says:

"Acetylene gas is produced by the action of water on the substance known as calcium carbide. The purer the carbide, the purer and more efficient is the gas produced. The crude carbide commonly used contains some impurities tending to reduce its efficiency as a light producer, and most of these impurities remain in the sludge. These, of course, tend to reduce the yield of actual calcium hydroxide or slaked lime. While we have no exact figures as to the percentage of carbide in the crude carbide used

in local plants, it is probably in the neighborhood of 75 per cent pure. With a carbide of this strength, and using an amount of water just sufficient to convert all of the carbide into acetylene and calcium hydroxide, the residuum would contain, when fresh, about 78 per cent actual calcium hydroxide. This is sufficient, however, to justify its use where slaked lime is desired.

"Generator sludge, like slaked lime from other sources, takes up carbonic acid from the air on standing, and becomes partially converted into carbonate of lime. Owing to the smallness of most acetylene plants, and the consequent necessity of waiting for an accumulation of the material, this partial reversion to carbonate may frequently occur, but is probably not great unless exposed in the open air for some weeks.

"From the agricultural standpoint the value of lime may be due to any one or more of four general causes; the lack of available lime in the soil, its capacity to neutralize acidity, its power of making other so-called plant foods available for the use of plants, and to improve the physical condition of soils. It would lead too far to discuss all the conditions which justify the liming of soils, but it should be said that the practice should be somewhat limited, because of the tendency of the excessive use of lime to liberate more of the plant foods than the season's crop can utilize, resulting in the ultimate loss of soil fertility. On this account the indiscriminate use of lime is not advisable. Lime should have its widest application in the breaking up of the plastic or puddled condition of heavy soils; and on very light, sandy soils, for a few years, to insure the growth of leguminous crops, such as alfalfa, peas, beans, vetches, etc., to be plowed under as green manure.

"The amount of slaked lime to be used on any soil should seldom be more than 100 pounds per acre where the material is compartively pure. Where acetylene generator residuum is available, 120 pounds per acre should answer the same purpose."

Bermuda Eradication.

Writing regarding the eradication of Bermuda Mr. C. E. Lillibridge of Corona says:

"I note request to know how to kill Bermuda grass. The best method is to dig up with mattock and haul off, being careful to get every root. If spots are not more than two to three feet square, rubberoid roofing will smother it in about four weeks. A large patch may be killed by covering with mulch about one foot deep. Old straw or anything that will pack and exclude light will do, except dirt. It will grow through two feet of dirt or more.

Mr. Lillibridge's suggestion carried out will be effective, but where the sides of irrigation canals are covered with the pest for miles, it becomes a serious question which puts the mattock out of consideration. Thorough culture will eradicate it. Has any one a royal road?

Oranges Between.

Am planting oranges and pomelos between peaches and plums, expecting to cut out later after this summer's fruit. How long may I allow these trees to remain without injpry to the young trees?—C. J., Pasadena.

We would defer the orange planting until another spring and take out deciduous trees as soon as the crop is off this summer. Then give thorough fertilization and deepest of plowing to fit the soil for the orange trees. In five years an orchard planted thus would be equal, we believe superior, to one planted between deciduous trees this year. An orange grove costs too much to bring into bearing to begin its life in this way. If you have already the orange trees on hand for planting, then we would advise removing the deciduous trees at once. We have seen trees planted as the inquirer suggests, and they did fairly well, but deciduous trees at bearing age occupy practically all of the ground, and the moisture the young orange trees would require for highest development would probably go to the greedier old trees.

Cherries.

I have some land at Vacaville, Cal., and would like to set it out to cherries, if they would do well. Land is in the steep hills and is very early fruit land. All kinds of early plum and prune trees and apricots do well. Land is what people in the neighborhood call sandstone; it is a light yellowish color and seems sandy and works up well. People tell me that there is danger in putting cherries up on the hillside as it is not moist enough.—G. P. M., Vacaville.

The fact that apricots and pears do well is no indication that cherries will do likewise. The cherry will not fruit well unless it has a deep and moist but well-drained soil. The moisture needs to be present in sufficient quantity continually. You had better take the advice of your neighbors and not plant cherry trees on the land you describe.

We know of a case where a block of cherry trees was planted among peach trees on level land along the Feather river; the peach trees grew well and bore immense crops of fine fruit. The cherries grew to be magnificent trees but never bore a good crop of cherries. A few miles away was an orchard of the same kind of cherries, planted in the dark alluvial deposit of a creek bottom several feet above water level. This orchard brought in returns of $150 an acre the fourth year and always bore heavy crops.—J. W. M.

Spraying Apples.

When and with what should one spray apples to prevent codling moth affecting apples?—C. M. J., Escondido.

See issue of Cultivator of Nov. 3 using any of the formulas given on page 411 numbered from 23 to 27 according to your needs. If the codling moth only is to be reached, formula 26 is good. In a word, it consists of arsenate of lead and water. Six to ten pounds of the lead to 200 gallons of water. Spray as soon as blossoms drop, later as needed.

Planting Pumpkins.

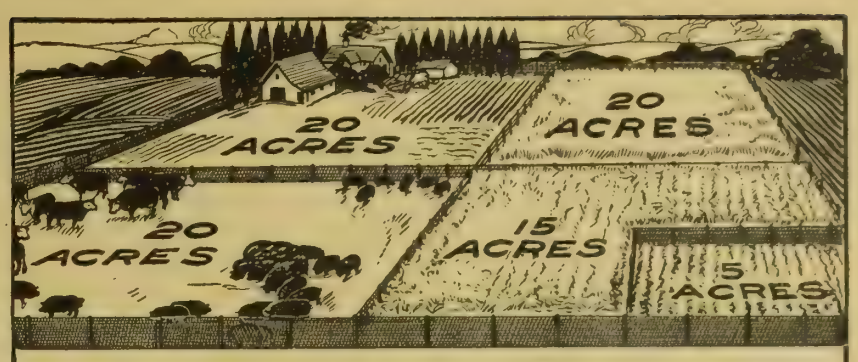
When should pumpkins be planted in the Sacramento Valley?—New Subscriber, Willows.

Pumpkins must be planted after danger of frost is past and the ground has begun to get thoroughly warm. The seed is reasonably sure to fail to germinate if the ground is cold. Culture is same as for cucumbers or melons. The usual planting is 6x6 feet, though sometimes 8x8. May is probably as early as one would want to plant, and planted at that time they will be ripe in October.

Wild Morning Glory.

What is the best way to eradicate wild morning glory?—Subscriber, Otay.

The best way to eradicate any weed is by cultivation. Of course, with morning glory, Johnson grass, and some others, it goes without saying that the cultivator must not be run through infested ground to ground



One Animal and Three Hogs to an Acre

THIS is a fair estimate of the average feeding ability of the soil. On a farm of 80 acres the highest limit of efficiency is 20-acre fields. Large fields diminish the earning power because two small fields alternated will furnish much more support for stock than the same average in one big field. The fence is the important factor; and with the liberal use of gates, unlimited extension and alternation is simple.

The steel in Ellwood fence is specially made from carefully selected stock. It is hard, elastic, tough and springy. The line wires, composed of two or more wires twisted into cables, give each individual wire the shape of an elongated, coiled spring. The fence is therefore sufficiently elastic to take care of expansion and contraction, and yet so rigid when properly stretched as to prevent sagging. The small and permanent mesh is made by weaving one continuous wire throughout the fabric. The mesh or stay wires are so interwoven that slipping is impossible. The triangular truss is the strongest form of construction known. For this reason, Ellwood fence will stand the hardest usage and still retain its shape.

Ellwood Fence is sold in your town. Look for the Ellwood dealer and let him show you his different styles of fence and quote you his low prices. Get his expert advice on your special needs. He is on the spot, buys in large quantities, gets the lowest carload freight rates, demonstrates quality before your eyes and is the man from whom you will get the most for your money.

FRANK BAACKES, Vice President and General Sales Agent

American Steel & Wire Co.

Chicago New York Denver San Francisco

Send for copy of "Ellwood Fence News," profusely illustrated, devoted to the interests of farmers and showing how fence may be employed to enhance the earning power of a farm. Furnished free upon application.

ELLWOOD FENCE

MADE OF TOUGH SPRINGY STEEL

Western Machinery Company

Fourth and Brannan Sts., San Francisco

We sell all kinds of **Second Hand Pumps, Std. Pipe and Screw Casing, Anvils, Forges, Rubber and Leather Belting, Wood and Iron Working Machinery.**

Write for catalogue and prices.

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GOLD BEAR FERTILIZERS

FOR CALIFORNIA SOILS

TANKAGE

The Citrus Fruit Growers of California use thousands of tons of Tankage annually. Tankage is the best form of Organic Nitrogen.

HUMUS-FORMING. ALL AVAILABLE

We are the largest Pacific Coast producers of High Grade Tankages in perfect mechanical condition and of

"GOLD BEAR" FERTILIZERS

Will ship DIRECT TO YOU if no agent near you.

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Fertilizer Department

San Francisco California

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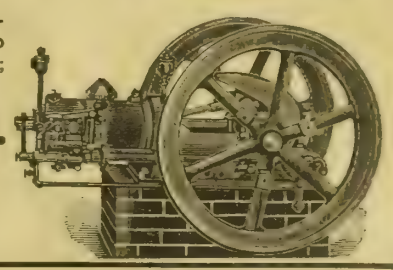
If so, see us in regard to Pumping Problems. We are headquarters for the Otto Gas Engine. The best engine made; Economical, Reliable.



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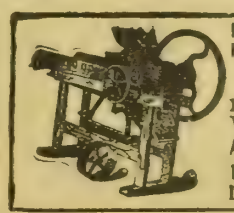


FEED CUTTERS HAND AND POWER

All Sizes, Best Makes, Lowest Prices. Agents Wanted Write for Catalog

Arnott & Company,

112-18 S. Los Angeles St.

Los Angeles, Cal.

which is clean. Chemical methods have never proven entirely satisfactory, though along this line we would refer our subscriber to our issue of June 16th, 1910, in which Mr. Iles gives various chemical methods of killing weeds. Any such weed may be killed by covering with mulch so deeply that light and air cannot get to the tops and smothering will result in a few weeks. Some have even gone so far as to use cheap grades of building paper, lapping far enough and weighting to entirely exclude the air. Heavy application of salt has been entirely successful in ridding ground of the pest, but it also kills the soil for several years afterwards.

ALFALFA
COTTON
WHEAT

These are some of the Staple Crops of the

Great Yaqui Valley

Where you can still buy

Irrigated Land

For

$27.00 Per Acre

Easy Terms.

WATER NOW RUNNING IN THE BIG DITCHES.

BEST IRRIGATED LAND PROPOSITION ON THE PACIFIC COAST.

Chas.F.O'Brien

General Land Sales Agent.

112 West Sixth Street

Los Angeles.

Twigs Dying.

Some twigs on my peach trees have died. The tops made a heavy growth last year. It is possible I did not take off enough of this strong growth, also allowing water sprouts to grow up through tree. The ground has been well cultivated at all times. Have never sprayed. What is the cause of twigs dying?—Subscriber, Porterville.

The death of the small twigs on the inside of the tree is due to too dense shade. If peach trees are allowed to grow too thick, that will happen every time. It is nature's method of pruning. Nearly all trees will do the same but peaches are one of the most sensitive in this respect.—J. W. M.

Apples Planted After Peaches.

I am removing old peach orchard and would like to know if it is wise to plant young apple trees in the same holes from which the old peach trees are dug. If not, why?—Subscriber, Santa Rosa.

Our preference would be to remove the old orchard entirely, plow, even subsoil, and give clean culture a year to some root or other crop, then plant trees entirely independent of the former location. There is possible danger of root knot or fungous disease and besides apple trees should be set farther apart than peaches. This query was referred to Dr. J. Eliot Coit and he answers:

"In regard to planting apple trees in holes from which peach trees have been removed, I will say that if the peach roots were entirely healthy and free from the crown disease and if the soil is worked up thoroughly and deeply, such a procedure would be permissible. Otherwise, I do not think it should be done."

Arizona Oranges.

What is the cause of superb quality of Arizona oranges? Will planting Arizona stock in California produce the same fruit?—C. J., Pasadena.

Climate and soil conditions are no doubt responsible for the grade of fruit produced in Arizona. Many of the trees in Arizona groves were produced in California nurseries and shipped there, and the result is early fruit in much less quantity than same trees would produce in California. The fact that nursery trees were produced in California or Arizona or Florida, would have nothing to do with quality of fruit when grown in other sections.

Candying Citron.

Will you please give formula for candying commercial citron.—Subscriber.

The process is one requiring some months for completion. The first step is splitting the fruit into halves and immersing in brine. After some weeks in the brine the fruit is freshened, the center scooped out and the rind candied by immersing for sometime in weak syrup which is strengthened day by day until made very heavy. It is taken from this last syrup and dried.

Blasting Hardpan.

I have 20 acres of land to plant in orange trees this spring—hardpan two to four feet from the surface. Am told blasting will be beneficial.

We would like to know the nature of the hardpan and of the subsoil, but with no more information than we have, we would say that blasting would probably be necessary to secure best results. The orange is more or less of a surface feeder, but at the same time it must have deep anchorage. Besides hardpan four feet from the surface, if impervious to water, might prevent healthy growth.

Curing Calf Skin.

Can you give me formula for curing calf skin with hair on?—G. D., Beaumont.

We cannot, and will ask our subscribers to help inquirer.

Tents for Frost Protection.

Has anyone ever made a thorough trial of putting tents over lemon and orange trees to protect them from frost? If we could get some cheap yet strong material this might be more practical than smudging. Tents of duck are expensive, but made of burlap they should last four or five years. Would it do to leave tents over trees for six or eight weeks?—Subscriber, Lakeside.

Of course the tents would protect the trees from frost, but we imagine this plan would be similar to the Everest lath house construction at Riverside. In that case 20 acres of orange grove was covered with lath house similar to that used by nurserymen. The expense is almost prohibitive and, apparently the trees do not do well, for it was removed after a year's trial. We would not advise leaving tents over the trees for several weeks. It is doubtful if the burlap would last four or five years because of the strain upon it in putting on and off. The expense of material, together with expense of placing the tents would, we believe, be greater than smudging. If any of our subscribers have ever made experiments along this line we would be glad to hear from them.

THE NEW STANDARD MOWER

The cost of the best mower is less than that of the cheapest mower by the end of one season's use.

Time and Labor Saving Devices and Devices for Preventing Friction Found Only on the New Standard Mower.

The best mower gives the best service all the time.

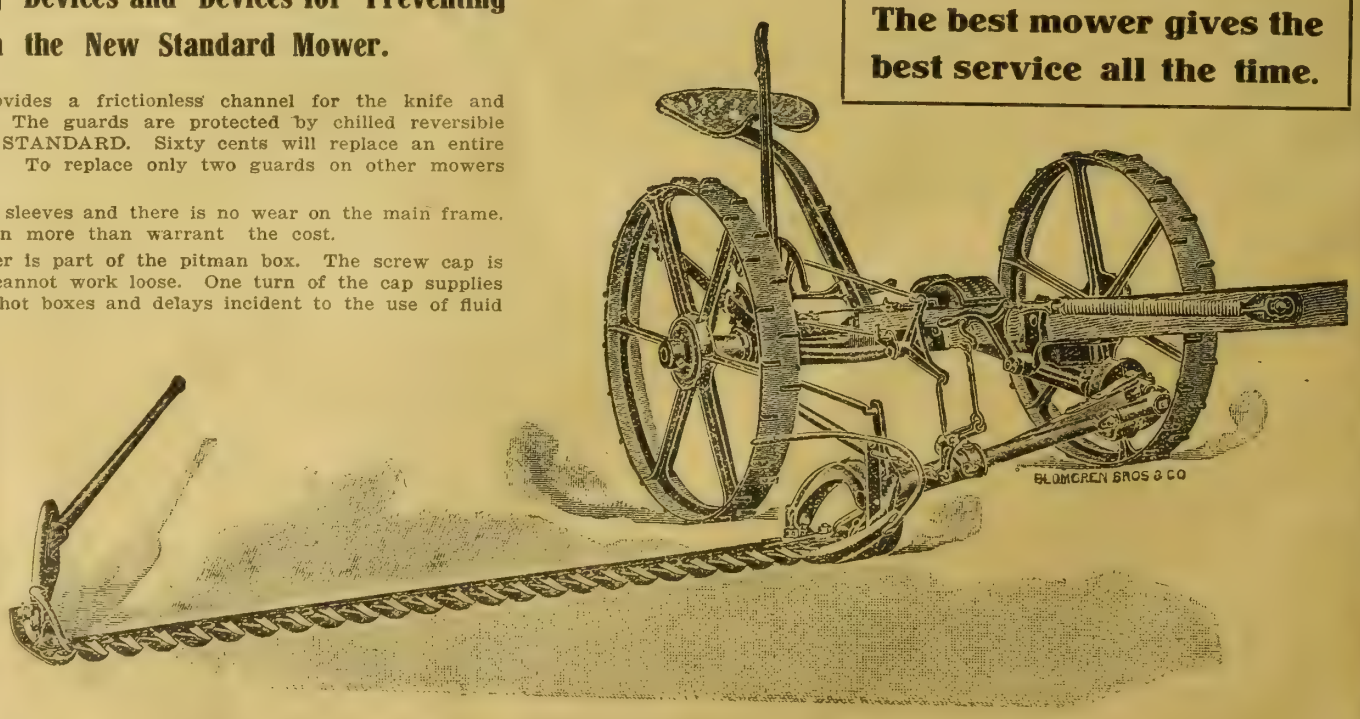
The floating cutter-bar provides a frictionless channel for the knife and prevents wear on the guards. The guards are protected by chilled reversible rails, found only on the NEW STANDARD. Sixty cents will replace an entire set of rails on a five foot bar. To replace only two guards on other mowers will cost as much.

All shafts run in detachable sleeves and there is no wear on the main frame. The benefits of this construction more than warrant the cost.

A force-feed cup grease oiler is part of the pitman box. The screw cap is held in place by a spring and cannot work loose. One turn of the cap supplies ample lubricant and overcomes hot boxes and delays incident to the use of fluid oil. Hours are saved during harvest (when hours mean money) by this device, found only on the NEW STANDARD.

These are only a few of the prominent labor and time-saving devices which decrease the operating cost and add to the life of the NEW STANDARD MOWER.

Our illustrated Hay Tool Folder describes these features in detail and also tells why the New Standard Mower is the Easiest Running, Most Powerful Cutting and Longest-Lived Mower made. Write for the folder today.



NEWELL MATHEWS CO.

Implements—Spring Vehicles—Wagons

LOS ANGELES—CALIFORNIA—STOCKTON

Curing Meats Without Smoking.

I am anxious to secure recipe for curing meats without smoking, and fancy by rubbing heavily with black pepper it might be successfully done. When I was living in Washington a neighbor gave me a couple of hams which had not been smoked but were black on the outside with pepper. In slicing we cut the outside away and the meat was the most delicious I ever ate. It was sweet and tasted much like fresh pork.—Subscriber, Chico.

We are unable to learn of a special formula for curing such meats. Below we give formula for pickling and presume that if coated heavily with black pepper with addition of olive oil to prevent outside from moulding, the meat would keep in a cool, dry place very well. However, we will ask our subscribers who may have had experience to inform us. An excellent brine follows.

Brine for Beef, Hams and Shoulders. —To 100 pounds beef, take eight pounds salt, five of sugar or five pints of molasses (Orleans best, but any good will do), two ounces soda, one ounce saltpeter, four gallons soft water or enough to cover the meat. Mix part of the salt and sugar together, rub each piece and place in barrel (oak is best) having covered the bottom with salt. When the meat is all in put the remainder of salt and sugar in the water. Dissolve the soda and saltpeter in hot water, add it to the brine and pour over the meat; place a board on top of meat, with weight sufficient to keep it under the brine. Let the pieces intended for dried beef remain in the brine for three weeks, take out, place in tub, cover with water, let stand over night, string and dry. String it (smoke for a few days if you like), hang it up to ceiling over kitchen stove, turn round once a day so as to give all parts an equal exposure, and let remain for three or four weeks. Test by cutting a piece, which should be well dried on the outside and free from rawness to the center. When dried, sprinkle with ground black p pper, put in paper sacks, tie up tightly, and hang in a cool, dark, dry place, or put, without sacks, in an empty flour barrel, and cover closely. Boil brine, skim well, let cool, and pour over the bony pieces left. These are good boiled and eaten either hot or cold, and they will keep good for several months. Tongue may be pickled with the beef.

Feeding Barley.

Replying to an inquiry as to feeding barley, Mr. E. B. Stone of Campbell gives of his experience as follows:

"I soak whole barley in water over night, then put in a box and cover with a wet sack, keeping same damp at all times. I feed this at night and the hens seem to miss it very much if I feed anything else. An ounce before sprouting makes a big meal for a hen. Make seven boxes large enough to hold one day's feed. In cold weather seven boxes will keep one coming for each day, and warm, sunny or rainy days, seven boxes will be too many, as the roots become so matted that the hens do not like it so well; discontinue the sprouting in such cases for a day or so, and reduce the boxes to four or five, then when a cold snap comes on sprout a feed or two in the day time as well as night, until caught up again.

Sprouts should be one inch or so long; if for any reason they are not, let them set a day longer and boil the same amount of barley per hen, feed when warm and the hens will cackle 'thanks' every time."

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway. Los Angeles.

Acquiring Right to Ditch.

A owns land and pumping plant; B's land lies between A and C; C wants to buy water from A, and wants to make a ditch through B's land. If B allows him to go through his land will it give C a right so he cannot stop him, and how long before he acquires a right. In what way can B allow him to go through without giving C a permanent right.—Subscriber, Burbank.

If B allows C to make a ditch or run a pipe through B's land and permits the ditch or pipe to remain there for a period of five years, during which time C claims the right to have it there, C would in all probability acquire the right to keep it there. At any rate, such a state of affairs would furnish a very good lawsuit.

B might lease the right to C for a number of years for a nominal consideration and if, at the end of the lease, it should be renewed or terminated, it would furnish no basis for claim of permanent rights by C. Or, B might give C written permission to maintain a ditch for a certain number of years, with the express understanding in said written permission that no permanent rights should be acquired, and that the ditch should be abandoned on demand of B.—E. L. P.

Trespassing Sheep.

We have an orange grove with wire fences surrounding. There is a herd of sheep which graze daily in this neighborhood. The sheep are constantly getting into our ground and injuring our trees. How can we remedy this evil?—B.

As your land is enclosed with a fence, it may be that you could recover damages for the injury done by the sheep. The law says that no damages can be recovered unless the land is entirely enclosed by a "substantial" fence or other enclosure. I am of the opinion that that means the fence must be such as would ordinarily turn stock, but there is a wide field for speculation as to exactly what the word "substantial" means. The fence might be substantial and still not such a fence as would turn sheep or chickens. It would seem that a court ought to be liberal in its construction of the statute and give damages in a proper case, even though the fence might not be such as would keep out the smaller animals, so long as it was a reasonable, substantial fence for ordinary purposes.

I do not know whether Senator Gate's bill to amend the law has passed the legislature or not, but even if it has, it would not affect damages already incurred.—E. L. P.

WITHIN 24 HOURS

After an order is placed for machinery for anything from a 1 to 60 horse power plant, the goods are shipped and

THE PUMPING PLANT WILL BE OPERATING

IN LESS TIME THAN IT TAKES OUR ORDINARY COMPETITOR TO GET HIS MACHINERY COLLECTED FOR SHIPPING

WHY? Have we sold over 105,000 Gasoline Engines

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AS WE HAVE COMPLETE STOCK IN ALL LINES

Send for Catalogue No. 67 on Irrigation—It is FREE

FAIRBANKS-MORSE & CO.

425 E. Third Street, Los Angeles

FRUIT TREES SELLING FAST

But have a splendid assortment yet on hand.

Special offers on Acacia trees and other Ornamentals to reduce stock. Let us send you our Complete Catalog to aid you in making a selection, and let us figure on your requirements.

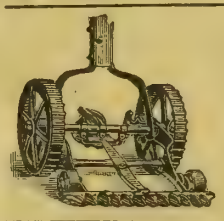
ARMSTRONG NURSERIES Box 117 Ontario, Cal.

Sweet Potato Plants

Sweet Potato Plants $2.50 per thousand. Write for special prices in quantities.

Phone Sunset 204
Phone Home 263
W. W. BURFORD, 740 Glendale Ave., Glendale, Cal.

THE CLIPPER



There are three things that destroy your lawns Dandelions, Buck Plantain, and Crab Grass.

In one season the Clipper will drive them all out.

Clipper Lawn Mower Co Dixon, Illinois.

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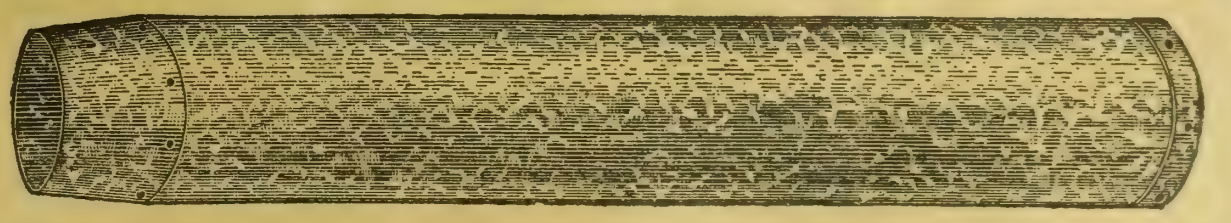
Acknowledged the best, 5 feet wide. Spring teeth if wanted. Horizontal lift. No neck weight.

AGENTS WANTED

Steel and malleable iron. Dust proof wheels.
ARNOTT & COMPANY, Los Angeles, Cal.
Write for Catalog. 112-118 S. Los Angeles St.

SAVE YOUR TIME WATER and GRADING **BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE**



The PIPE RECOMMENDED BY ALL USERS. It is the ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE on the market. THERE'S NO ROUND SEAMS TO LEAK, retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a life-time. For irrigating alfalfa it is the only pipe to use. We make RIVETED PIPE AND TANKS. Write for Illustrated Catalogue, also SPECIAL IRRIGATION FOLDER which may mean much to you.

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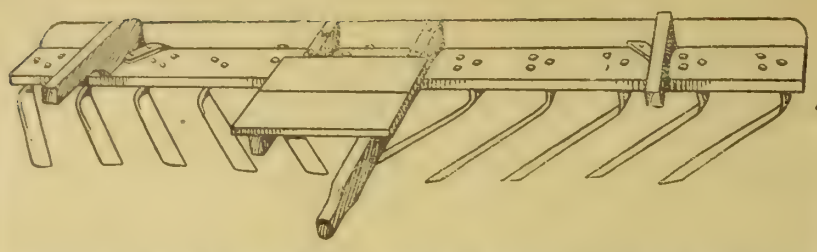

THE KILLEFER CYCLONE WEEDER

We have Killefer Cyclone Weeders of all sizes on hand. This is a most effective tool for keeping down the growth of weeds after rains or irrigating on orchard, beet, bean or grain land. Guaranteed to do twice the work with the same team of any other tool. As the knives overlap each other, it is impossible to leave anything in their course.

Built in 6, 8, 10 and 12-foot sizes. Blades can be attached to cut in or out as desired.

OUR MONARCH CULTIVATOR

While designed more especially for field use, is now becoming a favorite among orchardists where deep cultivation is desired.

This is the strongest chisel tooth cultivator on the market, and we guarantee it to give absolute satisfaction. We make special hard steel chisel points that will outwear all others. This is a good cultivator for bean or beet culture.

OUR JUMBO SUBSOIL PLOW

Our "Jumbo" is built for deep, heavy work. Shin point and land slide are made of hard steel, and the entire construction is designed to stand all kinds of hard usage. You cannot buy a better tool for breaking subsoil hardpan in orchards.

We have made a careful study of the requirements along this line and know from actual experience that this plow will do the work that is required of it.

WRITE OR CALL ON US DIRECT
IF YOUR DEALER DOES NOT HAVE THESE TOOLS.

The Killefer Manufacturing Co.

2210 Santa Fe Avenue, Los Angeles, Cal.

Krogh New Type Vertical Water Balanced Pump

This Pump

Will Interest the Irrigator

Pump has Water Sealed Gland, Enclosed Balanced Impellor. Will not cut out by sand. Can be placed in a smaller pit than any other pump. Our Bulletin, C12, tells all about it. The pump can be seen in operation at our places of business. We have a permanent branch house at

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The Only Gate of Its Kind

on the market.

So simple that a child can operate it.

It is water tight.

Ideal for reservoirs and sluices.

We also manufacture a full line of irrigation appliances, such as slide gates, pressure gates, valves and concrete pipe moulds. Write for our "Brown Book."

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FREE TRIP TO SEE THIS HAY PRESS AT WORK

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WE PAY YOU TO INSPECT THESE HAY PRESSES.

Instead of paying a salesman's fare to show you a small model of a hay press, we will pay your fare to Los Angeles and return, not exceeding $15.00, to examine our California Special New Century. full circle, all steel, self feed Hay Press and all others on sale there. It makes no difference which hay press you buy, we pay your railroad fare just the same.

When you see for yourself how this machine has been built expressly for heavy baling on the coast, how strong it is, how easy it is on horses, what smooth bales it turns out, you will understand why we make such an offer. It has 7-in step-over, pull power, high baling chamber, positive plunger rebound; it stands up to its work, no taking off of wheels. Has record of 39 tons per day. We will ship you one to try. If you don't want it we will pay freight both ways. Write now.

ARNOTT & CO., 118 South Los Angeles St., LOS ANGELES, CALIF.

The only Orchard and Vineyard Harness that satisfies every one.

PRICE, $17.50

Write for circular.

The H. C. Shaw Co.
Stockton, Cal.

Timely Ranch Suggestions

KEEP AN AUTOMOBILE.

It is wonderful how long it takes the world to outgrow an idea once it has been deeply planted in the minds of the people. There once was a stage when a man was regarded as an aristocrat who had a reaper and many of our readers can doubtless remember when telephones and electric lights were thought of as luxuries only for the rich.

Automobiles used to cost $4000 or $5000, but they don't now. Machines that are a hundred times more handsome and efficient than the first high priced models are comparatively cheap, and you can get a regular trophy winner for $1600. That is, you can if service is what you are after instead of mere style. Of course, you can yet pay as much as $25,000 for a car if you have money to throw to the birds, but the most of us can get along without ultra refinements of style and finish. What a farmer wants is a medium car both in weight and price and leave the expensive cars with the "do dads" to burn up the money of the city people. A machine will save enough in time, money, horses and patience to pay for itself.

It doesn't cost so much to keep an auto going as you've been lead to think. It takes some money for gasoline, but for all that, doesn't it take money to feed horses too? An automobile is no longer a pretty luxury. It should be a recognized factor in the political and financial life of every farm community.

Let's get down to figures. We have a letter telling about one man's experience with a $1500 car. "I have used my car on all kinds of roads and in bad as well as good weather. The speedometer shows 7600 miles, yet I have not had a particle of engine trouble and the cost of maintenance has been very small. I have driven as much as 107 miles on five gallons of gasoline and carried four people." You wouldn't call this cost of maintenance very high when it takes not to exceed 75 cents to carry four people a distance which would be a good two days' journey for a team of horses. Fifteen to twenty-five miles on a gallon of gasoline is pretty cheap traveling.

Instances multiply showing that with a good reliable machine the expense of running an automobile is not anything like what it would cost to keep horses to do the same amount of work. Here is the expression of a practical farmer who has adapted the motor car plan of doing things: "In my experience covering from about April 1 I have never paid out a penny for repairs and my stock is kept at work in the fields. I find it a good deal cheaper than a team and besides it is awfully hard on stock to haul heavy loads over the graded roads and paved streets. It is a time saver and requires no feed while not in service which cannot be said of a team. I am well pleased with my venture and can heartily recommend it to others."

Along with the above statement, put down this other one which is interesting in that it sums up the total expense for one year of one of the smaller models: "I have had my runabout for a year and have kept an accurate record of all my expenses. I was surprised to find that it only cost me 29 cents a day to run 100 miles a week. My total expenses for 5000 miles were $106.40. I have never laid up on the road for repairs and my car is going better than ever."

Here is also a western farmer who is quoted as saying: "I had half a dozen cans of cream in the back of my motor car, and carry them six miles to market. It takes me about forty minutes when everything is favorable. With a team it would require two hours." Another says: "I have used my car for a great deal of small marketing during the past fall. I live about twelve miles from town and dispose of many fine apples as they ripen, since I could take them to town in a short time. Altogether I took over 100 bushels that way. Of course, we take nearly all our cream, butter and eggs in the car, because that is our way of going to town in good weather, and it has saved me money because fruit and other products were sold when fresh and so at a higher price."

There is no doubt about it—the automobile on the farm is a reality which is rapidly making its way and has come to stay. The desirability and economy of a motor car cannot be questioned. The only problem the farmer has is to be sure that he buys the kind of a car which is best suited to his needs. The one cardinal principle to remember is that the car you buy must have proven itself worthy on country roads. Don't let a demonstrator take you out for a spin and call that enough. Look into the reputation of the company who makes the machines and look into the contest record of the car itself. Speed contests count for little, but if a car has made good with excellent road scores then it will stand up under rough service on the kind of country roads that every farmer encounters.—Nebraska Farming.

WHY NOT THE GRANGE IN SOUTHERN CALIFORNIA.

By Horace G. Keesling, San Jose.

Your mention of the Grange in connection with Farmers Club meetings in recent Cultivator touches a responsive chord in one who lives in the California Grange belt, and creates a feeling, in fact a knowledge, that the Grange would be of great benefit not only to Southern California but everywhere in our big state where tillers of the soil exist in sufficient numbers to hold a charter.

All intelligent and progressive country people who love the country, the things that grow there as well as the physical, mental, moral and I may say spiritual wellbeing of the community in which they live, should belong to a Grange of Patrons of Husbandry.

Social intercourse and the exchange of notes and information which have to do with the financial side of country life are not all the benefits that may be derived from the Grange.

Here are some of the reasons why farmers should join the Grange:

It is inexpensive. It is the only farmer's organization national in character. It has stood the test for thirty-two years and has not been found wanting. It has exerted greater influence in securing state and national legislation in the interest of agriculture than any other agency. It is

Don't Put Off Painting— It Will Prove Costly

The longer you put off painting the more oil and lead the job will take.

While you wait your buildings rot, exposed to the weather.

The cost of paint made of

"Dutch Boy Painter"

white lead and pure linsced oil is not so high as you may think.

For an average house, the cost now of this genuine old-fashioned, mixed-to-order pure white lead paint is not more than $4 or $5 greater than it used to be. Much cheaper than repair bills.

Write for our free "Painting Helps No. 1026

NATIONAL LEAD COMPANY

New York Cleveland Chicago St. Louis Boston Buffalo Cincinnati San Francisco (John T. Lewis & Bros. Co., Philadelphia) (National Lead and Oil Co., Pittsburgh)

THE "BOSS"

Tree Protector

MADE OF YUCCA PALM

Is cheap, durable, and quickly put on the tree. It prevents rabbits from destroying your trees. A sure protection against frost, sunburn, grasshoppers or dry winds. Can be easily removed; will last for years. Send for samples.

PRICES.

	Per 1000.
10 in. long, 7 in. wide	$ 9.50
12 in. long, 7 in. wide	10.50
14 in. long, 7 in. wide	11.50
16 in. long, 7 in. wide	13.00
18 in. long, 7 in. wide	14.50
24 in. long, 7 in. wide	17.00
30 in. long, 7 in. wide	20.00

YUCCA MANUFACTURING CO.
1380 WILLOW ST., LOS ANGELES, CAL

"A-M-F-E-R-G-Y-P"

(American Fertilizer Gypsum)

A Soil Tonic - - -

If you use Fertilizers, or if you are in touch with people who do, write for particulars about our new Gypsum product, the best and cheapest.

First Orders At Half Price - - -

We will make you an offer well worth accepting, to introduce our new fertilizer in your locality. We want Agents; big profits to you, from its use and sale.

AMERICAN FERTILIZER CO.

414-415 Citizens Nat'l Bank Bldg., Los Angeles, Cal.

In answering mention this paper.

SEED CORN

Department of Agriculture Selection No. 160. An early maturing yellow flint corn that has produced 78 bushels shelled per acre. Will produce a fair crop with a minimum of water if planted early. Sold only in the ear. Price $3.00 per 100 pounds, smaller lots five cents per pound.

J. B. Neff
Anaheim, Cal.

officered by practical farmers who know the needs of farmers. It has secured national legislation in the oleomargarine law, the establishment of the Interstate Commerce Commission, the establishment of rural free mail delivery, and state legislation in the interest of the farming population. It has exerted the greatest influence known in breaking up the isolation of farm life and in making farm life attractive to the boys and girls, bringing sunshine and happiness into the farm home to such an extent as has never before existed. The above are not all the reasons. In a local way each grange has its own problems to solve, and in the unity of spirit and desire for betterment infused into its membership by its ritualistic teachings the grange is an irresistible power for good.

The leading country people of Santa Clara valley believe in the grange, as is evidenced by the large membership of five subordinate granges. San Jose grange meets weekly at San Jose and is often called the Mother Grange, being visited freely by members of other granges who gain at this central location much that is of use in their home granges. Particularly is this so when the season for fruit sales approaches and during the session of our state legislature. Orchard City Grange meets at Campbell, the second and fourth Tuesdays of each month. On alternate Tuesdays meetings are held at the homes of members. There is a live grange at Sunnyvale, and one at Mountain View. Lincoln Grange meets in its own hall at the corner of Mountain View and Prospects roads.

To give an idea of work done and matters discussed at regular meetings I append a list of grange committees whose duty is to report at each meeting: Legislation, education, co-operation, woman's work, relief, farm and orchard, gardening, fruits and markets, music, visiting.

Santa Clara County Pomona Grange, made up of members from all other granges in the county, meets once in two months, generally at San Jose when not invited and entertained by some other grange. In May of this year the Pomona meeting will be held at Campbell, and there is now talk of a big two days' meeting.

A Quaker lady visited Lincoln at the White House in the winter of 1864. "The Lord hath appointed thee," said she; "the Lord will sustain thee, and the people love thee. Yea, as no man was ever loved before, does this people love thee. Take comfort, friend Abraham. God is with thee; the people are behind thee." The effect of the words was easy to see. As when the lights suddenly blaze behind a cathedral window, so the radiance illumined those rugged features and poured from the wonderful eyes; the gaunt form straightened; the mouth became beautiful in its sweetness, as it said to her, "You have given a cup of cold water to a very thirsty and grateful man. You have done me a great kindness."—The Standard.

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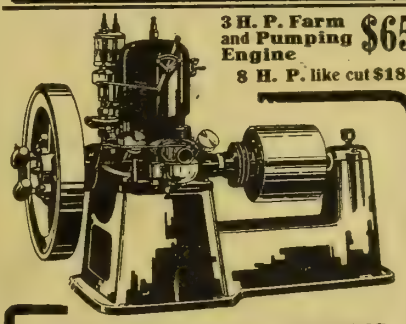

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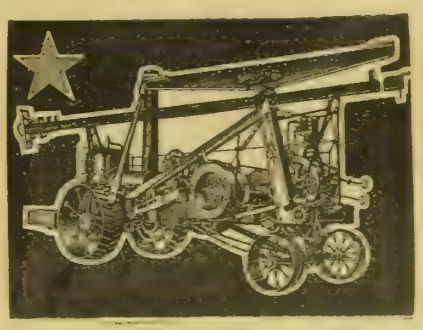

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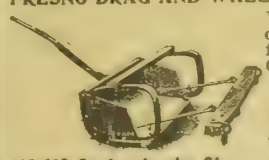

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At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

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White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

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Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Thoroughbred Light Brahma eggs for hatching, $2.00 per 15. L. C. Oakland, Chula Vista, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos. Cal.

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Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Kellerstrass Strain Crystal White Orpingtons —Best in the world. At the Santa Barbara Poultry Show with only three birds entered I won four prizes: 1st cockerel, 1st pullet, 3d hen and special premium for the best White Orpington male in the show. Eggs, select matings, $3 per 15. Extra special matings, $5 per 15. Chicks, 50 cents each. S. Gascoigne, 520 Stevenson Ave., Pasadena, Cal. North loop car.

S. C. White Leghorn Eggs—Eggs for hatching from stock bred for beauty and duty. All our birds are especially bred for heavy egg production as well as fancy qualities. Every egg is especially selected for hatching. Prices very reasonable. Place your orders now for future delivery. Geo. A. Smith, Corcoran, Cal.

S. C. Rhode Island Reds, young hens at $1.00 each. Chicks 15c each. Eggs $1.50 per 15, $6.00 per 100. L. Haynes, Madera, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Barred Plymouth Rocks hatched to order at $12 per 100. P. L. Simpson, Orland, Cal.

Overcrowded; will sacrifice a few splendid White Rock roosters, 20 months old, fine breeders, $5.00 apiece while they last; also 6 hens, 20 months old, for $10.00. Write Dr. T. J. DeVaughn, 30 N. First St., Alhambra, Cal.

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Baby Chicks—Order now from R. I. Reds (Thompkins strain). S. C. Black Minorcas (Northrup strain). White Minorcas, Buff and White Leghorns. Eggs for hatching. C. U. Chamberlin, Los Gatos, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

R. I. Reds—Phenomenal strain. See display ad, this issue, poultry department. The Luedkes, Anaheim, Cal., R. D. 1.

White Leghorn Baby Chicks, $8.50 per hundred. Eggs $4 per hundred. A. Frederiksen, Arroyo Grande, Cal.

Greenleaf "Reds"—Single comb cockerels, and eggs for sale. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Trios from my 226 egg strain of White Leghorns; also eggs and day-old chickens from same stock. Ocean View Yards, San Ysidro, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

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Choicest of Thoroughbreds—Leghorns, 12½c, others, 15c. Hatched and sold by the Pacific Hatchery, Ontario, Cal.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 123 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

NURSERY STOCK.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

Nursery with 80,000 trees from one to four years old. Plenty water, land all piped. Big reservoirs on place. Place about 1500 feet from railroad station. There are twenty acres of land and good buildings on it. For sale right away. Price $20,000. Apply for address in the office of the Cultivator, Box R.

Nursery Stock—A full line of nursery stock at the right prices, more especially ornamental trees, Bottle, Italian cypress, Texas Umbrella and Camphor. We have a lot of Placentia Perfection walnuts, 5 to 10 ft., at a price you will pay if you want them. Write or phone us. Orange County Nursery, Santa Ana, Cal. Phone Blk. 5131.

Planters and Nurserymen, attention! Fine, thrifty fruit trees, our own home grown peach, plum and apricot. Prices right. Call and see them at 738 South Spring, or write C. A. Douglas, 912 East 46th St., Los Angeles, Cal.

Sweet Seed Bed Stock for Sale—I have about 4,000, 2-year-old, extra fine, hardy, grown in the open sweet seedbed stock, most of it big enough to bud. This has been grown in Imperial Valley and is healthy and clean and is a bargain. Apply to Francis Heiny, Brawley, Cal., Imperial Co., Box 326. Also have several thousands grape cuttings of vines of Persian and best varieties suitable to Imperial Valley conditions.

Ferns—8,000 Boston and Piersoni, 3, 5 and 6 in. stock. Also runners. Write for prices. California Fern Nursery, R. D. 1, Box 188, Los Angeles. Phone East 2541.

For Sale—Orange seedbed stock, sweet. Write for prices. Frank Morris, Covina, Cal.

NURSERY STOCK.

Our Descriptive Price List No. 2 contains all novelties exhibited at the Pasadena Flower Show, also other new introductions by Dr. Franceschi; mailed free on application. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

Berry Plants—Logan and Phenomenal, $2.50 per hundred. Himalaya, Dewberry, Mammoth and Gardena Blackberry, $1.50 per hundred. H. O. Sorkness, Hemet, Cal.

TREES.

Genuine Florida Sour Orange Seed-Bed Trees. See samples of our stock at Land and Products Exposition. Extra fine one-year stock, the best to be had; be sure you are getting the genuine article. If you will send your orders in now, we are prepared to fill them, be they large or small; but order early, as the supply is limited. 3,000 fine, large two-year Valencias; get our prices. Southland Nurseries, F. H. Disbrow, prop., R. D. 1, Pasadena, Cal. Phones, Main 949, Home 2520.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

For March Delivery—First-class peach trees at 10c each; first-class apricot trees 15c each; first-class almond trees at 13c each; first-class prune trees at 13c each; first-class plum trees at 13c each. Sour orange seedbed stock at $12.00 per thousand. We pay freight on all orders of $10.00 or over. Address S. E. Courtney, Rose Lawn, Hanford, Cal.

Special prices on Tilton apricot, apples, Salway peaches, Satsuma plums, lemons, Navel and Valencia oranges, seedling walnuts. Grafted walnuts on own and black root. Anything in nursery line. Get my prices. A. R. Marshall's Nurseries, Cor. 3rd and Bush Sts., Santa Ana, Cal. Box 64.

For Sale—Fan Palms (Washingtonia robusta), 5-gallon cans, 50c and 75c. Monterey Pines, 3 feet, 45c; 10 to 12 feet, 75c. Camphor Trees, 2 to 3 feet, 25c; 3 feet, 35c; 5 feet, in 5-gallon cans, 85c. Ballou's Nursery, Pasadena, Cal.

Wanted—Owners of Kumquat or dwarf orange trees to send their address to Hugh Claudin, 54 Valley St., Pasadena. Kumquats bought for cash.

Lemon trees wanted in exchange for an automobile. Will accept scrub trees and give a good deal. Address H. H. M., 1154 East 23rd St., Los Angeles, Cal.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Eureka Lemon Trees for sale. B. A. Ropp and W. H. Fowler, R. D. 2, Ventura, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

For Sale—Aylesbury ducks and eggs. Apply Ocean View Yards, San Ysidro, Cal.

MISCELLANEOUS

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St., San Bernardino, Cal.

Panama Canal. My book reproduces Panama and Canal, 100 pages; 20 illustrations including map and profile. Sent postpaid for 25c. C. C. Muldner, Jr., 2861 Laclede, Maplewood, Mo.

For Sale—Oregon evergreen sweet corn seed 7c per lb. White seeded Chilean watermelon seed 40c per lb. L. C. Lea, Buena Park, Cal., or 125-126 Los Angeles Public Market, 6th St.

Bees for Sale Cheap—20 hives in 10 frame Langstroth hives, with supers for comb honey. I. D. Jaynes, Buena Park, Cal.

For Sale—Pure White Fan-Tail Pigeons, $1.50 per pair. F. o. b. express office. Bert L. Nunnaley, Yuma, Ariz., R. D.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S WHITE FOWL FARM, Moorpark, Cal

Business

GOOD NAME WORTH PROTECTING.

The surest indication of superior quality in merchandise is when the successful article is largely imitated. The surest sign of the poorest and most unreliable merchant is one who willfully misleads his customers into the purchase of inferior substitutes in place of the genuine article actually desired.

The F. Mayer Boot & Shoe Co. of Milwaukee manufacture the well-known Mayer Martha Washington Comfort Shoes, which, due to their superior merit, enjoy a big sale. Unscrupulous and short-sighted dealers, eager for bigger profits, have permitted themselves to be led into the practice of selling shoes similar in appearance but inferior in quality, representing them to be Martha Washington Comfort Shoes.

The Mayer Company have been compelled, for their own protection, to inaugurate an extensive campaign to put a stop to the unlawful use of the name and picture of Martha Washington and will punish the guilty offenders.

The practice of substitution obtains so generally that it is well for our readers to exercise a little caution in buying supplies. Our readers are no doubt familiar with the large Milwaukee shoe house, the F. Mayer Boot & Shoe Co., whose advertisements have appeared for a long time in our publication. This company makes one of the finest lines of quality shoes in America, and their reliability is well established.

In addition to the Martha Washington, they also make the Leading Lady, fine shoes for women; Honorbilt, fine shoes for men; Yerma Cushion Shoes and Special Merit School Shoes. The Mayor Company now has facilities for making 9000 pairs of shoes per day.

GREAT ANNOUNCEMENT.

There is no problem connected with the production of wealth that has been given greater attention, during the last ten years, than that of raising water for irrigating purposes by means of pumps.

The government, in order to raise the standard of such apparatus so that it might surpass anything that had been accomplished in other countries, demanded exceedingly high efficiency in their proposed pumps, and its engineers have not been disappointed in this respect, as far as it concerns the output of the Byron Jackson Iron Works.

The U. S. government and some large power companies, recognizing the reliability and quality of the pumps built by the Byron Jackson Iron Works are installing them today to the exclusion of everything else, and have even gone so far as to permit the Jackson pumps, direct connected to electric motors, to be operated the year around without employing an electric meter, because the latest design of such pumps has been such that it can be foretold what horsepower is required to operate these pumps, and that this horsepower will remain constant through the whole range of head, within the capability of the pump, no matter whether the level of the water in the sump or well is high or low, and the pump delivering over its normal capacity or the exact capacity for which it was made.

SPRING MILLINERY INDICATIONS.

Many odd ribbons and ribbon effects are utilized on the spring hats. There is a preference accorded to velvet ribbons, to bows of piece velvet, and to ribbons of fancy weave that have velvet interwoven in their design. The most prominent in these effects is a white satin ribbon having a wide velvet strip. There are also paisley designs in soft weaves, and considerable uncut velvet, not so much in ribbon as in piece goods.

There is no indication of a long and strong run on any one item or style, and this fact alone means tidings of great joy to the trade in general.

It is prophesied that it will for divers reasons be a season of high color effects, but the word from over the seas is that Paris still favors black and white. Bright blue, blue, in fact, of all shades, is strong, as well as are purples and all the rose colorings.

No one straw has precedence over the others, and practically all shapes have equal chances of success. so that at the time of writing, the trade feels confident of good results, if not in all at least in many of the lines offered.—The Millinery Trade Review.

Entomology and Bees

QUEENS AND QUEEN REARING.

By C. A. Wurth, Wapato, Wash., Before California State Bee Keepers.

The name suggests something or some one superior, supreme, or above the ordinary. In ancient days this one inmate of the bee hive was called the king bee; such great writers and students as Socrates, Virgil and others refer to the mother bee as the king. Unlike modern society the humble gatherers of sweets recognize no aristocracy, blue blooded races or heirs of royalty; if for any reason the queen becomes unable to perform the functions she acquires by nature, and menaces the prosperity of the colony she is immediately replaced or superceded by a young and vigorous queen, which is reared and developed by the bees themselves by the application of a fundamental and natural law by which the bees change and transform an egg or larva, which if left as primarily intended would develop into a worker bee, this change of sex from neuter to female being made possible only by the continuation of feeding royal jelly or a food containing chyme, which is secreted in the bodies of the nurse bees themselves. By experiments we have concluded that this same food constitutes the menu of all larvae until 36 hours of age. After the young queen has hatched, has been fertilized and begins her duties of perpetuating the existence of the colony, the old queen mother in her majesty and with her brilliant record of the past, asks for no old age pensions, or other concessions of the colony of which she is mother, but she ceases to perform any further functions and dies and mayhap is aided to the end of her existence and is then carried forth and dropped without the portals of her late kingdom, as the bees recognize her only as an obstacle and impediment to progress.

Bees are great political economists. Unlike the workers in the fields of human endeavor they fail to see the advantage of providing and caring for a vast army of non-producers, but how different is their attitude toward a vigorous, prolific queen, in the height of brood-rearing. She is attended by a small company of worker bees who supply her with food and protect her from any impending danger, even to the extent of sacrificing their own lives. And it is well that they should, when we realize the importance and value of the queen, the mother of all she surveys, and while she may not and does not govern all the inhabitants of her domain, she is the basis of all prosperity in the future.

And how strange that we as bee keeprs, giving the care and study of this pursuit our attention for years, still fail to realize the importance of having strong, prolific queens in all colonies. I sometimes think it foolish for bee keepers to spend months in securing a crop of choice honey and then dispose of it in less than one hour's time, when if half the effort was used the bee keeper could dispose of it at a good price. It is just as foolish to try to build up a strong, populous colony by having the colony headed with a poor, low vitalized and impoverished queen, and how to secure prolific queens has been the endeavor of some of our most prominent bee keepers for years past.

In no one thing in successful bee keeping does quality count as much as in the queen, and as this importance of quality of queens has been recognized for over a half century, it is not strange that we have been endeavoring to improve the quality of the queens and also promote a system or provide a means of securing the strongest and most prolific queens by some artificial method and not rely entirely upon the bees for a better race. Therefore by finding under which condition we are able to secure the most vigorous queens we can use them as working basis. It has been only about thirty years since the first system of rearing queens artificially was introduced, and strange to say with all our progress along other lines that system stands today, modified and changed in some minor details, but still the basic principle is intact. "Have all cells built in strong colonies," or under the swarming or superceding impulse. This system as presented to us over twenty years ago by one of the masters of apiculture has not been improved upon in the main essentials and it is my opinion that this, the Doolittle system, is used more extensively than all others combined.

Queen rearing has been alluded to as the poetry of bee keeping. I will concede that it is a very fascinating study but as a business it requires strict attention and adaptability to secure the greatest returns. It is necessary to have some extra equipment if one wishes to carry on artificial queen rearing. I quote from Mr. E. W. Alexander as follows: "The most common and worst mistake that can be made in rearing queens is to save the natural cells and virgin queens from colonies that have cast natural swarms. Almost daily during the summer season we see bad results in our apiaries from excessive swarming and then so many will do the very thing of all things that will perpetuate the desire to swarm, by saving virgins and cells from the colonies that are first to swarm." Mr. Alexander further says in regard to this way of requeening that it is a matter of but a few years until the bees degenerate into a colony which does little else but swarm.

There is a variety of opinions in regard to the question of whether it pays to rear queens when one is running bees for honey or buy them from a queen breeder. For the average bee keeper who specializes on honey production it is my opinion it pays him to buy his queens from a responsible queen breeder, but if one can spare the time and wishes to rear his own queens, he can do so by following any of the several different queen rearing systems used today.

I will not attempt to give here any outline of queen rearing. I will only say that no matter what or whose system you prefer there are three cardinal principles to successful queen rearing. First, breeding queens should be the best obtainable. If your stock is inferior secure a good tested or breeding queen from some reputable queen breeder; second, have your cell building colonies strong, exceptionally strong, and be sure to have the colony rearing brood to its fullest capacity, if necessary, stimulate by feeding; third, watch your drones, for it is but a wasted effort to try to improve your bees by rearing queens unless you also try to govern the fertilization of the queens.

Scientific investigation has proven to us that such diseases as black brood and paralysis, as well as low vitality are inherited from impoverished queens or queens with low vitality. So it behooves us to be ever aware of the condition of the queen.

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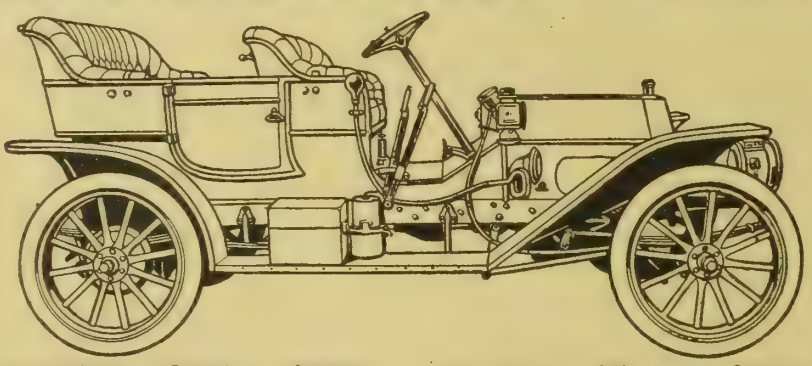

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SUNSET MAGAZINE, MARCH

When writing advertisers, mention Cultivator.

General Household Notes

A THOUGHT FOR EACH DAY.

Monday—You have not fulfilled every duty, unless you have fulfilled that of being pleasant.—Charles Buxton.

Tuesday—
Build as thou wilt, unspoiled by praise or blame,
Build as thou wilt, and as thy light is given;
Then, if at last the airy structure fall,
Dissolve, and vanish, take thyself no shame—
They fall, and they alone, who have not striven.
—Thomas Bailey Aldrich.

Wednesday—
What do we live for if not to make life less difficult for each other!—George Eliott.

Thursday—
Haste not! rest not! calmly wait;
Meekly bear the storms of fate
Duty be thy polar guide;
Do the right what'er betide
Haste not! rest not! conflicts past,
God shall crown thy work at last.
—Goethe.

Friday—"There is hardly any bodily blemish which a winning behavior will not conceal or make tolerable."

Saturday—
Do the woes of life surround you?
Face them.
Chase them.
He who ruleth over all,
He will help you, though you fall,
Gladly hear you when you call,
From His heaven above.
Have you any wrong to right? Right it.
Do you have a sin to fight? Fight it.
God, Himself, will help you win.
Let His Spirit enter in,
Making right the heart within,
Fit for heaven above.
—John Starling, in the Observer.

Sunday—Let us be persuaded that nothing is due to us, and then nothing will disturb us.—Fenelon.

"MAN WITHOUT A COUNTRY."

By Otis M. Sisson.

It is just ten years since I first saw "the big Dutchman." He and some thirty or forty more of us were working on one of the many fruit farms to be found on every sand bar or space large enough for an orchard along the great Snake River as it winds from Lewiston, Idaho, through a narrow canyon, to its juncture with the Columbia.

Adolph was the first of the hands with whom I became acquainted. He had been at work for several days, and, at the foreman's request, helped me to get started. His accent was plainly German, and I tried a few phrases in that language, with which I was not especially familiar, that seemed to amuse him. When he smiled, his mouth reached seemingly from ear to ear, and his large, white and perfect teeth glistened brilliantly. His eyes were light blue, small and twinkling. His forehead was rather low. His funny German accent and twisted English made it difficult for one to refrain from laughing outright.

That evening I took a seat on a bench in front of the little bunkhouse which he occupied together with another German. After making a great ado and threatening to drive me away, he sat down himself, swinging his head from side to side, with his beady eyes hidden beneath half-closed lids.

He proceeded to catechize me quite thoroughly concerning my past life and prospects, making several pointed comments thereon. On the other hand, he appeared rather reticent regarding himself, and I felt rather than saw a reserve back of his apparent jollity and good humor. So I did not press him for many facts about his life. Indeed, I found much amusement in listening to his quaint dissertations and arguments, and was content to let him do most of the talking. He would argue spiritedly upon the women of Germany as compared with those in the United States. Sometimes he would praise German scenery and climate and other things, but always at the expense of America.

Thus he would discourse each evening, needing but a word to set him going. It was the fourth evening after my arrival. Becoming curious, I asked him, if Germany so much surpassed this country, why he did not return. I had never before seen such a mixture of emotion on anyone's face as my question stirred upon his. But with great effort he became calm again, and, without the anger which I quite expected him to show, he explained that it was much easier to make money over here. This explantion hardly satisfied me, however, and I went to my own bunk wondering at his action.

About a week later I heard his story. We had become quite "thick," as the saying goes, and one evening, as we were sitting in front of his little cabin, he told it to his partner and me.

He was born at Tonning, near the mouth of the Eider River, in Schleswig-Holstein, ten years after the war which resulted in the addition of that province to the German Empire. His father had favored Denmark, but Adolph grew up with great love and pride for and in the empire.

When he was eighteen the time came for him to serve in the army, as every able-bodied man must do in that country. He was placed in a regiment in Southern Germany, far from home and from his relatives.

Being naturally impetuous, he soon acquired the dislike of his superior officers by resenting certain needless restraints and insults. His commanding officer was one of those notoriously severe men for whom the German army is noted. Adolph was thrown into the guardhouse and shamefully beaten.

He resolved to escape immediately upon his release. With great difficulty and risk he did so. Passing through Switzerland, he entered France, and after a few days obtained a job on an American tramp steamer at Marseilles. For several years he sailed on this ship, rounding the globe twice, and at last landing at Boston.

Since that time he had worked all over the United States, never taking out naturalization papers, for, like Philip Nolan, there was but one country for him, yet fearing to return to the punishment which would most certainly be meted out to him as a deserter. So he had come to this faraway Snake River Valley.

"But don't you see that you are really a traitor to your country, after all?" I asked. "And think; your army service would long ago have been over, and you might have been living happily among your friends and kindred."

"Nein, nein," he answered hoarsely. "I would have been dead, dead so long time ago."

The next morning his old partner told me that Adolph kept him awake all night, moaning and talking in his sleep, but that he had been unable to

make out what he said. He appeared as jolly as ever that day, though, and sang and whistled a great deal. The "Lorelei" seemed to be his favorite, intermingled with snatches from late popular songs.

A couple of evenings later I thoughtlessly repeated, as I sat down for our usual chat, those touchingly beautiful lines of Friedrich Ruckert:

"Aus der Jugendzeit, aus der Jugendzeit,
Kommt ein Lied mir immerdar."

We had no talk that evening, for he turned back, slamming the door, and came not out again. I upbraided myself roundly, but promised to be more tactful thereafter.

In the morning his partner informed me that he had left, with his few belongings, during the night. I could not help comparing him with that other man without a country whose story Edward Everett Hale has so vividly told.

* * * * *

One year afterward I was atending a Fourth of July celebration in a large town in Washington. Standing on a crowded corner, looking about, I found Adolph. He appeared as a man tormented by a never-ceasing inner struggle, and seemed much older and thinner than when I had last seen him. His interest was awakened now, however, and his eyes gleamed as a band of marching children saluted the flag. The patriotism with which the air was charged held him to the spot. He was very glad to see me, and shook hands with unfeigned pleasure. To my invitation to take in the sights he readily consented. He said he had stood on the same corner all morning. We slowly threaded our way through the brilliant array of stands and small shows and the gay throng.

Across the street a graphophone was giving a free concert to an ever-changing rgoup. Thither we went. It was playing the most famous national hymns, the "Star Spangled Banner," most beautiful of all; "God Save the King," the Briton's favorite; the "Marsellaise," and then—I watched Adolph curiously as it commenced "Die Wacht am Rhein."

He stood, his face working strangely, until came the line, "Firm stand today thy sons to guard the Rhine," when, with tears rolling down his face, he turned, and, pushing me almost roughly aside, forced his way rapidly through the crowd and disappeared.

That evening. as I stood watching the final grand parade and the beautiful fireworks display, a boy handed me this note:

"Lieber Freund:
"I am to the Vaterland gone.
"Fahrwohl,
"ADOLPH HARTT."

—Epworth Herald.

EASTER HAMS.

The date of Easter this year is April 16. The following, clipped from an exchange, may be a hint for some for the feast on that day:

On Southern plantations the selection of a ham to grace the Easter table is made at the first hog-killing of the previous autumn. A large one is carefully chosen, and special attention is paid to the bagging. After going through the usual process of curing and smoking, it is marked and set aside until Easter. Then it is cut out of its bag, washed carefully, put into cold water, and allowed to simmer gently until half done. It is best to set the ham boiler on the back of the stove, and there is no better rule than that of old negro cooks, to see that the "kettle only smiles on one side of its mouth."

While the ham is cooling—for it should be allowed to get perfectly cold before it is skinned and stuffed—the stuffing is made, as follows: A good parcel of cabbage sprouts or mustard salad, a handful of parsley, a small piece of stale bread, a slice of onion, all chopped together with plenty of black pepper. Deep gashes are then made in the ham, and these gashes are tightly stuffed to the very bone with the greens. After that the ham is baked until well done—an hour will probably be enough, unless the ham is unusually large. Before putting in the oven, sprinkle with a thick layer of cornmeal and brown sugar. Then pour about a half pint of water into the drip pan and set in a close oven. There is no need of basting, as the rising steam makes moisture enough. Before taking to the table the crust formed by the coat of meal and sugar should be carefully removed, round splotches of black pepper sprinkled on, and the dish garnished with parsley. When the ham is cut, the green veining with its pink flesh makes it almost as ornamental as it is delicious.

AN APPEAL

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The Polytechnic Business College is reaching out for a larger enrollment. It cannot now supply the demand for graduates of its complete business and shorthand courses, and this demand is constantly increasing.

We are now organizing for our Spring and Summer term. During the months of March and April we want one hundred young men and women to enroll and prepare for business positions. We shall require fully this number to supply the increased demand within a few months.

The Polytechnic Business College is helping thousands of young people on the road to success, and invites you to join its forces and take advantage of its opportunities.

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We have abundant teaching force of the highest grade, clean and inviting rooms, with perfect light and ventilation—100 FEET ABOVE STREET NOISE AND DUST. Call, write, phone. New Catalogue—27th year.

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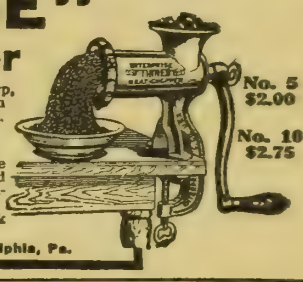
F1850 Edward King Isaacs, Pres. MAIN 2305

The "ENTERPRISE" Meat and Food Chopper



The only *true* Meat and Food Chopper. *Cuts* by means of a sharp, four-bladed steel knife and perforated plate. Useful in the kitchen every day. Indispensable at butchering time. Easily cleaned. Cannot rust. Strong, simple, reliable.

THE "ENTERPRISE" CHOPPER IS USED BY THE U. S. ARMY AND NAVY

Made in 45 sizes and styles for hand, steam or electric power. We also make the "Enterprise" Coffee Mills, Sausage Stuffers and Lard Presses, Bone, Shell and Corn Mills, Raisin Seeders, etc. Catalogue free. **Sold by Hardware and General Stores Everywhere.**

Send 4c in stamps for "The Enterprising Housekeeper"—a book of over 200 valuable recipes and kitchen helps.

No. 5 $2.00

No. 10 $2.75

THE ENTERPRISE MFG. CO. OF PA. Dept. 61 Philadelphia, Pa.

STRAWBERRY PLANTS

75 per cent of the strawberries sold in Los Angeles last season were shipped last year were **KLONDIKE BERRIES**. Why? What plants are you going to set out?

KLONDIKE BERRIES 90 per cent of the strawberries

E. H. LEARNED **R. F. D. No. 5, Los Angeles**

Grower of Strawberry Plants only, and only the best.

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The largest grower of pure Alfalfa Clover, Timothy, Red, Alsike and Mammoth Clovers.

The kinds the gentleman farmer and the farmer who respects his lands wants to sow on account of their absolute purity, namely 99.80 and 100 per cent. growth.

The kind America's famous agriculturist, Ex-Gov. Hoard, of Wisconsin, endorses, sows and praises.

Salzer's Seed Catalog Free

It's the most original seed book published, bristling with seed truths, and is mailed free to intending purchasers. Or remit 10c in stamps for 10 pkgs. remarkable farm seed samples, including our famous Alfalfa, Billion Dollar Grass, Speltz, etc.

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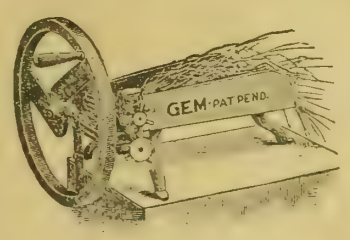

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Just the thing for the chicken raiser for cutting alfalfa, clover and green feed. Insist on the Gem. Take no substitute. Shipped direct on receipt of price, $8.00.

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Sold for cash or easy payments. 30 days Free Trial. Freight paid. 6000 sold in California.

JAS. SCOTT & CO., 824 E. 9th St., Los Angeles. Cal.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 22, 1911.

Butter.

Butter has declined a cent and a half, and heavy receipts rather weaken general market conditions.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	25
Firsts	24
Ladles	22
Country	18

Cheese.

Oregon Daisy	17@18
Northern	15@16
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Receipts of eggs are heavy. The general condition is not strong, and large quantities are going into storage. An advance has been made, however, during the week.

Paying price f. o. b. Los Angeles is:

Local ranch candled	24
Case count buying price	20
Northern	18@22
Eastern	21

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	19
Roosters	10
Broilers	27
Fryers	23
Roasters	19
Turkeys	23@25
Ducks	20
Geese	17
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.25@2.40
Salinas	2.50
Watsonville	2.35
Oregon	2.25@2.50
Northern Early Rose	2.25
Lompoc	2.75@3.00
Idaho	2.00@2.25
White Rose, local	2.25
Colorados	2.50
Sweets, yellow, cental	4.75
Sweets, white	3.75
New potatoes, lugs	2.00

Onions.

Wholesale quotations:

Oregons	3.00
Northern	3.00
Australian browns	3.00
Nevadas	3.00
Utah	3.00
Garlic	8

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.25
Asparagus, lb	15
Beets, sack	90
Brussels sprouts, lb	12
Bell peppers, lb	30
Green chilis	25
Cucumbers, doz	1.00@2.25
Cabbage, sack	90@1.00
Celery, crate	3.00@3.50
Cauliflower, crate	2.50
Carrots, sack	1.25
Egg plant, lb	10@12½
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, per doz	40
Lettuce, crate	1.00@1.50
Oyster plant, doz	40
Peas, lb	20
Parsley, doz. bunches	30@40
Parsnips, doz. bunches	40
Radishes, doz. bunches	20@25
Rhubarb, Crimson Winter, box	1.25
Rhubarb, Strawberry	1.75@2.00
Spinach, doz	20@25
Squash, Hubbard	2½@3½
Tomatoes, Mexican	1.35
Turnips, sack	1.25

Citrus Fruits.

Navels	1.25@2.25
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.25
Tangerines	1.65

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.40@1.75
Spitzenbergs	1.75@2.50
Greenings	1.25@1.50
Pearmains	1.75@2.25
Newtown Pippins	1.35@1.75
Bananas	4½
Pineapples	10
Pears, lb	5@6
Winter Nelis	2.50@2.75
Strawberries	15

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	10@13
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.50
Black eyes	6.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bay us	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.35

San Francisco Market

SAN FRANCISCO, March 21, 1911.

Butter.

An advance of one cent was made on butter on Saturday. All stock is firmly held, but buyers are slow with purchases.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	28
California firsts	26
Seconds	22½

Cheese.

California flats, new	10@14
Cal. Y. America, fancy, new	15@16
Oregon fancy	12½

Eggs and Poultry.

Eggs showed fluctuations during the week, advancing to 20½ cents on Thursday, then dropping on Friday and standing in advance of last week. Market firm.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	21
Firsts	19½
Seconds	17

Hens, doz	5.00@12.00
Fryers, doz	6.00@7.00
Ducks	6.00@10.00
Broilers	3.50@5.00
Roosters, doz	5.00@10.00
Turkeys	18@20
Geese	2.50@3.50
Pigeons	1.50@3.00
Squabs	3.50@4.00
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6½
Cows and heifers	4@5½
Calves, lb	5½@7
Hogs	5½@8¼
Yearling lambs	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.65@1.95
Salinas Burbanks, cwt	2.25@2.40
Oregon Burbanks, cwt	1.85@2.10
Sweets, cental	8.00@9.00

Onions.

Onions	2.40@2.50

Vegetables.

Wholesale quotations:

Asparagus, lb	7½@10
Beans, string	25
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	1.50@2.00
Celery, crate	1.50@2.50
Bell peppers	10@20
Beans, string	25
Chili peppers, lb	25@30
Egg plant, lb	8@10
Lettuce, crate	75@2.00
Peas, lb	11
Rhubarb, Southern	90@1.00
Rhubarb, Bay	1.25@1.75
Summer squash	1.50@1.75
Tomatoes, Mexican	1.25@1.75
Turnips	60@75
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.40
Grapefruit	75@2.50
Lemons	1.25@3.00
Limes, Mexican	7.00@7.50
Tangerines, halves	50@1.25

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.40@1.50
Spitzenberg	1.50@2.75
Bananas, Hawaiian	1.25@1.50
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 11½@13c; Apricots, 10½@12¾c; do, Moorparks, 14c; Peaches, 6@7½c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 8½@9c; Figs, 1911, 4@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6@6⅛c; Choice, No. 16, 5½@5⅝c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5c; do, 3-crown, 4½c; do, 2-crown, 4c. Dried Grapes, 2¾@3c. Seedless—Muscatels, 3¾@4c; Sultanas, 5@5¼c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.00
Pink	5.65
Black eyes	5.50@5.60
Small white	3.50
Large white	3.50
Kidneys	6.25
Garbanzos	3.00
Bayou	4.80
Horse beans	2.50
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	18@21
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week are 2,424 tons. These receipts have been enough to take care of all demands on the market, and have moved fairly well owing to the very small receipts of last week, which were only 1,740 tons.

There has been somewhat of demand in the country for hay, owing to the slow growth of grass.

The government is taking delivery this week of the last of the contract which they placed in this market last September, amounting to 3,500 tons. It is going forward on the steamer Mongolia, which sails Tuesday of next week. As we do not look for any further government business for some time, this will naturally decrease the demand on this market to that extent.

Export demand to Hawaii and coastwise has been rather light for hay.

Unless receipts are materially increased, we believe the market will maintain the present prices for the balance of the season.

Alfalfa conditions unchanged.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Wheat, No. 1	1.45@1.47½
Barley, fancy	1.23¾
Barley, good to choice	1.20@1.22½
Barley, poor to fair	1.15@1.18¾
Oats, white	1.55
Rye, new crop	1.27½@1.35
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	25.00@26.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	26.00@27.50
Rolled oats, ton	29.00@31.00
Middlings	33.50@37.00
Oil cake, ton	40.50@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	25.00@26.00

Citrus Fruit Market

LOS ANGELES, March 22, 1911.

The shipments of oranges within the past two weeks have been the greatest ever known in the citrus industry. The fruit has been first-class, though, unfortunately, it has shown a little decty. The high quality has been a great factor in preventing a slump during the big shipments, yet a slight decline is noticed. The quantity has dropped somewhat, and it is thought from now on the prices will be maintained.

There has been a slight advance in lemon quotations, due to the usual spring demand. Some dealers have been putting in cold storage, which, in addition to the regular demand, has caused a clean-up of every offering. The shipments have been rather light, and will probably be increased from now on.

Shipments.

Shipments of oranges to date since November 1, 1910, 15,054 cars; lemons, 1,856; or a total of citrus fruits of 16,910. To same date last year: Oranges, 9,919; lemons, 1,521; or a total of 11,440.

LOS ANGELES, Friday, March 17.—Ten cars navels sold.

Knight, Or, P F E 8057, from Pomona, not shipped, vent 1.45
Bishop, ch, P F E 8057, from Pomona, not shipped, vent 1.20
Sweetest Yet, xf, P F E 973, from Riverside 1.67½
Sweetest Yet, ch, P F E 973, from Riverside 1.42½
Lotengo, fy, Or, R D 8751, from Sierra Madre, shipped 16th, S F, iced 1.47½
Del Oro, ch, R D 8751, from Sierra Madre, shipped 16th, S F, iced 1.22½
Chess Queen, fy, R D 5527, from Rialto, vent, shipped 16th, S F 1.50
Cluster, ch, R D 5527, from Rialto, vent, shipped 16th, S F 1.25
Arch, xc, R D 7948, from Riverside, not shipped, vent 1.47½
Pyramid, Or, P F E 6416, from Pomona, iced, shipped 16th, S P 1.50
Cream, fy, R D 4546, from Rialto, vent, shipped 16th 1.57½
Aster, ch, R D 5446, from Rialto, vent, shipped 16th 1.32½
Avian, R D 3337, from Pasadena, not shipped 1.45
Preferred Stock, fy, Or, from Redlands, not shipped, P F E 8503 1.65
Sweetest Yet, xf, P F E 2873, from Riverside, shipped 15th, S P 1.72½
Sweetest Yet, ch, P F E 2873, from Riverside, shiped 15th, S P 1.47½

LOS ANGELES, Monday, March 20.—Eight cars oranges sold. Brand, car number, district, etc.:

	Avge.
Red Raven, xf, Riverside, not shipped, 396 boxes	1.65
R D 2023, O R 49 E R, Angel Sd, Cucamonga, ship'd 18th, iced	1.42½
P F E 8808, Blue Moon or Sky-Blue, xc, Cluster Sd, Alhambra, shipped 17th	1.27½
R D 5257, Mocker O R, Robin Sd, Monrovia, not shipped	1.37½
Heap Good, fy, Or, Riverside, not shipped	1.52½
Lone Palm, xc, Beach Sd, R F 8110, Santa Ana, shipped 18th	1.25
Monrovia Heights, Or, Robin, ch, Monrovia, not shipped	1.32½
P F E 2909, Blue Moon or Cluster St, Alhambra, not shipped	1.30

ST. LOUIS, Monday, March 20.—LEMONS—Centauria, V C S P, $2.75; Lemonspray, $2.30; choice, $2.10; Belt, R H Ex, $2.55; Belt, $2.50.

TANGERINES, Halves—Stag, $1.55.

NEW YORK, Monday, March 20.—Thirty-nine cars navels, one car seedlings and three cars lemons sold. Market strong on navels, steady on lemons. Cloudy.

NAVELS—	Avge.
Mahala, iced, L V W Brown	3.25
Swastika, iced, L V W Brown	2.86
Blue Banner, iced, Sutherland	3.00
Green Banner, iced, Sutherland	2.70
Valle Vista, iced, Sutherland, Sd	2.50
Native, iced, fy, Or, Sutherland	2.40
Hemet Heights, iced	2.10
Elephant, Or, Elephant Orchard	3.05
Elephant Seconds, Elephant Orch	2.45
King, Imp, fy, Or, Upland M O A	3.10
Sultan, Imp, Upland	2.75
King, Upland	2.95
Sultan, Upland	2.70
La Verne Heights, Imp	2.90
Signal, xf, Stewart F Co	2.75
Lotengo, iced, fy, Sparr F Co	2.70
Circus, xc, iced, Sparr F Co	2.50
Covina Beauties, iced	2.65
Sweetpea, iced	2.45
Delicious, High Prot F A	2.45
Stock Label	2.40
Independent, Or, Growers F Co	2.60
Euclid, Or, Growers F Co	3.00
Uplanders, Growers F Co	2.70
Slover Mountain, Growers F Co	2.55
The Hub	2.25
Independent, Growers F Co	2.55
Orchard, Imp, Or, National O Co	3.25
Standard, Imp, Sd, National O Co	2.60
Half Moon, xf, Red G O A	2.60
Golden Cross, O K Ex	2.80
Red X, O K Ex	2.80
Alta Cresta, Imp, A H Ex	3.25
Robusta, Imp, A H Ex	2.80
Hobo, Imp, A H Ex	2.25
Robusta, A H Ex	2.75
Pinnacle, O K Ex	3.00
Quail, O K Ex	2.70
Jameson, Q C, Corona	2.65
Justrite, Q C, Corona	2.40
Paul Neyron, S A Ex	2.65
Fuschia, S A Ex	2.50
Iris, D M Ex	2.85
Violet, D M Ex	2.60
Pinnacle, O K Ex	2.90
Majesty, O K Ex	2.60
La Mesa, Riv Ex	2.90
Golden Rule, Riv Ex, Riv	2.50
Volunteer, S A Ex	2.60
Lincoln, Imp, A H Ex	2.85
Navajo, Imp, A H Ex	2.50
Volunteer, S A Ex	2.50
Lotus, O K Ex	2.75
Monogram, O K Ex	2.60
Diamond S, O K Ex	2.15
Royal Knight, R H E, High	2.50
Athlete, S A Ex	2.70
Basket Ball, S A Ex	2.55
Touchdown, S A Ex	2.30
Truth, Riv, Arl	2.40
La Paloma, Arl	2.20
Braeside, A H Ex	2.00
Jameson, Q C, Corona	2.55
Justrite, Q C, Corona	2.40
Iris, iced, D M Ex	2.80
Violet, iced, D M Ex	2.55
Jasmine, iced, D M Ex	2.40
Green Crown, A C G Ex	2.30
Stag, A C G Ex	2.65
Pointer, A C G Ex	3.25
Hunter, Imp, A C G Ex	2.25
Rossmoyne, Snukist, S T Roosm	2.55
Red C, iced, Covina Ex	2.50
Cougar, iced, Covina Ex	2.30

NAVELS, Halves—Mahala, iced, $1.90.

BLOODS, Halves—King, $1.35; Half Moon $1.40; Bear, $1.30; So. Beauties, $1.45; Justrite, $1.20; Volunteer, $1.30; So. Beauties, $1.40; Justrite, $1.20.

TANGERINES, Halves—Mahala, $2.10; King, $1.75; La Verne, Hghts, $1.40; Euclid, $1.80; Slover Mtn, $1.50; Golden Cross, $2.00; Red X, $1.60; Quail, $1.90; Le Mesa, $1.75; Victoria, $1.75; Lotus, $1.85; Athlete, $1.65; Blue Seal, $1.65; Stag, $1.55; Red C, $1.50.

GRAPEFRUIT, Boxes—Ideal, $2.10; Delicious, $1.50; Stock Label, $1.50.

LEMONS—Naralimo, $2.70; Circus, $2.30; Plain, $2.15; Trail, $2.90; Pet, $2.90; Arab, $2.50; Greyhound, $2.25; Pup, $2.15.

CINCINNATI, Monday, March 20.—Cool. Market advancing on navels; steady on Floridas. Declining on lemons. Three cars navels, two cars lemons and three cars Floridas sold. Floridas, $1.95@2.60.

NAVELS—	Avge.
Parrott, S A Ex	2.60
A1, xc, E Peycke	2.45
Hawk, S A Ex	2.45
National, xc, E Peycke	2.50

LEMONS—Buckeye, Central Cal Ex, Lemoncove, $2.05; Pet, S A Ex, $3.20; Arab, $3.10; Pup, $2.90.

PHILADELPHIA, Monday, March 20.—Four cars navels, three mixed cars and two cars lemons sold. Also twenty-three cars Floridas. Oranges sold from $1.35 to $3.35, average $2.40. Grapefruit, $1.40 to $3.25, average $2.30. Tangerines, $1.00 to $1.95, average, 1.70. Market unchanged.

NAVELS—	Avge.
Stag, A C G, Glendora	2.75
Hunter, A C G, Glendora	2.45
Stag, A C G, Azusa	2.60
Baseball, S T, Downey	2.15
Moose, O K Ex	2.40
Salt Lake, Sd, King K Co	2.65
Native Sons, Imp, King F Co	2.75
Pointer, A C G, Glendora	2.70
Stag, A C G, Glendora	2.55
Downey, S T, Downey	2.05
Prong Horn, O K Ex	2.15
Golden Orchard, fy, Ind F	2.45
Salt Lake, Imp, Kink F Co	2.65

TANGERINES, Halves—Stag, $1.90; Stag, $1.85; Golden Orchard, $1.90.

MANDARINES, Halves—Stag, $1.40.

LEMONS—Vista Del Mar, ch, Randolph, $2.40; Mtn Crest, S A Ex, $2.00.

BOSTON, Monday, March 20.—Twenty-five cars sold. Favorable. Market easier.

NAVELS—	Avge.
Queen Bee, Q C, Corona	2.40
O I C, Q C, Corona	2.10
Lochinvar, R H, E High	2.50
Majesty, O K Ex	2.50
Homer, Q C, Corona	2.70
Rossmoyne, xc, S T, Rossmoyne	2.25
Eagle, Imp, A F, High	2.50
Sweetheart, A F, High, Imp	2.60
Athlete, S A Ex	2.50
Paul Neyron, S A Ex	2.50
Orchard, Or, National O Co	3.15
Elephant, Or, Elephant Or	2.80
Alpha, xf, R Henderson	2.70
Rialto, Growers F Co	2.65
Uulander, Or, Growers F Co	2.60
Elephant, Seconds, Elephant Or	2.50
Rialto Crest, Growers F Co	2.50
Standard, Sd, National O Co	2.45
Standard, Imp, Sd, National	2.60
Royal, Q C, Corona	2.35
Gold Buckle, R H, E High	2.70
Pinnacle, O K Ex	2.90
Queen Bee, Q C, Corona	2.60
Rossmoyne, ch, S T, Ross	2.20
Yankee Doodle, A F, High	2.40
Eagle, Imp, A F, High	2.40
Parrot, S A Ex	2.35
Fuschia, S A Ex	2.30
Regal, fy, Growers F Co	3.00
Euclid, Or, Growers F Co	2.75
Regina, Growers F Co	2.65
Rialto, Growers F Co	2.65
Elk, R Henderson	2.55
Rialto Crest, Growers F Co	2.50
Sugar Loaf, High O G A	2.50
Delta, Sd, R Henderson	2.35
Diamond B	2.25
Orchard, Imp, Or, National	3.10

TANGERINES, Halves—Bear, $2.05; Heart of Gold, $2.10.

NAVELS, Halves—Sweetheart, Imp, $1.45.

BLOODS—Yankee Doodle, $2.40.

LEMONS—Canna, S B, Yerkes S, $2.90; Cosmos, $2.70; Coral, $2.25; Excelsior, ch, Earl F Co, $2.15; Orchard, $1.70; Defender, xf, Altland, $1.45; El Toro, Sd, $1.45.

CLEVELAND, Monday, March 20.—Six cars navels, three mixed cars and one car lemons sold. Market firm on good fruit, easier on low grades. Higher on lemons. Weather favorable.

NAVELS—	Avge.
Searchlight, S S, Orange	2.15
Canna, S B, Yerkes S	2.60
Colombo, S T, Placentia	2.15
Log Cabin, Loveless F Co	2.20
Royal Knight, R H, Red	2.55
Newsboy, R H, Red	2.15
Billiken, Riv, Pach	2.35
Carmencita, S T, Placentia	2.30
Truth, Riv, Arl	2.45
Cosmos, S B, Yerkes S	2.20
Hillside Gem, Loveless F Co	2.20
Ben Hur, R H, Red	2.15
Carnival, S T, Anaheim	1.80
Ben Hur, R H, Red	2.60
Uucle Sam, Riv, Pach	2.50
Pond Lily, Riv Ex, Pach	2.00

LEMONS—Trail, A C G, $3.15; Canon, $2.90.

GRAPEFRUIT—Cosmos, $1.20.

BUDDED—Log Cabin, $2.30; Hillside Gem, $2.15.

BLOODS—Log Cabin, $2.35.

HALVES—Log Cabin, $1.30; Ben Hur, 90c.

ST. LOUIS, Monday, March 20.—Cool, clear. Market steady. Eight cars navels and one car lemons sold.

NAVELS—	Avge.
Lochinvar, R H, E High	2.80
Transcontinental, S S, El Modena	2.65
El Modena, S S, El Modena	2.20
S S Brand, S S, Orange	2.15
Belt, R H, E High	2.60
George Washington, S S, Tustin	2.70
Cowboy, S S, Tustin	2.30
Possum, A C G, Charter O	2.50
Royalpack, ch, Randolph	2.65
Belt, R H, E High	2.65
Goldfinch, S S, Elmod	2.45
Searchlight, S S, Orange	2.40
Lochinvar, R H, E High	2.80
Mt Baldy, Riv Ex, Riv	2.55
Martha Washington, S S, Tustin	2.50
Hunter, A C G, Charter O	2.60
Florencia, xc, Randolph	2.80

CHICAGO, Monday, March 20.—Lemons rule steady. Trade is about what is expected at this season of the year, and offerings ample. Boxes, California fancy, 300s, $3.35@3.50; 360s, $3.20@3.50; off sizes, $3.00; extra choice and choice, 25c discount.

Oranges steady to firm. Californias sell well, and receipts are not large. Boxes, California navels, extra fancy, all sizes, $2.85@3.00; fancy, all sizes, $2.65@2.85; extra choice, all sizes, $2.40@2.60; choice, all sizes, $2.25@2.35.

POINTS ON ALFALFA GROWING.

1. Moisture in the subsoil is as essential as the moisture for germination, to insure a stand of alfalfa. If the subsoil is dry, there must be irrigation soon after seeding.

2. Sow only on a well prepared, settled seed bed; loose, newly plowed soil is a hazardous risk, unless the soil is immediately settled by heavy rains or irrigation.

3. Sow alfalfa seed early if moisture is available; if not, sow at the season when there is the greatest prospect for moisture from rains or irrigation.

4. Sow alfalfa seed shallow. Broadcast and then harrow, is usually a successful method, if moisture is present; but a press-shoe-drill seeding about an inch in depth, would be an ideal method of seeding broadcast fields for hay production.

5. Ten to twelve pounds of first-grade seed is plenty to sow per acre; that will be at least fifty seeds per square foot, which will be ample if conditions are right. Thorough preparation is cheaper than twenty to thirty pounds sown where the conditions are uncertain.

6. Sow with a nurse crop only when there is plenty of water for irrigation. Oats, barley, and wheat are good nurse crops, but should be sown at least two-thirds of a usual seeding for grain.

7. Spring seeded nurse crops should be cut for hay, rather than left to ripen for grain, as the young alfalfa will usually suffer for water before the grain is ripe and the field cleared and irrigated.

8. On land inclined to blow, sow alalfa in grain stubble without plowing. The stubble checks the wind and does not rob the plant moisture.

9. Irrigate often, and do not fail to irrigate in late summer and fall, if you want the best results from your stand of young alfalfa.

10. Keep down the weeds. Better seed alfalfa on clean land, but cut off with a mower if the weeds get started. Do not clip alfalfa until the crown buds have developed. Grasshoppers often injure a stand of alfalfa by eating off the leaves and top before the buds have started at the surface of the ground. Early seeding is preferred on this account. —Philo K. Blinn, Alfalfa Specialist, Colo. Agri. College.

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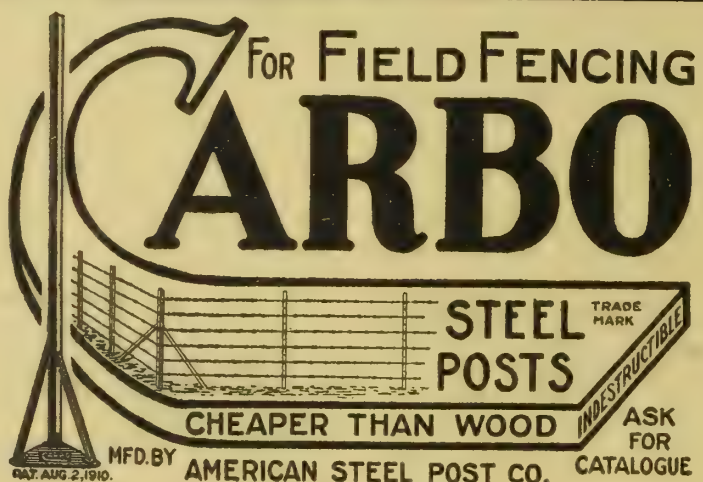

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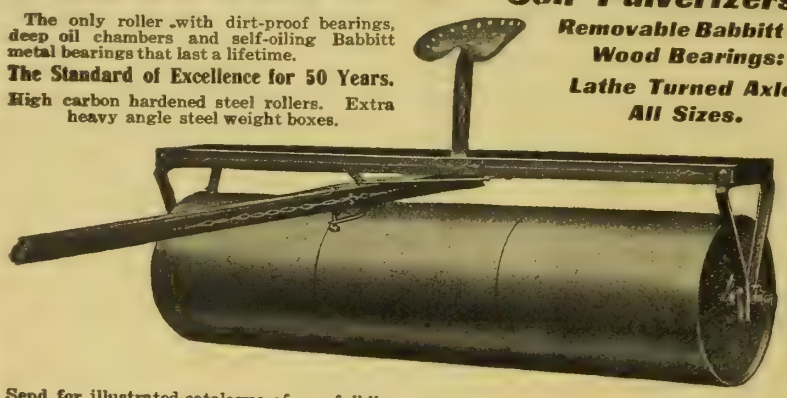

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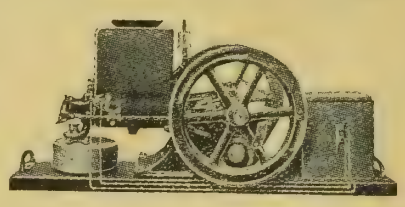
Do Away With the Windmill

It is water cooled and possesses all the usual good qualities of the larger Stover Engines.

We can give you more water than a windmill for about the same money.



Pump Jack and Head.

Gives you a steady stream all the time if you wish.

Complete with Belt and 3-inch Cylinder, $98.00 F. O. B. Los Angeles.

Pipe and rods at custom rates.

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We can supply you with any size and quantity of Standard Pipe or Casing—all new threads and couplings—all stock guaranteed first-class.

If thinking of buying any kind of pipe, your best interests will be served by writing us for prices and particulars.

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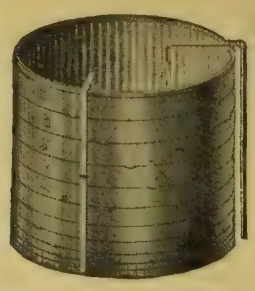

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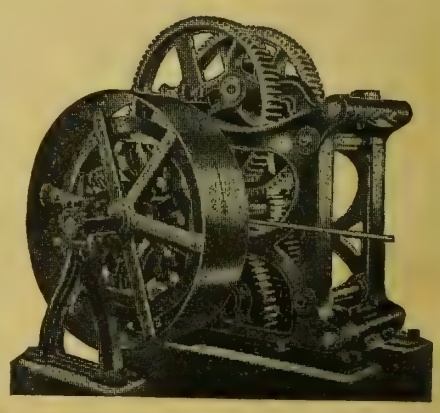
The Smooth Running Pomona Deep Well Pump

Water is King in California, especially in the South, and anyone having crops or orchards depending upon it should not experiment. The POMONA DEEP WELL PUMPS are the standard for reliability and efficiency, and can be depended upon to do their work with less trouble than others. They are manufactured by a company who have the equipment and ability to build their machinery in a first-class manner and to install them satisfactorily to their customers.



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POMONA MANUFACTURING CO.

POMONA, CALIFORNIA

Or C. H. Weed, Porterville, Cal.
Agent for the San Joaquin Valley.

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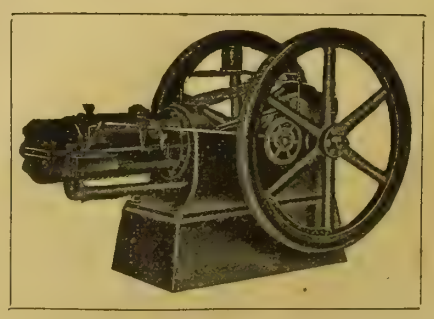
Not too Light
But Just Right

Send for Bulletin No. 12



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California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES MARCH 30, 1911 SAN FRANCISCO

Performance Record Sheet Used in Citrus Tree Tests at Riverside.

Date 1910 Orange ~~Pedigree~~ Performance Record Series 1

Location Highgrove Grower National Orange Co. Grove Vivienda Plot 25a

Variety Worlington navel Picker 1 Regular No. of Tree 240

		DATE 1910	DATE	DATE	DATE	DATE
NUMBER GRADES	Orchard	802				
	Standard	14				
	Culls	0				
	Total	816				
NUMBER SIZES	300					
	288	12				
	250	23				
	216	48				
	200	123				
	176	122				
	150	142				
	126	57				
	112	161				
	96	53				
	80	31				
	Total	816				
WEIGHT GRADES	Orchard	426-11				
	Standard	5-5				
	Culls	0-0				
	Total	432-0				
WEIGHT SIZES	300					
	288	3-0				
	250	7-10				
	216	17-14				
	200	51-12				
	176	58-9				
	150	103-2				
	126	29-13				
	112	102-14				
	96	33-8				
	80	24-0				
	Total	432-0				

Description of Tree Ideal Type

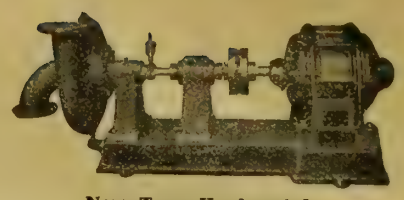
Other Notes

Mr. A. D. Shamel, of the Department of Agriculture is now in Riverside conducting investigations as to the production and quality of various citrus trees. The above sheet is one used on one tree. It will be noted that this is an "Ideal Type" tree. It will also be noted that it produced this year 816 fruits 802 of which were "Orchard" or first grade fruit. The next division below gives the number of each size of fruit while the next two divisions give the weight of each. There are four other columns for the following 4 years and a wider column at right for record of weather conditions or any event which may cause a large proportion of low grade fruit from causes not the fault of the tree. When complete a five year record of the tree's performance will prove valuable and may lead to pedigreed orange trees.

New Type Vertical Pump

Does It Not Seem Reasonable

To Assume That a Company



New Type Horizontal

which has been manufacturing one line of goods for over thirty years must be in a better position to furnish superior goods than one which has been in business a few months or years? The old concern has experienced engineers, superior shop facilities and, above all, a reputation and standing to maintain.

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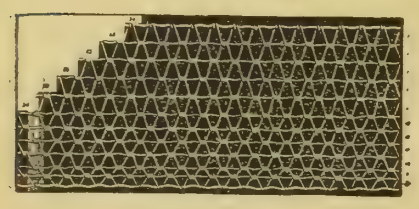

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Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c	per foot
10,000 feet	⅜-inch Standard, at	1c	per foot
25,000 feet	½-inch Standard, at	2c	per foot
20,000 feet	¾-inch Standard, at	3c	per foot
36,000 feet	1-inch Standard, at	4c	per foot
20,000 feet	1¼-inch Standard, at	5c	per foot
30,000 feet	1½-inch Standard, at	6c	per foot
50,000 feet	2-inch Standard, at	8½c	per foot
10,000 feet	2½-inch Standard, at	14c	per foot
15,600 feet	3-inch Standard, at	17c	per foot
15,000 feet	3½-inch Standard, at	19c	per foot
20,000 feet	4-inch Standard, at	24c	per foot
30,000 feet	5-inch Standard, at	40c	per foot
20,000 feet	6-inch Standard, at	45c	per foot

Oil Well Casings

1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00	per foot
1,000 feet	11⅝-inch Casing, at	$1.00	per foot
1,000 feet	9⅝-inch Casing, at	75c	per foot
2,000 feet	7⅝-inch Casing, at	45c	per foot
20,000 feet	5⅝-inch Casing, at	32c	per foot
30,000 feet	4-inch Casing, at	19c	per foot
30,000 feet	3½-inch Casing, at	16c	per foot
20,000 feet	3¼-inch Casing, at	15c	per foot
25,000 feet	3-inch Casing, at	14c	per foot
50,000 feet	2-inch Casing, at	6½c	per foot

WATER PIPE—Riveted Dipped Pipe

10,000 feet	24-inch Riveted Pipe, dipped, good as new	80c
10,000 feet	12-inch Riveted Pipe, dipped, good as new, 10-guage	35c
20,000 feet	10-inch Riveted Pipe, dipped, good as new, 12-guage	35c
10,000 feet	8-inch Riveted Pipe, dipped, good as new, 16-guage	25c
10,000 feet	6-inch Riveted Pipe, depped, good as new, 16-guage	20c
10,000 feet	4-inch Riveted Pipe, dipped, good as new, 16-guage	10c

20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.

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20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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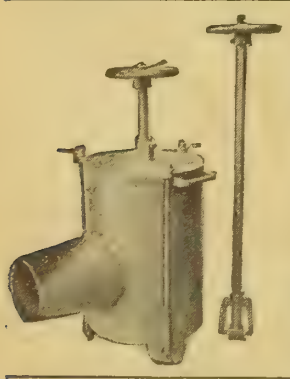

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The greatest time and money saver on a farm. It is so handy you can use it for anything you want to hoist.

Last season Mr. H. C. Porter of Alpaugh, Calif., saw our ad in the California Cultivator and, after securing descriptive circulars and prices, he ordered one of our Medium Derricks. The following letter indicates that he is well pleased with the Derrick:

ALPAUGH, CALIF., Feb. 18th, 1911.
SCHMEISER MANUFACTURING CO., Davis, Calif.

GENTLEMEN:—Please send circulars describing your Portable Automatic Derrick to the following:

H. H. Cathcart — Jacob Sonke — J. A. Callister
A. D. Overman — A. B. Ward — F. N. Beason
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—All of Alpaugh.

Some of them have used my Derrick and all have seen it work and think it is alright. They have alfalfa and need one. I am more than pleased with my Derrick and, with labor scarce and high priced, it is a great saving.. If you wish, I will act as your agent here and try to sell some Derricks.

Yours respectfully,
H. C. PORTER.

We want your name and address if you are a grower of alfalfa or any other kind of hay, so that we may send you circulars describing our Portable Automatic Derrick, a money-maker for you.

☞For further information drop a postal to the

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Write for catalogue and prices.

California Cultivator

Vol. XXXVI. No. 13. LOS ANGELES: THURSDAY, MARCH 30, 1911 One Dollar the Year

A Study of Bud Selection With Citrus Fruits

Address by Mr. A. D. Shamel Before Citrus Growers Convention at San Bernardino. An Outline of Work Begun Which Should Mean Great Increase in Worth of California Citrus Orchards

I came to Southern California for the first time in March, 1909, at the suggestion of Dr. B. T. Galloway, chief of bureau of plant industry, to study the methods of investigation of the handling and transportation of citrus fruits in charge of G. Harold Powell. In order to utilize this time of study to the best advantage, I was given actual work in the field experiments under Mr. Powell's direction, for the main part in assisting Mr. G. W. Hosford in the lemon handling experimental work which was being carried on in several representative citrus sections of Southern California.

In the course of this work, it was necessary to visit citrus groves, in order to secure fruit for experimental purposes. As I had been engaged in plant breeding work for eleven years previous to coming to this state, it was natural that the trees should attract my attention, particularly the comparative habits of growth, character and amount of fruit, and foliage characteristics of the individual trees. It soon seemed apparent that there was great diversity in regard to these characteristics of trees in the same orchard and under similar conditions of culture. Even with my inexperienced eyes, I could see plainly that trees of the Washington navel orange, for instance, of the same stock and under similar conditions so far as could be judged, varied widely in the amount and quality of fruit borne by the individual trees. Inquiry developed the fact that in the opinion of many of the growers questioned this variability of yield of individual trees was an established fact, but there was a probability that the large yielders of the season of 1909 would be the small producers of 1910.

One of the pioneers in modern citrus culture and a leading citrus grower of Southern California, Mr. E. A. Chase of Riverside, stated to the writer that he believed that there existed in his citrus groves, consistently good and consistently poor bearers. In support of this idea, Mr. Chase had studied his groves from this standpoint and was then in the process of rebudding a considerable number of what he considered to be undesirable trees.

After talking the matter over with Mr. Powell, I was asked to lay out a practical plan for the investigation of this problem. The plan was drawn up briefly, in the light of the conditions, was approved by Mr. Powell and through him arrangements were made to undertake a serious study of this subject in the field under the direction of the office of pomology.

I came to Southern California with the idea of staying not longer than three months. I have now decided to make this state my permanent home in order to more effectively prosecute this work, and because I like to live here.

Bud Variation.

Our definite beginning of the study of bud variation and selection was begun with the season of 1910, so that we now have one season's complete data and part of another, together with photographs and notes on the Washington Navel orange and Marsh's Seedless grape fruit. It was found impossible to undertake this work with other citrus fruits, such as lemons, although there has been an insistent demand on the part of a number of lemon growers for us to do so, without assistance. The securing of the data is tedious and the amount that one person can accomplish is limited. An effort has been made to secure help to take up work with lemons along this line, which if granted, will enable us to begin such work the coming summer.

Merely Preliminary.

Of necessity, the problem is one which requires time and patience. In the opinion of most growers and others, at least five years data must be secured before definite conclusions can be drawn. It seemed to me hardly advisable to present this paper now in view of this fact, and I have only done so at the urgent request of Mr. Hosford, who tells me that it will be understood that it is a preliminary paper, outlining our plan of work, rather than the announcement of results or hoped-for results. I do not wish to prejudice our work with thinking citrus growers or others, by any premature conclusions, or to influence anyone to think that we are drawing conclusions not warranted by adequate data and observations. With this understanding, I will attempt to briefly outline our object and plan of work in the study of bud variation and selection.

Object.

The object of our work is to determine the yielding habits of individual citrus trees under similar conditions. If we find that there is a consistent variation in yield of trees of the same variety under as nearly like conditions as can be found in our groves, it will be determined whether these variations, particularly yielding habits, can be propagated by bud selection. If these characteristics can be propagated, so that they appear fixed under different conditions, that is to say, when grown in different groves, it will be reasonable to conclude that the variations are due to bud variations, and not to local soil, climatic or other causes. In other words, the object of this work is to secure the performance record of a large number of citrus trees under comparative conditions, and to test the possibility or practicability of transmitting tree characteristics by bud selection and propagation.

Plan of Work.

The plan of work under which we are carrying out this investigation is not fixed, but so arranged that we can modify it, in the light of accumulating experience. It may not be the best plan even for a beginning, but it is the best and most practical for securing valuable data, that we were able to devise, in view of lack of precedents to guide our steps.

Location.

In view of the limited amount of work that one person can accomplish with the degree of accuracy and care needed for permanent data, it was decided to locate this first work in a typical section for a given variety or kind of citrus fruit, so that the results would be secured under typical conditions, and if valuable, could be utilized in a practical way at the earliest possible moment. After consultation, it was decided to begin work with the Washington Navel orange, and after several months of study of different localities, it was decided to locate this first study on the Eureka ranch of the National Orange Co., of Riverside. Through the active co-operation and assistance of the owners of this property, arrangements were made to secure performance records from carefully selected plots, and from individual trees in this orchard.

Varieties.

The Washington Navel orange was selected for this first work, for one reason, that the history of its introduction is well known, and it is an established variety of world-wide reputation and importance. It was found possible to undertake work with the Marsh's Seedless grapefruit variety, in addition to the Navel orange, as the pomelo fruits are naturally picked at such time as not to interfere with the Navel orange picking.

Selection of Plots.

The Eureka grove is nine years old from transplanting and the trees are apparently more uniform as a whole, with regard to yielding behavior at least, than any grove of Navel orange trees that I have visited. The grove is free from scale, has never been injured by cold or other seasonal causes, and the soil conditions are very uniform. The fertilization of the grove, and other factors of culture are known, since the planting of the grove, and before planting the soil had not been cultivated. The reputation of the high quality of fruit from this grove is established. The trees have not been pruned other than the usual removal of dead wood, and are in good healthy condition. These factors are extremely important for the true interpretation of results, and I feel that we have been extremely fortunate in being able to begin work under such favorable conditions. Another fact of some importance, is that in future announcement of results, it cannot be said that they were secured where the trees were notoriously variable from mixture of stock, or other cause, as this grove, as has been stated, is unusually uniform, due in part at any rate, we believe, to the more than ordinary care used in selecting buds for its propagation. Two typical plots of fifty and fifty-five trees respectively were selected by the owners and myself for plot data. In addition many individual trees were picked out for special study. About one hundred more trees were selected on the Vivienda ranch, near the Eureka ranch and belonging to the same owners, for comparative data. Particular pains were taken in these selections, especially to eliminate all possible outside influences, such as wide rows, missing trees, unusual amounts of irrigation water and other supposedly influencing factors in tree variations.

Recording Individual Tree Data.

Our first consideration in securing definite data of the variation of individual trees is the amount and quality of fruit. By amount is meant the total yield in pounds of fruit from each tree, and by quality is meant the proportion of first to second or third grade, and the proportion of the different sizes of fruits. In other words, I have called it the fruit's commercial quality. Necessarily each tree is picked separately in order to secure this data. The second part of our data consists of photographs, one taken of each tree before it is picked and one after picking, with the boxes of fruit that the tree produced arranged at the base of the tree, in order to give a graphic illustration of its yield. The third part of our data is made up of written notes, descriptive of characteristics that are not brought out in our yield data or our photographs. In securing this data on the Eureka and Vivienda ranches, I have had the constant co-operation of the owners of the orchards, particularly Mr. H. B. Chase, who has performed no small part of the work.

After picking, the fruits from a given tree are graded and sized, each tree separately. This work is greatly simplified by the use of a small mechanical grader, the suggestion of Mr. Frank Chase. Three grades are made, a first which we call orchard, a second which we call standard, and a third, culls. In the orchard grade, all of the sound unmarked fruits are placed. In the standard, marked but commercial fruits fit for shipping, are included, and in the culls the fruit not fit for shipping. The culls are not sized, but counted and weighed collectively. After grading and sizing the fruits in each lot are weighed and counted and the weights and numbers recorded in our blanks which we call our orange performance record blanks. Later this data is transferred to sheets providing for the recording of five years data from each tree, together with the photographs and descriptive notes.

Our grapefruit work is being done on the Dixon ranch of L. V. W. Brown

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of Riverside, and the Mutual ranch of the National Orange Company, at Corona. Similar work with individual grapefruit trees, to that of individual orange trees, is being carried on, and one season's data has been secured from seventy-five trees.

Propagation Work.

A limited number of sweet orange seedlings, in the nursery belonging to the late C. E. Rumsey, of Riverside, have been budded from select orange and grapefruit trees. Also on the Eureka ranch some of the poorest yielding trees have been rebudded with buds from the best yielding trees and vice versa. It will be necessary to wait until further performance record work has been done in order to do further bud propagation work intelligently. At the same time, it is desirable to do as much of this work as practicable, at the earliest possible moment, in order to secure information on this most important phase of this work.

Some Preliminary Observations.

We have found, so far, a tremendous and to us unexpectedly great variation in the yield and quality of fruit from comparative trees. It must be kept in mind that these results were obtained from normal healthy trees. In one case we secured from one tree, in 1910, 14 inferior fruits weighing 6 pounds and 15 ounces, while in the same plot a neighboring tree produced 541 fruits weighing 233 pounds and 9 ounces. Another tree produced 816 fruits weighing 432 pounds. The yields are comparatively the same this year as last season. These are extreme, but typical examples. In the grapefruit plots even greater extremes were observed.

In other words, the trees we are studying varied greatly, much more than had been heretofore supposed. The largest yielding trees invariably have produced the best fruit, not only the largest proportion of first grade or orchard fruit, but the largest proportion of larger and more valuable sizes, such as from 150s to 96s, inclusive. The poor yielding trees have produced the extremes, either very small or very large fruits. Such results are contrary to the generally expressed belief to me of growers before I began this work.

Our large yielding trees of the season of 1910 are our large producers in 1911. While these trees are producing more fruit than last season, they are yielding proportionately about the same, in comparison with the poor trees of last season. The only marked difference has been found where some of the poor trees have failed to show much, if any, comparative increase. This is contrary to many opinions expressed to the writer. Some of these observers had concluded that the large yielders of one season were the poor yielders of the following season, and vice versa.

We have found many interesting sports or mutations, both in the branches of trees, of single fruits, and as entire trees. Some of these have been budded from, not in the hope of producing a better orange than the Navel orange, but in the hope of throwing some light on the origin of varieties of the Navel orange. Numerous interesting observations have been made as the field work has progressed, but in this paper it is not possible, or important perhaps, to speak of them.

Possible Utility of Citrus Bud Selection Work.

If the results of the past work are confirmed by future work, it will demonstrate the importance of propagation from scientifically selected citrus trees. By securing trees propagated from parent trees of known and demonstrated high productiveness and the ability to transmit this quality, the grower will be able to greatly increase the productiveness and value of his land. The elimination of the poor bearing trees in our present orchards, constituting, I believe, not less than 10 per cent, probably much more, would go far towards improving this industry. In securing reliable, pedigreed trees, new planters could prevent the loss due to the culture of barren and worthless trees. Two possibilities present themselves to my mind, if our work is confirmed, namely, the rebudding of poor trees in our present orchards, and the planting of uniform groves of reliable trees in the case of new planting.

While we cannot prophesy what will occur in this connection, and I have no desire to do so, such a consummation is not unnatural to expect. It is strictly in accord with our experience with other plants, such as corn, tobacco and seed-bearing plants which have been greatly improved by seed selection. Variation is the rule in nature. We have bud variations in the case of citrus fruits, the extent and character of which, however, I am uncertain about. What more natural than that we should have buds producing trees that from some cause, perhaps the development of large amounts of fruit-bearing wood in proportion to foliage-producing wood, are more suitable for our highly specialized uses than others. If so, it will be strictly in accord with our investigations and plant-breeding experiences. We hope that these investigations will throw some definite, practical light on this important subject to citrus and other fruit growers.

I would like to emphasize the importance, to my mind at least, of fruit growers making a careful study of the individual trees in their orchards along this line. It may not be practicable to study many trees, and this is perhaps unnecessary. If a few carefully selected trees were studied, it would not only be a pleasant occupation to most growers, and I believe for their own benefit, but might add to the progress of the accumulation of information on this subject by others. Not only do I firmly believe this, but, further, that, unexpectedly perhaps, valuable new strains of fruits might be produced from select trees. We cannot tell where one may find a valuable sport or mutation. It has frequently happened in the case of other fruits and plants that our most valuable varieties have originated under what are ordinarily considered most unpromising conditions. I will venture to recommend this work to all those who are interested in botany or horticulture, as a most promising field for study, and a most pleasant and interesting occupation for those who love the outdoors and the contemplation of growing plants. In this connection, I will be glad to furnish samples of our record-keeping blanks to all who desire them.

Some of the larger farms have two shifts of men working day and night getting crops in Sutter county.

Highland, San Bernardino county, reports 500 cars of Navels still unpicked.

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Citrus and Tropical Fruits

INFLUENCE OF STOCK.

Touching upon the communications received in answer to Mr. Blanchard's query a few weeks since, Mr. W. C. Hewitt, a valued subscriber of the Cultivator in Florida writes enclosing us a letter from the late Rev. Lyman Phelps of Sanford, Florida. This letter which touches upon the influence of stock on fruit was one of the last written by Mr. Phelps. He was an authority upon citrus matters in Florida, and being a wealthy man, devoted much of his life to experiments in citrus fruit culture. He was a very careful worker and never gave out statements as to his determinations until he had tested them for many years. Mr. Hewitt writes:

"Your paper is a welcome visitor in Florida where we have charge of a thousand-acre grapefruit grove. We miss the dear old hills of California and some others of its blessings. Messrs. Burton, Harnass, Cook and Carr, all Californians, are located near me and doing good work." Mr. Phelps' letter, written more than a dozen years since, touching upon stock influence follows:

"The sour orange as a stock with Villa Franca or Messina or Communis worked on it or any other good quality of lemon, and orange worked on this, increase the quality and quantity of the fruit. You increase the quantity of fruit by using the wild lime (vulgarly called rough lemon), but lose in quality as a stock. It is, however, a very hardy stock, free from most diseases—all my experiments verify this. I do not pretend to understand it and we know yet very little about the how of things—the evidence of our senses when we see things we cannot get away from. Since the freeze there has come up a lemon simple and pure, and a sour shoot from the stock of an older sweet tree—there was standing 33 1-3 feet away a sour stock on which was worked a Communis lemon—and on half of this lemon when it forked was worked a Maltese oval orange, and this Maltese oval part was always loaded with fruit and fruit of finer quality and bouquet than I ever saw elsewhere, with thin, soft skin. Then again, when we came to cut down trees killed we have found the bud variety had grown down in some cases 18 inches over the stock—how, we do not know. Last spring I set some variegated orange buds six inches from the ground. About the identical time the bud began to grow there started a shoot on opposite side of the stock in every way identical with the bud, just at the collar of the stock—it stands today to be seen of all men, but only a very shallow man would attempt to say he could see how it was. We know very little of how the stock affects the fruit of the new bud or graft—only it does—and the more we experiment the less we try to explain."

NITRATE OF SODA, 65 POUNDS TO TREE.

Adding, if I may, to your answer to question in your issue of 2nd inst., under heading "Nitrate of Soda," I beg to say that I know of the application of 65 pounds of this salt at one time to an orange tree just to see if it would do harm. The only difference noted between this and the other trees was that this one outgrew the others. But no one advises such applications, as it would be a sheer abuse of a good thing (and a sheer waste of good money, besides from Dr. King's standpoint increase the soil content of sodium carbonate or black alkali.—Ed.)

Would it not be well to make the early application a little larger than the others, since in the warm season nitrification of the soil nitrogen is more active, rendering this source of nitrogen more available.—R. R. Snowden, Chemist and Soil Engineer.

POTASH SALTS.

The present discussion regarding potash gives interest to any available facts and figures concerning potash salts. These salts are discussed in a report just published by the United States Geological Survey as an advance chapter of its volume, "Mineral Resources of the United States, Calendar Year 1910." According to this report, which was prepared by W. C. Phalen of the Survey, all potash salts of mineral origin now consumed in the United States are imported, chiefly from Germany.

A Big German Deposit.

The principal source of the German potash is an enormous deposit at Stassfurt, which, at the present rate of exploitation, will last, it has been estimated, about 600,000 years. The report describes this deposit in general, sketches its probable mode of origin, and gives lists of the minerals it contains.

Potash Has Many Uses.

Many kinds of potash salts are imported into the United States from Germany, where a score or more of mines are in operation. These salts are used for many and diverse purposes—in gold mining, glass making, soap making, bleaching, dyeing, photography, medicine, in making explosives, in fertilizers, and in many other ways.

Imports Worth Eleven Millions.

The value of the imports of potash in the fiscal year 1910 was more than $11,000,000, and the imports have been increasing at a rapid rate from year to year.

Potash in the United States.

Potash is an abundant constituent of many rocks and minerals found in the United States, and experiments have lately been made to devise means of profitably extracting it from the rocks. The waters of some western lakes, as Owens and Mono lakes, California, also contain potash, and indicate that the beds of evaporated lakes in the desert regions of California and other states may include large amounts of potash. Potassium nitrate has been found in the desert region northeast of Salton, Cal.

Deposits of rock salt in Michigan are also of interest in this connection. The red beds of the southwestern United States contain deposits of gypsum and rock salt, and may be possible sources of potash salts. The report suggests that these beds might profitably be explored in places where conditions favor the accumulation of such salts.

Potash may be derived from organic sources, as from wood ashes and sea weed. The giant sea weeds of the California coast contain potash salts, but no experiments have yet been made to recover them on a commercial scale.

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INTERESTING EVENT IN FIG GROWING.

The writer of this has a fig tree of the species Pseudo carica, which about four years ago was planted in the backyard. It grew very vigorously and has been setting an immense lot of fruit very early in the spring, but to his disappointment every one of them dropped. The tree is now four years old and of considerable size. Last fall Dr. W. F. Swingle and Prof. Mason of department of agriculture, noticed this tree and inquired as to the cause of fruit not maturing. Mr. Swingle said that he would send me some Blastophaga which I should liberate in the tree. This was done in November, and only a single fig has been colonized. I sent some specimens to Mr. Rixford of San Francisco, and he says they appear to be of the Profichi crop, and the new crop coming on is of the mammoni crop. The larger specimens were full of galls with Blastophaga in the larva stage. He also states that he thinks it is the first time that this species has been colonized in the New World.

The writer has about seven of this kind of fig trees and they are setting an enormous crop of mamme figs. Several unsuccessful attempts have been made by the writer and this is the first colony established in Imperial valley. We have been planting several thousand Smyrnas in this valley and inasmuch as our season is so much different from the other parts of this state, it was impossible to secure Blastophaga and it will be intensely interesting to see the results of this useful insect.—Francis Heiny.

* * *

Mr. G. P. Rixford of San Francisco comments on Mr. Heiny's letter as follows:

The fig mentioned in Mr. Heiny's letter is Ficus pseudo-carica, a native of Abyssinia. A few specimens are scattered about the state, but it is not grown in any considerable numbers, as little is known about it. It is growing at Santa Barbara and in the United States experiment orchard at Chico. The tree is a vigorous grower with deeply lobed, acuminate leaves; fruit of medium size, coppery brown in color and very sweet.

In a letter dated El Centro, October last, Mr. Walter T. Swingle wrote as follows: "I visited Mr. Francis Heiny of Brawley yesterday in company with Prof. Mason and we were surprised and gratified to see that he has a large tree of Ficus pseudo-carica from Abyssinia and that it is a male tree. It shows small points, so I think the chances are good to establish the Blastophaga there now. If possible send him some from Loomis, Fresno or Niles."

In accordance with the above I sent a few late mammoni figs from Niles and San Rafael. The season, however, was so far advanced that the caprifigs sent were in poor condition, but it appears that the Blastophaga they contained entered the young figs on Mr. Heiny's trees and are now established. It remains to be seen whether they will perpetuate themselves by entering the next crop.

Dr. Franceshi of Santa Barbara writes under date of Feb. 24 as follows: "You will certainly be glad to know that some results were obtained through the intervention of the Blastophaga kindly forwarded by you, on both my specimens of Ficus pseudo-carica and Ficus sp. from Cabul.

"I have not as yet obtained any fruit fully developed and fit to eat, but I have gained this, that both trees are loaded now with small, but healthy and sound fruits, promising to come to maturity, while in the years past, all figs formed in the fall invariably dropped during the winter."

While the specimens sent by Mr. Heiny had all the characteristics of profichi and mamme, their appearance is so out of season that except for their great abundance, both at Brawley and Santa Barbara, they might be mammoni and mamme.

The important point, however, in this matter is that Blastophaga is established in Imperial Valley where thousands of Smyrna figs have been planted with no possibility of fruit unless fertilized with insects from outside sources. The writer has on account of the U. S. department of agriculture forwarded many caprifigs to different growers and this is the first instance that has come to his notice that the insect had been established and this time in the Abyssinian species, which is quite different in several respects from our common figs. Another important point brought out is the extreme percociousness of these pollen bearing caprifig, which may be used to caprify very early figs of some varieties that are now lost. It is also contended by many observant growers that pollination hastens the ripening of Adriatic, Mission and other figs of that class by from a week to ten days. This species may therefore be the means of giving earlier fresh fruit and of considerably extending the fig season.—G. P. Rixord.

SETTING QUICK GROWERS BETWEEN.

The question is often asked as to growing garden or field crops or quick growing orchard trees between walnuts or other trees set far apart. It is usually done and if care is observed, without injury. We note a suggestion in the Country Gentleman which may be of value as a suggestion. The plan may be varied to suit circumstances.

"If the trees are set according to this method, and at a distance of 36 feet apart, there will be 33 trees to the acre. That is, there will be just as many as there would be if the straight-line method were used. Of course, if a single acre is set, and if it happens that this acre has some irregular form, the planting may not come out an even 33 trees. The reservation of a 12-foot strip around the outside might make a difference, but the amount of the difference would depend upon the form of the tract, or whether it was an exact acre or more or less.

"The accompanying diagram shows the diagonal method of planting trees

◆ O ◆ O ◆ O ◆

O O O O O O O

O ◆ O ◆ O ◆ O

O O O O O O O

◆ O ◆ O ◆ O ◆

The Diagonal Method of Planting. ◆ represent permanent trees. O fillers.

which is now much in vogue and which seems to be entirely satisfac-

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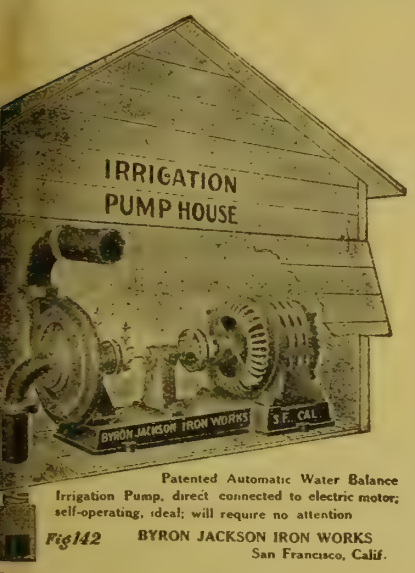

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tory. Where fillers are used, it is customary to place them not only in the rows between the apples, but in the space between the trees in the rows. Where the orchard is completely filled in this fashion, the number of fillers will be exactly three times the number of permanent trees. That is, if the permanent trees are 36 feet apart, 33 to the acre, the number of fillers will be 99 per acre. This arrangement is largely practiced even where the fillers are apple trees instead of peach trees.

"A great deal has been said against the filler system of orchard planting, but it has been almost universally adopted by modern and up-to-date men."

PLANTING PECANS.

Pecans seem to do well on soil of practically any texture, so long as it is fairly well supplied with plant food. They are a difficult tree to get started to growing, and if no more care is used in transplanting them than is usually exercised in the setting out of fruit trees, a large percentage of them will fail to grow. The sun should never be allowed to shine on the roots, and the tree should be thoroughly watered while being set out, after the hole has been about two-thirds filled with dirt, and more water applied after the work of transplanting is completed. The earth should be thoroughly packed around the roots. Some nurserymen recommend that the soil be carefully worked around them by hand; and it will probably pay to do this. Any injured roots should be cut back or removed, and the top of the tree should be pruned rather severely.

Regarding the distance apart to plant the trees, this cannot be stated definitely at this time. However, it is thought that forty feet apart is about the proper distance. Some of the Southern orchardists consider this rather close; but it is not certain that as large a growth will be made in this section as in the South.

The cultivation that is ordinarily employed in good orchard management will give satisfactory results, no doubt, with pecans; except that the irrigations, during the first two or three years, at least, should be more frequent.

The pruning of this species should be such as to cause the scaffold limbs to leave the trunk three or four feet from the rground. There is difference of opinion among writers as to whether the branches should be cut back severely every year or two, as the tree grows older; but it is thought that the better plan is to do a little pruning after the head is formed. Merely cutting back a branch here and there occasionally, in order to keep the top symmetrical and well rounded, will be found to give good results.

Many authorities consider cross pollination a benefit during some years, so that it is advisable to plant more than one variety in an orchard.

Pecan trees grow slowly, and it is doubtful if many nuts would be secured before the trees were eight or ten years old. In this section it usually takes the trees three years after transplanting to reach a diameter through the trunk of one or one and one-half inch. Owing to this slow growth, they should be secured from a nursery that is entirely reliable.—C. P. Wilson, New Mexico Col. of Agr.

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The acre-foot is, of course, 43,560 cubic feet, which is approximately twelve hours' run of a second-foot.

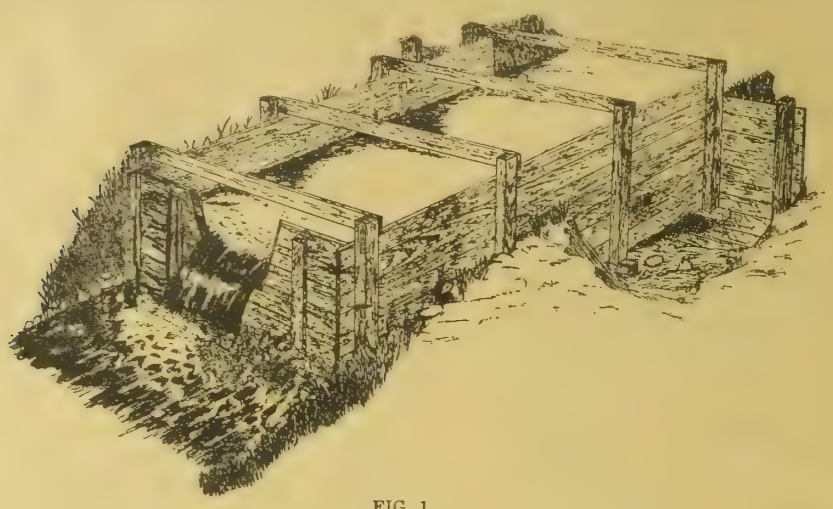

FIG. 1

The Measuring Weir.

The means best adapted for the accurate measurement of moderate amounts of water with the least trouble and outlay of money after once established are the weir and the rating flume.

The first of these, the weir, is most limited in its application to different channels, but where it can be installed its use is attended by fewer inaccuracies in results and greater simplicity. The measuring weir is simply a notch of a certain shape and size in a dam placed across a stream, the arrangement being such that all the water flowing in the stream has to pass through the notch. By merely reading off on a scale in inches or feet the depth of water on the bottom of the notch and referring to a table computed for the particular size of weir, the amount of water in cubic feet per second passing over the weir can be immediately found. There are several classes of weirs known by the shape of the notch, as rectangular, triangular and trapezoidal. The last of these is the simplest, and is the one it is advisable to use in all cases where the weir can be installed.

The weir is the invention of an Italian engineer by the name of Cesare Cippoletti.

It may be explained that with the weir, the amount of water which will pass in a second is dependent primarily upon the area of the opening and the head of water upon it. It will be noticed in this that the opening, or notch as it is called, is of regular trapezoidal form; that is, the top and bottom are horizontal, and the sides slant at a certain angle with the vertical. The notch is shown more in detail in figure two. The line BC is called the crest of the weir, and the slope of the sides, AB and CD, is one inch horizontally for every four vertically. The length of the weir is the length of the line BC, thus in a two-foot weir the line BC is two feet long.

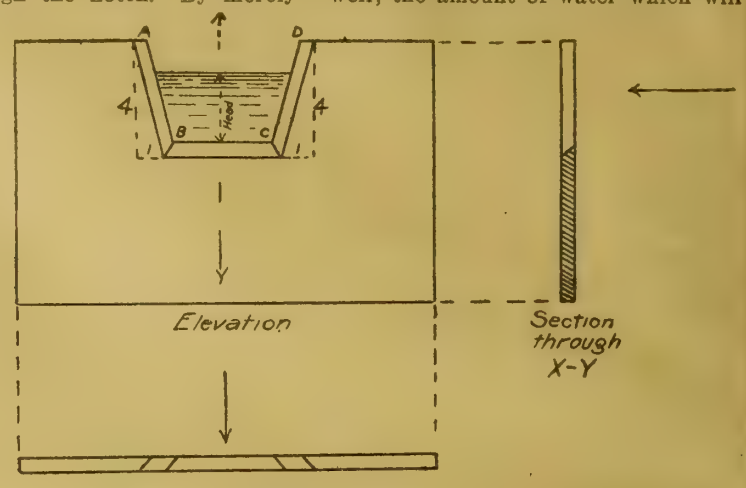

FIG. 2—Detail of Construction

As shown, the notch is chamfered so that a sharp edge is left on the up-stream side. This detail is very important, as upon it depends, among other things, the accuracy of the measurement. That the use and installation of the weir may be made perfectly clear it may be best to take a concrete case for illustration, giving the design of a weir and showing how to place it.

The first point to which attention must be given is the probable maximum amount of water that will pass over the weir. An estimate may be made upon the amount of land to be irrigated, allowing one cubic foot per second for every 70 acres. Let it be supposed that we have some 200 acres to irrigate. About three cubic feet per second will then be the largest amount of water required.

Certain rules have been laid down which must be observed in determining the dimensions of weirs if the results are to be accurate. They are viz.:

1. The greatest depth of water which should be allowed on the crest of the weir should not be more than one-third, or better, one-fourth the length of the weir, and the least depth three inches.

2. That the distance from the crest of the weir to the bottom of the weir box should be at least three times the depth of the weir.

3. That the distance of the crest from the sides of the weir box be at least twice the depth of water flowing over the weir.

These rules are intended to eliminate an inaccuracy due to what is known as velocity of approach. It can be seen that if the water in a stream approaches the weir with considerable

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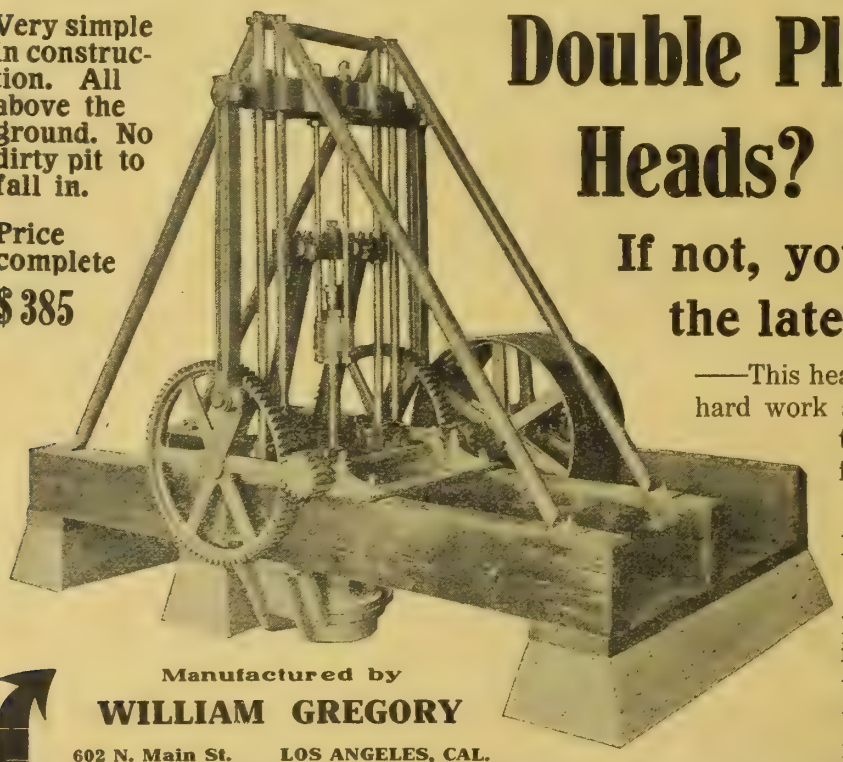

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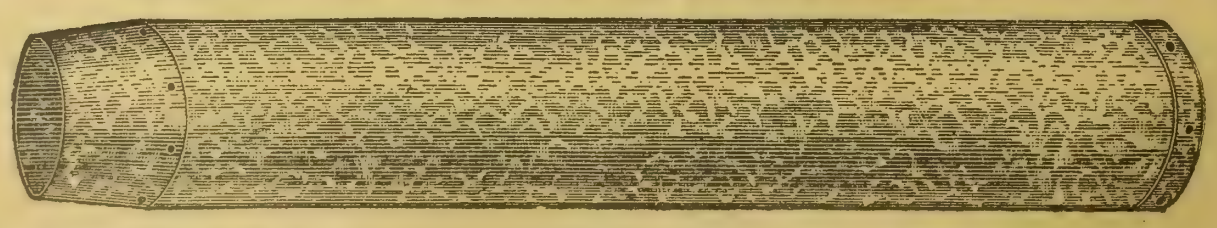

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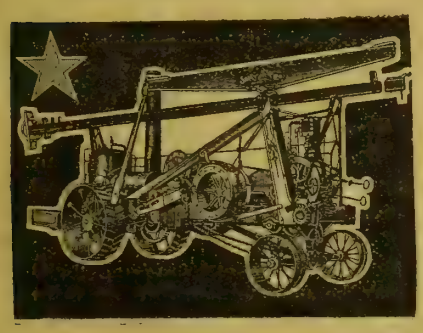

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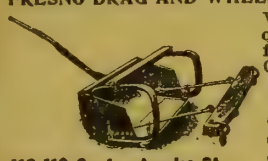

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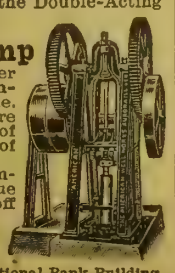

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velocity, that the velocity of the water passing through the weir notch will be much greater than if the water behind the weir had been comparatively still. It is for this latter condition that weir formulas have been worked out, and consequently if there is considerable velocity of approach the weir formula cannot be used unless some correction is made for the increased discharge due to the increased velocity with which the water passes over the weir. The rules given above will be found by computation to provide a section of channel above the weir with area equal to about eight times the area of the weir opening. Consequently the velocity of the water in the channel behind the weir would be about one-eighth the velocity of the water passing through the notch. If this ratio is not exceeded no correction need be made for velocity of approach. It is always advisable, therefore, in placing weirs to see to it that the channel behind the weir is large enough to make the velocity of the water as it approaches to flow over the weir so small that the error will be insignificant.

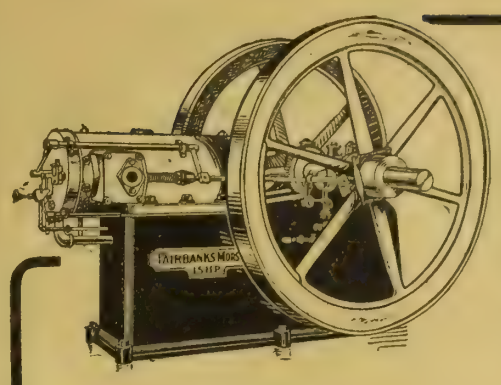
Applying the above rules to the case in hand, we find first by rule 1, and by referring to the weir tables given that the length of the weir for a discharge of 3 cubic feet per second should be two feet, this giving a depth of about seven inches on the crest.

The depth of the weir notch should be from one and one-half to two times the greatest depth which is to be allowed on the crest of the weir, which would make the depth of the notch in this case about 12 inches. Allowing a depth of notch of 12 inches and a depth of water on the crest of 7 inches, we find by rule 2 above, that the total depth of the weir box should be 2 feet 9 inches, or three times the depth on the weir plus the 12 inches due to the depth of the notch.

The width of the box should be four times the depth on the crest of the weir, plus 2 feet, (the width of the weir), which gives 52 inches as the total inside width. The length of the box is not of so much importance unless the channel of the ditch or canal is contracted, tortuous, or both, immediately above the weir. In any case, however, the length of the weir box should be not less than 6 or 8 feet.

The construction of the weir box is shown fairly well by figure 1. The material should be 2-inch lumber for the body of the box and end. The frame should be 2 by 4 inch timber. Lumber which has been well seasoned and is free from knots is desirable. The weir shown in the cut has an apron on the sides and bottom. There is always a necessity for this apron when the weir must be placed in soil which cannot be puddled or tamped about the box to prevent the water from finding a way under or around it. Burlap nailed to the bottom and sides of the box, secured to the sides and bottom of the channel with pegs and then covered with dirt, makes an excellent apron as the soil is caught in the meshes of the burlap and held there, making it almost waterproof.

The opening should be very carefully made. If the weir is to be two feet wide, the breadth of the bottom of the opening or crest, as it is called, should be just two feet, after it has been beveled. The sides should slant at the rate of one inch horizontally to every four vertically and should also be beveled with the sharp edge upstream. If the opening is 16 inches



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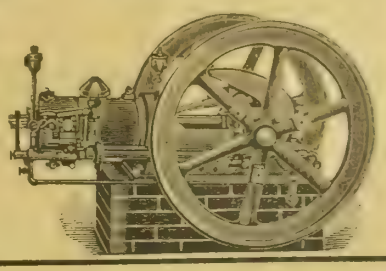

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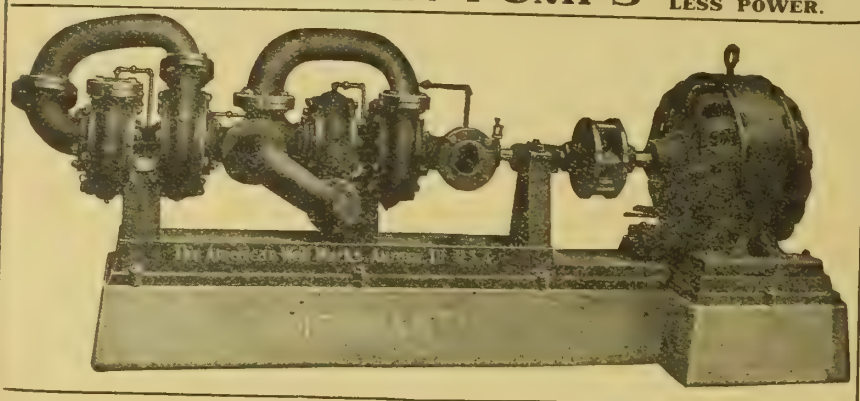

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deep and the crest is two feet wide, the width of the opening at the top should be 2 feet 8 inches.

As previously stated, the weir is not applicable in all cases and considerable care should be exercised in placing it. The usual and best situation for a weir is in a straight portion of the channel where the banks are high and the fall considerable. In every case it is not possible to find such conditions naturally, in which case the ditch banks above the weir for some distance may need to be strengthened, so that the water as it backs up to flow over the weir may not break the banks. If the channel is narrower than the weir and tortuous, it should be widened to the width of the weir and straightened upstream for about 100 feet.

The weir box should be set level both ways and the crest of the weir should be perfectly level. This last condition, of course, may be tested when the water flows over the weir. It will be noticed in the sketch that there is a scale placed some distance back from the weir, the object of which is to determine the depth of water flowing over the weir. The reason for its being placed so far back from the crest is that the water, as it passes over the crest, lowers the level of the surface from a short distance back from the weir so that if the depth of water is read on the crest of the weir itself, the head will be too small and the measurement will be inaccurate. The zero point of the scale, which may be marked in tenths and hundredths of feet, or in inches and sixteenths, as desired, should be on an exact level with the crest of the weir. If the zero point of the scale is placed even with the surface of the water at the instant that it commences to flow over the crest and then secured in that position by nailing or clamping, the depths can be determined quite accurately. The scale should be placed at least three feet back of the weir.

Depth of Water on crest	1-foot weir	2-foot weir	3-foot weir	4-foot weir	5-foot 5-foot weir	6-foot 6-foot weir	7-foot 7-foot weir	8-foot 8-foot weir	9-foot 9-foot weir	10-ft. 10-ft weir
¼	.010	.020	.030	.040	.051	.061	.071	.081	.091	.101
⅜	.019	.037	.056	.074	.093	.112	.130	.149	.167	.186
½	.029	.057	.086	.114	.143	.172	.201	.229	.258	.286
⅝	.040	.080	.120	.160	.200	.240	.280	.320	.360	.400
¾	.053	.105	.158	.210	.263	.316	.369	.421	.474	.526
⅞	.066	.132	.200	.265	.331	.398	.464	.530	.596	.663
1..	.081	.162	.243	.324	.405	.486	.567	.648	.729	.810
1⅛	.097	.193	.290	.387	.483	.580	.677	.773	.870	.966
1¼	.113	.226	.339	.453	.566	.679	.792	.905	1.018	1.132
1⅜	.131	.261	.391	.522	.653	.783	.914	1.044	1.175	1.306
1½	.149	.297	.446	.595	.744	.893	1.042	1.190	1.339	1.489
1⅝	.168	.335	.503	.671	.839	1.007	1.175	1.342	1.510	1.678
1¾	.187	.375	.562	.750	.937	1.125	1.312	1.500	1.687	1.875
1⅞	.208	.416	.624	.832	1.040	1.248	1.456	1.663	1.871	2.079
2..	.229	.458	.687	.916	1.145	1.374	1.603	1.832	2.061	2.291
2⅛	.251	.502	.753	1.003	1.254	1.505	1.756	2.007	2.258	2 509
2¼	.273	.547	.820	1.093	1.367	1.640	1.913	2.187	2.460	2.733
2⅜	.296	.593	.889	1.185	1.482	1.778	2.074	2.370	2.668	2.964
2½	.320	.640	.960	1.280	1.601	1.921	2.241	2.561	2.881	3.201
2⅝	.344	.689	1.033	1.378	1.722	2.067	2.411	2.756	3.100	3.444
2¾	.369	.739	1.108	1.477	1.847	2.216	2.585	2.955	3.324	3.693
2⅞	.394	.790	1.184	1.579	1.974	2.369	2.763	3.158	3.552	3.948
3..	.421	.842	1.262	1.693	2.104	2.525	2.946	3.366	3.787	4.208
3⅛	.447	.895	1.342	1.790	2.237	2.684	3.131	3.579	4.026	4.474
3¼	.474	.949	1.423	1.989	2.373	2.847	3.321	3.796	4.270	4.745
3⅜	.502	1.094	1.506	2.308	2.511	3.013	3.515	4.017	4.519	5.021
3½	.530	1.061	1.591	2.121	2.651	3.182	3.712	4.242	4.772	5.303
3⅝	.559	1.118	1.677	2.236	2.795	3.354	3.913	4.472	5.031	5.590
3¾	.588	1.176	1.764	2.352	2.941	3.259	4.117	4.705	5.293	5.881
3⅞	.618	1.235	1.853	2.471	3.089	3.707	4.325	4.942	5.560	6.178
4..	.648	1.296	1.944	2.592	3.240	3.887	4.535	5.183	5.831	6.479
4⅛	.678	1.357	2.035	2.714	3.393	4.071	4.750	5.428	6.106	6.875
4¼	.710	1.419	2.129	2.838	3.548	4.257	4.967	5.677	6.386	7.096
4⅜	.741	1.482	2.223	2.964	3.706	4.447	5.238	5.929	6.670	7.411
4½	.773	1.546	2.319	3.092	3.866	4.639	5.412	6.185	6.958	7.731
4⅝	.806	1.611	2.416	3.222	4.028	4.833	5.638	6.444	7.240	8.055
4¾	.838	1.677	2.515	3.354	4.192	5.030	5.868	6.707	7.545	8.384
4⅞	.872	1.743	2.615	3.487	4.359	5.230	6.102	6.974	7.845	8.717
5..	.905	1.811	2.716	3.622	4.527	5.433	6.338	7.244	8.149	9.055
5⅛	.940	1.879	2.819	3.758	4.698	5.638	6.578	7.417	8.457	9.396
5¼	.974	1.948	2.923	.3897	4.871	5.845	6.820	7.794	7.768	9.742
5⅜	1.009	2.018	3.028	4.037	5.046	6.055	7.065	8.074	9.083	10.092
5½	1.045	2.089	3.134	4.179	5.223	6.268	7.313	8.358	9.403	10.447
5⅝	1.080	2.161	3.241	4.322	5.402	6.483	7.563	8.644	9.724	10.805
5¾	1.117	2.233	3.350	4.467	5.583	6.700	7.817	8.934	10.050	11.167
5⅞	1.153	2.307	3.460	4.613	5.766	6.920	8.073	9.226	10.379	11.533
6..	1.190	2.381	3.571	4.761	5.952	7.142	8.332	9.522	10.713	11.903
6⅛	.....	2.455	3.683	4.911	6.138	7.366	8.594	9.822	11.050	12.277
6¼	.....	2.531	3.796	5.062	6.327	7.593	8.858	10.124	11.389	12.655
6⅜	.....	2.607	3.911	5.214	6.518	7.822	9.126	10.429	11.732	13.036
6½	.....	2.684	4.027	5.368	6.711	8.053	9.395	10.738	12.080	13.421
6⅝	.....	2.762	4.143	5.524	6.905	8.286	9.619	11.048	12.429	13.810
6¾	.....	2.841	4.260	5.681	7.101	8.522	9.942	11.362	12.782	14.203
6⅞	.....	2.920	4.380	5.840	7.300	8.759	10.219	11.679	13.139	14.599
7..	.....	3.000	4.500	6.000	7.500	8.999	10.499	11.999	13.499	14.999

Use of Tables.

The depth of water on the sill or crest of the weir is measured in inches and eights some distance back of the weir to lessen the inaccuracy due to the surface curve. The depth may be determined with an ordinary carpenter's rule on a stake the top of which has previously been set on a level with the crest of the weir.

With the depth of water found we look in the tables and find the number of inches corresponding to the depth. Opposite these figures under the column indicating the width of the crest of the weir will be found the discharge in cubic feet in every second. It may be said in passing that by multiplying the discharge as found in the table by two, the depth in feet is found to which an area of one acre would be covered by such a stream flowing continuously for 24 hours.

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FEEDING THE DAIRY CALF.

An article in a previous bulletin of this series dealt particularly with substitutes for whole milk in calf feeding. It is the purpose of this article to present a brief review of the whole subject by D. H. Otis, of the Wisconsin Experiment Station. In the first place Professor Otis calls attention to the herdsman's responsibility in feeding and caring for the dairy calf. If the dams have been properly nourished the value of the calves at birth depends largely, if not entirely, upon the intelligence and skill exercised by the owner in their breeding. The future possibilities of the newborn calf, however, rest on the thought and skill that the owner puts into its feed, care, and management. Mistakes at this period of the calf's life are probably of lifelong influence, while a mistake in feeding and caring for a mature animal may be only temporary in its effects. Calf feeding requires skill and good common sense, as there are no hard and fast rules that can be laid down.

Young calves need whole milk for the first few days. The calf should always have the first or colostrum milk of the cow and be allowed to nurse the cow until the eighth or ninth milking, when the milk is suitable for human food. Feed often with small amounts to avoid overfeeding. Teach the calf to drink and feed whole milk for at least three weeks, changing to a skim milk diet gradually.

By good feed and care, or the lack of it, it is easy to make a variation of $1 to $5 or even $10 per head in the value of the calf the first year.

Skim milk is a cheap feed for calves but should be fed carefully in limited quantities and only while it is warm and sweet. Skim milk may form the principal diet of the calf for eight months or a year. Factory skim milk should always be pasteurized to avoid the spread of tuberculosis. The best skim milk is that which is fresh from the separator and still warm. Experiments show that it is only one-fourth as expensive to raise a calf on skim milk as whole milk. Two pounds grain with the proper amount of skim milk equals one pound of butter fat. Buttermilk or whey may profitably be fed to calves.

Milk that is too rich may cause serious trouble from scours, and in feeding such milk care should be exercised to give limited amounts at the proper temperature. The feeding of whole milk should be continued for about three or four weeks, when the number of meals may be reduced to two per day. From one-half to a pint of skim milk may now be substituted for an equal quantity of whole milk. The amount of skim milk may be gradually increased and the amount of whole milk correspondingly decreased until, at the end of a week or ten days, the calf is getting all skim milk. Feed the milk sweet and at blood temperature.

Not over 10 to 12 pounds of milk daily should be fed until the calf is 5 to 7 weeks old. Later the amount may be increased to 14 or 16 pounds and at three months may, though not always, go to about 20 pounds. The amount fed, however, must be carefully regulated by the ability of the calf to handle it without scouring.

The grain for calves should be fed first while the calf is quite small with a little bran to aid the calf in learning to eat. High-priced concentrates are unnecessary and give no better results than corn meal, oats and bran, ground barley, etc., when fed in proper combinations. At four to six weeks a calf has good teeth and can grind his own feed. A variety of feeds is advantageous and best results will usually be secured from mixtures.

The roughage for calves should first be fed at two or three weeks of age when the calf begins to eat grain. Good clean hay, either timothy, blue grass, clover or alfalfa may be used. Corn silage is an excellent calf feed when fed in moderate amounts. Good pasture is an essential after four to six months of age, and if the calf is turned out for only a few hours each day at first scours will be avoided.

Whey has the casein as well as the butter fat removed and hence is a much less valuable feed than skim milk; a good grain ration must be carefully selected as a supplementary feed. The calf to be fed on whey should receive whole milk for the first week or two; it can then be changed to skim milk. If this is not available it should be continued on whole milk. A calf will do better not to receive whey for five to six weeks. It will take ten days to two weeks more to complete the change to whey. Calves will handle about the same amount of whey as skim milk, viz., 14 to 16 pounds daily per calf. An excessive amount may cause undue largeness of the paunch. The feeder will need to give more care and attention to calves fed on whey than to those fed milk.

Calves, like other farm animals, get thirsty, even though milk forms a large part of their ration. Calves three months of age will drink as much as 5 quarts of water daily per head. They like to drink often, sipping a little at a time. A half barrel, cleaned and replenished twice daily, will serve nicely as a water trough. Another good device is an automatic waterer, which may be easily cleaned, situated a little above the floor to keep out the litter. Salt is essential to the development of the calf, as of other animals, and should be kept continually available.

The management of the calf during the first year has much to do with its later usefulness. Plenty of water and salt should be given in clean vessels. Avoid sudden changes of diet and practice regularity in feeding. Provide warm, dry quarters in damp weather. Give plenty of roughage and not too much grain so as to develop a large capacity for handling food as is desirable in dairy animals. When the calf is six months to a year old milk may be omitted from its ration and a full roughage and grain diet substituted.

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age, it should be remembered that the calf is deprived of a nitrogenous food and its place should be taken by some nitrogenous grain or roughage. The tendency of the dairy calf to get too fat depends not only upon its temperament but also upon its feed. Avoid too much corn. Grain, oats and barley are good; for roughage, bright clover or alfalfa hay with corn silage to give succulence and variety.

Size depends much upon heredity but even more upon liberal and judicious feeding. It is impossible to starve good dairy qualities into a growing heifer but many a promising heifer has been starved into a poor cow.

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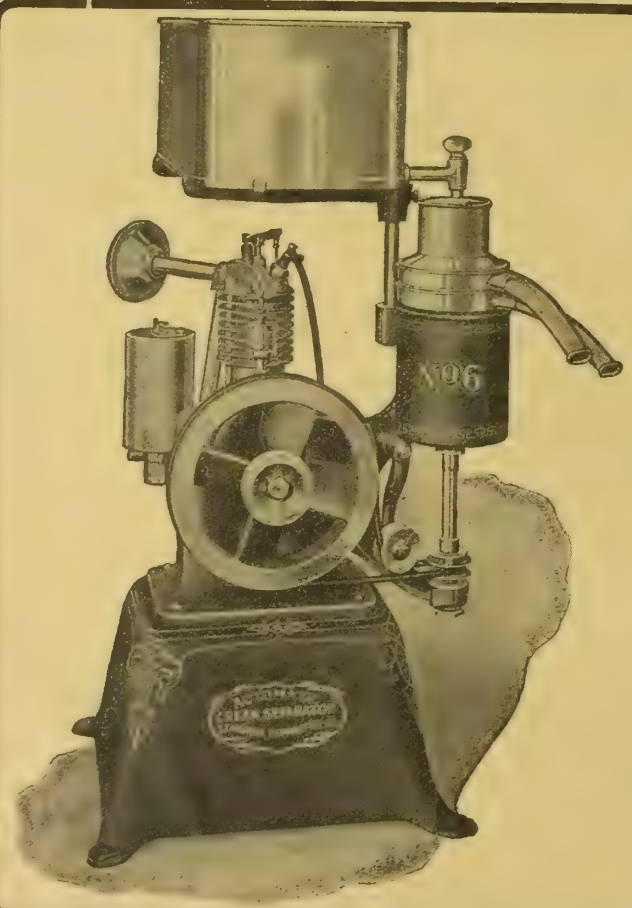
DRYER BUTTER.

The Commissioner of Internal Revenue, in a decision under date of March 3, 1911, transmitted to Collector of Internal Revenue Claude I. Parker, of the Sixth district of California, states that on and after May 1st, 1911, manufacturers of adulterated butter who produce a product which contains an excess of 16 per cent moisture, will have to pay a tax of ten cents a pound on all their product which contains such excessive moisture, and at the same time the special tax prescribed by law for manufacturers of adulterated butter, which amounts to $600 per annum.

Heretofore appeals and arguments in behalf of producers of such butter, have been considered, and in certain cases a portion of the taxes due has been omitted, but the government now takes the stand that there is a sufficient margin between the normal moisture content in butter and the 16 per cent limit, fixed by law and regulations, and that this margin is amply sufficient to protect all butter manufacturers against variations above the normal content.

The collector's instructions add that in the future this office will not entertain or consider the plea as the basis in relief for violations of this nature, that the incorporation of 16 per cent or more of moisture was due to accident, or that all precautions had been taken to guard against said condition, and in every case where it is shown that the product contains excessive moisture, all taxes due on account thereof will be assessed and collected; also forfeiture proceedings and criminal prosecution will be instituted in those cases where the facts demand such action.



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A great many examples could be given of the influence of clean milking on the quantity and quality of both milk and butter. In Germany the experiment has been tried of allowing one person to milk five cows during fourteen days, and then another person milk the same cows during the following fourteen days. The cows were fed and served in exactly the same way during the whole of the time. The result, however, was that the second person on an average got about 4 lb. 6½ oz. more milk per animal per day than the first one.

A similar experiment was made by Prof. Babcock. Three cows were milked by one person, A, during a week, the following week by another person, B. From the milk A received during the week 31 lb. of butter were churned, while from the milk B got only 18½ lb. were produced. This result is not only owing to the greater quantity of milk received, but more still to the fact that the last drawn milk is by far the richest. That this is the case anybody may easily ascertain for himself by pouring the very first and the very last drops of milk from the same teat into cream tubes. When comparing the tubes after the cream has risen, he will be surprised at the great difference in the thickness of the layers of cream; the milk first drawn looks, judging from the layer of cream, like good skimmed-milk; the last milk drawn is more like

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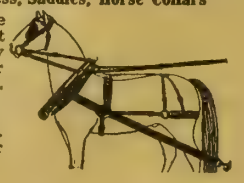

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THE PERCHERON SOCIETY OF AMERICA.
Has just taken over all records and business of Percheron Registry Company of Columbus, Ohio. 215 breeders took membership in P. S. of A. during December and January alone. 137 more new members added thru recent acquirement named above. There is now but one recognized Society in the United States recording Percherons. For information address WAYNE DINSMORE, Secretary, Union Stock Yards, Chicago, Ill.

thin cream. It has been found that the first streams of milk contain only 0.6 per cent of fat, while the last strippings of milk from the same cow contained as much as 10.2 per cent fat. A thoroughly clean milking, therefore, is very important, not only as a means of developing the cow's milking power, but also to produce richer milk.

It is important, also, how often the cow is milked daily. Some experiments concerning this question have also been tried, which show that the more times a day the cow is milked the richer the milk she yields. But whether one milks three times or only twice a day, the intervals between the milkings must, as far as possible, be of the same length. The cow is in a very high degree dependent on habit, and her udder works evenly and regularly. The milking hours, therefore, must be carefully observed, and the same person should, every time in the same course, milk the same animal. If the milking is begun too late, the cow becomes uneasy, and the tension of the udder causes pain to the animal. In both cases loss of milk ensues. The fact that the quantity of milk is lessened by milking less frequently and less energetically is a thing of which one avails oneself when wanting to dry a cow. But even in this case it is a bad plan not to cleanly strip the udder; it is far preferable to milk less often, finally once only every other day, every third day, or more seldom still, till the cow gives so little milk that milking may be dispensed with.

The milker should pay great attention to the cleanly condition of the udder and the teats. If he observes knots and tenderness in the udder, sores on the teats, the milk canal stopped up, or the milk having an unnatural appearance, etc., some remedial steps should at once be taken. Diseases in udders and teats often being contagious, cows in that way affected must always be milked last, and the milk from the affected part of the udder be drawn into a special vessel and destroyed in order to stop further spreading of the infection.—Country Gentleman.

GUERNSEYS IN THE UNITED STATES AND CANADA.

Secretary Caldwell has been taking a census of pure bred Guernseys in the United States and the following interesting figures are the result:

Maine has 27 males and 97 females; Vermont, 53 bulls and 263 females; New Hampshire, 39—158; Massachusetts, 128—768; Rhode Island, 16—53; Connecticut, 62—348; New York, 290—1134; New Jersey, 67—382; Pennsylvania, 259—1400; Delaware, 6—25; Maryland, 30—102; District of Columbia 10—101; Virginia, 13—70; Tennessee, 2—4; Alabama, 1—4; Georgia, 42—218; Missouri, 21—88; South Carolina, 9—16; South Dakota, 2—7; West Virginia, 21—118; Ohio, 113—446; Michigan, 83—303; Illinois, 66—276; Indiana, 13—34; Wisconsin, 404—1659; Utah, 2—1; Minnesota, 109—536; Iowa, 55—146; Nebraska 2—10; Kansas, 16—33; Colorado, 5—11; Idaho, 2—33; California, 23—84; Oregon, 12—35; Washington, 1—4; Canada, 8—47; Texas, Kentucky and Arizona are reported as having no registered Guernseys.

The total number of registered males in North America by this census is 2012; females 11,226. There have been about 40 thousand registrations in this country since the breed was introduced but the above figures show clearly that the man who has a well-bred herd of registered Guernseys need not be afraid of very much competition for years to come. The demand for these cattle is vastly beyond the supply.—Hoard's.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

COOK PORK WELL.

Cases of illness sometimes occur from eating uncooked or insufficiently cooked pork which is infested with a microscopic parasite commonly known as trichina or flesh worm, the scientific name being Trichinella spiralis. An average of one or two per cent of the hogs slaughtered in the United States are infested with this parasite. When transmitted to human beings, trichinae may cause serious illness, sometimes resulting in death. Out of about 15,000 cases of trichinosis recorded in medical literature, most of which occurred in Europe, 830 resulted fatally.

No method of inspection has yet been devised by which the presence or absence of trichinae in pork can be determined with certainty, and the government meat inspection does not include inspection for this parasite. All persons are accordingly warned by the United States department of agriculture not to eat pork, or sausage containing pork, whether or not it has been inspected by federal, state or municipal authorities, until after it has been properly cooked.

A temperature of about 160 degrees Fahrenheit kills the parasite, therefore pork when properly cooked may be eaten without any danger of infection. Fresh pork should be cooked until it becomes white and is no longer red in color in all portions of the piece, at the center as well as near the surface. Dry salt pork, pickled pork, and smoked pork previously salted or pickled, providing the curing is thorough, are practically safe so far as trichinosis is concerned, but as the thoroughness of the curing is not always certain, such meat should also be cooked before it is eaten.

A creamery is planned for Reedley, Fresno county, and it is hoped to have it in operation by the middle of July.

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C. W. Seamans, Pres't Remington Typewriter Co.
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The California Cultivator

A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,470 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation; offices and principal place of business, Nos. 115 and 117 North Broadway, second floor, Los Angeles, California. H. A. Perkins, president and manager; Robert M. Teague, vice-president; Frank H. Thomas, treasurer and assistant manager; Henry W. Kruckeberg, secretary and editor; C. B. Messenger, associate editor. The address of the officers is the office of this publication.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, March 30, 1911

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The Illinois Cattle Feeders Association holds a meeting this week at the agricultural college of the state at Urbana to discuss matters of interest to cattle feeders.

New York City is falling into line with its first land show. This is the only one so far announced on the Atlantic seaboard. While arrangements are already being made for it, the show is not to occur until November 3-12.

A plot has been discovered by Governor Hoke Smith to distribute the boll weevil throughout the cotton-raising districts of Georgia and South Carolina by enemies of that section. It is unthinkable that any human being would desire to so injure his neighbors.

Preparations are being made for a more successful summer school at Berkeley than heretofore, in view of the coming of the National Educational Association to San Francisco. Studies are to be so arranged that students may attend the meetings of the Educational Association as much as possible.

We note in a trades union paper: "The time for regret is always at hand; the time for action is now. Co-operate." Plenty of fruit growers in this state have observed the time for regret; some have also learned the advantages of co-operation and have acted. Large manufacturing interests are wise and co-operate. Let the fruit growers be equally so.

It is to be hoped that the discovery by County Horticultural Commissioner Morris of Santa Clara county of a wash which it is claimed will control the dreaded pear thrips will prove effective. It is a lime-carbolic spray, exceedingly simple and economical, and is reported highly successful, killing all the thrips in orchards where applied, without injury to the buds.

It is remarkable the amount of interest shown in the avocado or alligator pear. No extensive plantings are being made, but a few trees are being set out to determine the adaptability of different varieties to various sections of the state. For the first time, trees are being planted in the San Joaquin Valley. We believe they should not be extensively grown until tested out, but sure it is the fruit has proven wonderfully profitable wherever it grows well.

The fruit growers of Walla Walla Valley, in Washington, have been investigating the subject of packing low-grade fruit in barrels, similar to the Eastern method. Investigation was made in the hope that it might prove more economical than packing in boxes, but, considering the additional labor and all, it was found that the barrels would cost about 38 cents and the packing 10 cents, leaving a margin so slight that the box pack has been declared the only way to ship coast apples.

The United States exported for the eight months ending February, 1911, $501,800,000 worth of manufactured cotton; for the same period ending February, 1910, $348,600,000, a material and satisfactory increase. With corn the increase was not so marked —$22,800,000 as against $16,600,000 in the preceding year. Standard Oil seemed to be hit for we notice a decrease from $42,000,000 to $35,000,000. We also have to own up to a decrease in exports of cattle, which amounted to $10,000,000 in 1910 and only $7,000,000 for the eight months just ended.

WARNING NECESSARY.

After Mr. Powell's investigations as to causes of citrus decay and the effort to secure greater care in handling and the benefit from it, it seems that it should be sufficient. However, the heavy decay this year induced Mr. Powell, now with the Citrus League, to ask another investigation, and Mr. C. W. Mann, of the division of field investigation in pomology, has been in the state since February 1. He has just issued his first statement, as follows:

"The increase in decay in orange shipments during the present season has led to a renewed investigation of the conditions under which the fruit is being handled. In the work of the department on oranges several years ago it was shown that by avoiding the mechanical injuries of the fruit in handling, the common form of decay, blue mold, can be largely prevented, and that the degree of care exercised in handling the fruit was the principal factor in lessening decay. Many of the growers believe that the fruit is physically weak this year, and that it is naturally more susceptible to decay when infected with blue mold through bruises or breaks in the skin.

"This year's inspections of fruit show an unusually large amount of injury in handling. Inspections in twenty-five or more packing houses have shown in many instances more than 20 per cent of the fruit injured in picking, and in a few cases as high as 50 to 85 per cent. The damage from clippers is generally less common than formerly, but other kinds of injuries are greater, such as punctures of the skin caused by loose stems and gravel in the picking boxes, the bruising of the fruit and scratches caused by dead wood or branches when the fruit is picked.

"Packing house tests are being carried on with carefully handled and commercially handled fruit to determine the extent of the decay developing in each under like conditions. The fruit is packed and stored in the packing houses for a period of twelve to fourteen days, the length of time required to reach the Eastern markets, after which it is inspected. The results in these experimental lots of fruit have clearly shown the effect of mechanical injuries in increasing the decay. In the fruit which was packed under the supervision of the department and has been inspected up to the present time there has been an average decay in the ordinary commercial pack of 12 per cent, while similar fruit picked by the same crews after instructions were given in more careful methods of picking has shown an average decay of 6.5 per cent. In other words, the decay has been found to show a decrease of 50 per cent due to more careful methods of picking, and a still further reduction would undoubtedly be shown by the application of greater care in the operations in the packing houses.

"In the former investigations of the department it was demonstrated that the fruit which is free from injuries or punctures of the skin rarely develops decay, and reaches the market in sound condition; that by close supervision of the picking and the careful handling of the fruit in the packing house decay can be very largely eliminated. The results obtained in the work thus far this year fully bear out the previous investigation in showing the importance of the question of careful handling in its relation to decay."

TEST YOUR TREES.

On our leader page this week is given the address of Mr. A. D. Shamel of the Bureau of Plant Industry before the Citrus Growers Convention at San Bernardino. Mr. Shamel is now located in Riverside, where we trust he will be for years to come, in his work of investigation. He has had long training in plant selection, largely with tobacco and corn, but he has already made some interesting citrus investigations.

For the benefit of those who may wish to do a little investigating of their own, we give on cover page a facsimile of record sheet of each year's performance of every tree on which the test is being made. It has taken years for dairymen to learn the profitableness of testing each animal in their dairies. Such tests show the cows that are not only worthless but a drag on the rest of the herd. Mr. Shamel's work is showing that testing the orange trees will do the same thing for the orchardists. The careful grading of fruit as practiced by Mr. Shamel may be impracticable for the general orchardist, but a general idea of the tree's performance may be had which will determine whether it is worthy of being retained, rebudded or rooted out.

DAIRY STATISTICS.

The eighth biennial report of the state dairy bureau covering the years 1909 and 1910 has just been issued, and it is a report of dairying and creamery conditions during those two years. The duties of this bureau are the prevention of unlawful sale of substitutes for dairy products, of manufacture of cheese unless labeled full cream, half skim or skim, of sale of renovated butter, of the use of inaccurate testing apparatus, or chemical preservatives, of misbranding of butter, and the dissemination of general information relative to the dairy industry. A list of prosecutions undertaken by the bureau is also published in the report, a list unfortunately greater than it should be. In this connection it seems to us that an injustice has been done in publishing the names of dairymen arrested, but whose cases were dismissed on motion of the prosecuting attorney, and who presumably were arrested without just cause.

The value of dairy products in this state during 1909 was: for butter $13,186,044, for cheese $632,331, for market milk and cream $9,023,000. In 1910 the butter produced amounted to $14,403,798, cheese $724,212, market milk $9,050,000.

The chairman of the bureau is M. T. Freitas, and F. W. Andreason of Berkeley is the secretary.

DEMONSTRATION TRAIN.

The fifth demonstration train service for the year opens in Compton and Downey today. Tomorrow it is at Whittier, Norwalk and Buena Park; Saturday, at Anaheim, Santa Ana and Smeltzer; Sunday, Los Angeles. On Monday morning, April 3, the train starts at 8:55 from Los Angeles, opening that day at Lankershim, Chatsworth, Simi, Moorpark and Somis; Tuesday, Camarillo, Oxnard, Montalvo, Saticoy and Santa Paula; Wednesday, Piru, Fillmore and Ventura; Thursday, Nordhoff, Carpinteria and Santa Barbara; Friday, Goleta and Lompoc; Saturday, Guadalupe, Oceano and San Luis Obispo; Monday, April 10, Templeton, Paso Robles, San Miguel and King City; Tuesday, Metz, Soledad, Gonzales, Salinas; Wednesday, Castroville, Santa Cruz, Aptos and Watsonville.

Agricultural News Notes of the Pacific Coast

Northern California

Hay is now commanding $20 a ton in Lassen county.

The Ukiah farmers club now has a membership of forty.

Butte county will plant about 75,000 orange trees this season.

Princeton, Colusa county, will hold a rose carnival April 29th.

Chico expects the early establishment of a $7000 alfalfa meal mill.

An up-to-date cheese factory is to be started near Biggs, Butte county.

Several large tracts near Yuba City, Sutter county, are being subdivided into small holdings.

More than 14,000 acres of reclaimed land in Yuba county, south of Marysville is being colonized.

Ranchers and sportsmen of Yuba City engaged in a rabbit drive and claim a bag of 1000 bunnies.

It is claimed that Shima, the Jap potato king, has cleaned up over $150,000 during the season.

Sacramento county's creameries paid over three-quarters of a million dollars to the farmers during 1910.

The Armsby Preserving Company's plant near Yuba City is labeling and shipping out its last season's pack.

The Sacramento Valley Irrigation Company has acquired a large interest in the Hamilton Beet Sugar Company.

Work has been started on the reclamation of several thousand acres of tule land between Suisun and Benicia.

Almond orchards near Chico report damage from rains at time trees were in full bloom. The crop will be very light.

Over 260,000 pounds of butter recently arrived in San Francisco from New Zealand for reshipment to British Columbia.

One of the greatest irrigation enterprises will be the Truckee-Carson Project which will cost aproximately $3,500,000.

Sacramento capitalists have purchased 6000 acres near Corning, Tehama county, and will subdivide into small tracts.

The state veterinarian reports stockmen better organized and less disease infesting live stock of the state than for many years.

Members of the Farmers Union at Gridley, Butte county, are planting melons, having been guaranteed a dollar or better per crate.

Debris from the mines of Amador county is causing trouble to agricultural lands below and the Anti-Debris Association has been appealed to for relief.

County Horticultural Commissioner Galloway of Sonoma county reports that the heavy rains have delayed winter spraying of apple orchards until rush work will be necessary.

Ukiah Farmers Club has been organized with the following officers: President, J. C. Johnson; vice president, Mack Howard; secretary, C. A. Bernhard; treasurer, Frank Albertson.

The Chamber of Commerce of Santa Rosa, Sonoma county, estimates that much of the prosperity of that section is due to the fact that the farmers go to market with two baskets, eggs in one and fruit in the other.

Central California

Packers are now freely offering 3½ cents for 1910 Muscat raisins.

The Raisin Day campaign has been somewhat delayed because of lack of funds.

The supervisors of Madera county will appoint a squirrel inspector for that county.

Maple Grove Creamery at Hanford, Kings county, is making extensive improvements.

The board of directors of Tulare Irrigation District are busy issuing the new bonds, which are said to be beauties.

Steps were taken at a meeting at Exeter, Tulare county, for the organization of a citrus district board of trade.

The Spreckels Sugar Company is adding to its capacity by the installation of a $25,000 steam plow built in England.

The county clerk of Tulare county is posting notices calling for extermination of all ground squirrels within that county.

Over 200 acres of eucalyptus trees have been planted at Greenfield, Monterey county, but almost entirely in small tracts, widely scattered.

Horticulturist Volck of Santa Cruz county reports that while the Northern Spy root shows some infestation of wooly aphis, it is to be preferred.

Interest in the new million-dollar raisin co-operative movement is increasing, and incorporation will be completed when $750,000 in stock is subscribed.

Practically 22,000 acres of land in the Salinas Valley have been signed up to the Spreckels Sugar Company. The indications are for the biggest beet crop ever.

Pajaro Valley orchardists are demanding the deepening of the channel of Pajaro River, and to that end are asking for the formation of the Pajaro Protection District.

County Horticulturist Earl Morris of San Jose reports success with a new remedy for thrips. It is composed of 100 pounds of lime, 100 gallons of water and one gallon of crude carbolic acid.

April 1 was chosen as Blossom Festival Day at Saratoga, Santa Clara county, and if the weather is not too cool to prevent the opening of the bloom, the usual annual picnic will be held.

The Santa Cruz County Poultry, Dog and Pet Stock Association was founded last week with a membership of 151. The first show will be held in Santa Cruz July 20, 21 and 22. The secretary is Charles E. Pond.

The raisin day committee is providing for the approach to raisin day by naming March 23 as raisin pudding day, March 24 as raisin confection day, March 25 as raisin salad day, the 26th as sandwich day, and the 28th as raisin cooky day.

The Santa Clara Valley Poultry Association is issuing a call to other associations to send a representative to a meeting to be held in San Jose next Tuesday, April 4, the purpose being the formation of a state association composed of representatives of county associations over the state.

Southern California

Orange county has the biggest peanut output of the state.

Orange county claims 509 pumping plants located on its farms.

Work is being pushed on the levees of the Colorado in the endeavor to hold the flood waters.

Another experimental date farm will be established at El Centro, Imperial county. Ten acres have been leased for 20 years.

An attempt was made last week to destroy the packing house of the Mountain View Orange and Lemon Association at Upland.

In the Santa Maria district, Santa Barbara county, over 1,000 acres of fertile soil was washed into the ocean by the Santa Maria river.

Farmers institutes have been arranged for April 10 at Hemet; April 11, Perris; April 12, Elsinore; April 31, Arlington; April 14, Corona.

Some Imperial Valley settlers who have not yet proved up on desert claims have been granted extension of time by the general land office.

Almond growers of Banning, San Bernardino county, have appointed a committee to investigate the advisability of forming a marketing association.

The state legislature has appropriated $15,000 for agricultural experiment station work in connection with Heber Collegiate Institute, Imperial Valley.

Tree Warden Reed of Riverside has been sued for $2,000 damages caused by a blast under a roadside stump which was being taken out by his direction.

E. J. Wirer, of National City, San Diego county, has a five-acre lemon orchard which he estimates will give him six cars of fruit for shipments this season.

A great many lemon groves near Chula Vista, San Diego county, are changing hands. These groves have done exceptionally well during the last few years.

Mr. Baxter, of Lemon Grove, San Diego county, picked 2,300 boxes from ten acres at one picking this month, while his neighbor, Major Bodges, gathered 814 from five acres.

Apricot growers predict the fruit will be much later this year. Drying began on June 20th last season. Present condition of blossoms indicate it will be much later this season.

The Imperial Valley's cotton production for last season was 5779 bales, of which El Centro produced 2093, Brawley 1077, Holtville 929, Calexico 852, Imperial 802 and Heber 26.

Los Angeles county supervisors have called a meeting at Los Angeles on April 5 of supervisors of counties in the southern part of the state to discuss the matter of the $18,000,000 state road bond expenditure.

The week ending March 18th was the week of California's biggest shipment of citrus fruits. The Salt Lake railroad was out of commission because of washouts so that all the shipment went over the Santa Fe and Southern Pacific. The latter took out 881 cars while the Santa Fe reported 1190, or a total of 2071 cars for the seven days.

The Coast

Seven indictments have been issued in the Alaskan coal land frauds.

Dayton, Washington, reports less grain stored than for ten years.

The Annual Fat Stock Show at Portland, Oregon, is on this week.

An apple orchard of 1000 acres will be planted at White Salmon, Washington.

The State Bee Keepers Association of Utah will convene at Salt Lake, April 8th.

Experts from the state college of Washington held a farmers institute at Hayford last week.

A large tract near Ellensburg, Washington, is to be subdivided into small ranches and supplied with water.

Irrigation canals of government projects in Eastern Washington are being kept free from weeds by pasturing sheep.

The Benton County Poultry Association recently incorporated with F. E. De Sellem of Kennewick, Washington, as president.

Portland dairymen are up in arms because of unjust discrimination in an ordinance recently passed by the city council.

Conservation of the waters of the Touchet river near Dayton, Washington, will provide for irrigation of much additional land.

Winter grain at Athena, Umatilla county, Oregon, is reported in the best condition, no winter killing having been observed.

Surveys are being made along Weston and Pine Creeks, near Western Oregon, for canals which will irrigate about 10,000 acres of land.

The poultry association of Polk county, Oregon, was compelled to buy more coops in order to care for all exhibits at the last show.

In accordance with recent enactment of the state legislature, Governor Norris of Montana has appointed a board of poultry industry.

The forester of the Blackfoot National Forest in Montana is planting large quantities of yellow pine seed and experimenting with other forest trees.

The recent act of congress authorizing the secretary of the interior to sell allotments in Indian reservations will throw open valuable lands in Eastern Washington.

The United States senate agreed to an amendment to the Indian bill which appropriates $50,000 for work on the irrigation project of the Klamath Indian reservation.

Work is being commenced on a canal to divert Lost River in Klamath county, Southern Oregon, so as to drain thousands of acres of low land and irrigate other dry lands.

With the large increase of lands brought under irrigation in the Yakima reservation it is feared there will be shortage of water this year. The snow in the mountains is said to be much less than last year.

At the time of the visit of Theodore Roosevelt next week to Moscow, Idaho, a demonstration will be made of the chief product of that section by building the platform on which the ex-president will make an address of hundreds of tons of wheat.

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Cheap Seed is dear at any price. But why pay high price for the best?
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Cycle Hatcher Co., Oakland, Cal.
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Warehouse at Los Angeles Cal. Address all correspondence to Oakland.

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Practical Poultry Culture

TRAINING A CHICKEN DOG.

J. K. Tuley, Fresno.

If you want a good chicken dog get a puppy that is a cross between an Irish setter and a Spitz. I have two young fellows whose mother was a Spitz and the father an Irish setter. As soon as they were weaned I put them in a run with two dozen hens and they at once considered themselves members of the family. They seemed to think that they were a sort of chicken themselves and tried to do everything they saw the hens do except fly up to roost. They sample every kind of food given to the chickens—pounded bones, bran, charcoal, ground shells and chopped green food. They imitate the chickens in scratching after the grain buried for them, though they seem puzzled to find out what the hens get from that business. The hens look upon them as being a settled part of the arrangement, creep between their legs and walk over them, and in rainy weather they all huddle together to keep warm. They are very watchful and no prowler could get inside the yards without an alarm being raised.

Their father is a good bird dog and the mother a good Spitz, but they are neither the perfect poultry dogs that the puppies are. The father looks upon the chickens as game and wants to see them bagged. He is pretty headstrong and to be ruled with a strong hand. And the mother: Well, she is a Spitz, and when that is said it is all said. If a Spitz is ever anything but a Spitz I have never been able to discover it. She is as intelligent as the Irish fellow, but it is all Spitz intelligence. She will obey when she is told to stop or come back, but she is constitutionally opposed to doing anything useful. But the puppies have the intelligence of both breeds. They want to obey, which is a trait of the mother, and they can be taught to do all the tricks that the father does—which is something that you can't teach the mother.

It is a characteristic of straight-line breeding to settle to a type. Even the thoroughbred horse when bred in a straight line after a while becomes so attenuated to a type, so aristocratic, that he must be crossed with something more virile, something closer to nature, to restore his usefulness. The Chinese as a race do not advance. They have become a fixed type. If you want a sport, which is another term for genius, you must cross species. Burbank develops his wonders in the vegetable kingdom through cross-fertilization. That is what is making the American people the leading race of the world—the crossing of types. The trick dogs of the showman are not straight bred. A mongrel isn't a mongrel because he is of mixed breeds, but because of his lack of "bringing up."

A Scotch collie is a fine animal, intelligent, tractable, lovable and useful, but for the life of me I can't have the affection for a straight bred collie that I have for his illegitimate son.

RAISE BETTER QUALITY.

Why not better the quality of the flock this season by more careful selection. Don't use eggs from the entire flock for hatching, but make up a breeding pen of your best hens and use only their eggs. Twenty hens in a colony house about 7x9 out in the orchard, will furnish a setting of eggs per day during the season, which is about all the average farmer will care to use. Keep two males for this pen, changing every few days. The right kind of a cock bird is too unselfish for his own good and will call the hens to eat all the good things while he goes hungry; shutting him up a few days and feeding him will keep him in better condition.

This plan also prevents fighting and will mean more fertile eggs. Weight, vigor, appearance of the flock, laying qualities, all will be greatly improved and the infertile eggs produced by the balance of the flock will keep better during warm weather, and will be much better for putting away for next winter.—W. E. Vaplon, Colorado Agricultural College.

HERE'S TO THE HEN.

"Music hath charms;" and especially when
It comes from the throat of some long idle hen.
For it builds in the breast of the man who eats eggs,
A thought that high hen-fruit will drop a few pegs.
Nor do we much care if she's not tuned to A.
Our concern is to whether her cackle means, lay!
Her breed cuts no ice, be she dunghill, or game,
Her fruit's what we're after regardless of name.
For the high cost of living hath stolen life's charm.
And we greet the glad cackle that flows from the farm;
For as soon as the hen fruit comes rolling to town
The merchants to farmers will say, "eggs are down."
So here's to the hen. "May her son never set."
And the more that she cackles the cheaper eggs get.
Cheer up, married brother! Let us look to the hen
To mellow the burdens that fall upon men.—Ex.

As to individual taste, the old Indian said if men were all alike they would all want his squaw. If we all had the same taste nothing but White Leghorns or Black Orpingtons or Buff Cochins or some one kind of bird would satisfy us. But, fortunately, the human family is made up of individuals and, thanks to accident and science and honest endeavor and all of those things that usually go to make up success, so many varieties of chickens have been evolved that it seems as if there could be nothing left to be sought after or desired in the way of beauty or utility.—Nebraska Farmer.

A man who has had a good deal of experience raising turkeys, says he has just one remedy for scours in young turkeys and that is grated onions. At the first signs of bowel trouble in the poults, he begins feeding them onions and after that he has no more trouble.

Do not forget that fowls need a dust bath occasionally. If the ground is hard in the runs, dig up fresh earth and place coal ashes within their reach. The dust bath helps fowls get rid of lice.

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The 1911

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Eggs for hatching, Utility stock (no culls), $1.50 per 15; special matings.

Send Stamp for Mating List

No visitors on Sunday.

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NEW TRACTION ENGINE For Sale or Trade

We have a brand new 40 H.P. Traction Engine (Hart-Parr make), which we will sell or trade for land, horses or what have you? We ordered this engine to put in some land and sold the land before the engine arrived. It has never been used. Cost $3,000. Address EDW. GREENFIELD, 100 Chamber of Commerce Bldg., Los Angeles.

TO DESTROY FOWL TICKS.

The following is taken from a report by a committee of the Agricultural Society of Trinidad and Tobago, which was appointed to inquire into the question of fowl ticks. The report appears in the Journal of the Society, December 1910, p. 496.

To rid a badly infested fowl house of these pests is a difficult undertaking, and if the building is old or badly constructed, so that it affords an abundance of hiding places for ticks, it is often cheaper to replace it by a new and suitable structure. Never use the old material for the new building, nor erect a new fowl house on the site of the old, or near it. If the lumber from the old house is good enough for some other purpose, store it out of reach of the fowls.

A jet of flame from a blast lamp is probably the most effective means which can be used to destroy ticks in an infested fowl house. Pass the flame slowly and carefully over every crack and crevice, and force it in as far as possible. After this has been

Barred Rock Cockerel.

thoroughly done, paint the whole inside of the fowl house with tar and lard oil (2 oz. of oil to 1 gallon of tar). Aim at sealing all cracks with this preparation. It will adhere well, and will remain sticky for a considerable length of time. Some prefer to heat it before applying. The floor should be cleaned, and lime freely used on it. If necessary, reconstruct the roosts on lines above indicated. Destroy the old nesting boxes, and care for the new in the proper manner. Adult ticks will be found on the fowls only by night. Only a small portion of the pests would be found each night by searching on the bodies of the birds, and this procedure would disturb the flock too much. The larvae remain on the hosts for several days, and can be found in the daytime. Here hand dressing, if a somewhat slow process, is effective when properly done. Oils thoroughly rubbed in are the best remedies. They will clog the breathing pores of the creatures, and so destroy them.

Kerosene oil and sweet oil give most satisfactory results. Kerosene oil and cocoanut oil in equal proportions have proved very efficacious. A mixture consisting of sweet oil (2 parts), 10 per cent solution of caustic potash (4 parts) and kerosene (6 parts) is highly recommended from Australia as a dip. Careful dusting with Keating's powder by means of a blower—pushed along under the feathers so that the powder will reach the skin—will also answer well for this purpose. Among the numerous insect powders on the market, this brand has proved the most reliable. The fresher it is, the better.

All these preparations deteriorate rather quickly in our climate. Fowls which are infested should never be placed in a new fowl house. They should be kept separate, and treated until entirely free from parasites. If some members of a clean stock become infested, they should at once be segregated and given attention; the fowl house in which they have roosted should be inspected and tarred.

Fowl ticks can be exterminated, but painstaking care must be exercised in order to accomplish their destruction. Unremitting vigilance is the poultry raiser's greatest safeguard against these pests.

DETERIORATION OF POULTRY AND EGGS.

The study of the deterioration of poultry and eggs, which at first was concerned chiefly with changes occurring during storage, has broadened out so as to include every step in the handling of these products. It was soon found that in no other way could the problems involved be attacked, inasmuch as the chemical and bacteriological data obtained could only be intelligently interpreted by a knowledge of the history of the product before entering storage, including methods of killing, dressing, shipping and marketing. To this end the cooperation of associations of poultry dressers, merchants, railways refrigeration, transportation companies, and warehousemen has been obtained and the most interesting and instructive data have been assembled. The interrelations established explain many variations in data, and in turn the scientific observations set their stamp plainly upon the various methods as producing satisfactory or unsatisfactory products. Extensive shipping experiments were made from Chicago as a center. After visiting the large poultry packing houses throughout the Middle West, observing their methods, and making an accurate record of every detail of manipulation, shipments were sent to Chicago, the carload was met on its arrival, samples were taken for laboratory work, the condition of the car and its contents were examined, including the temperature records, and some of the packages were followed further through the warehouses, and the market handling, including in several cases a second shipment by rail.

Specific practical points observed to have a direct bearing on the quality and keeping properties of the product have been studied in the field laboratories located at packing houses—for example, the best way of killing and bleeding fowls and the proper implement to use for the purpose, on which circulars have been issued. The variations in drawn and undrawn poultry were experimentally studied on a commercial scale, as were also the comparative merits of scalded and dry picked fowls. In every case the chemical and bacteriological changes determined are correlated with the history of the shipment and of the conditions of the experiment, and in this way the many factors entering into the problem are controlled. Shipments were made in hot and cold weather and, as far as possible, all the variations occurring in actual practice were duplicated and their effect on the problem weighed. An investigation of the egg industry along exactly the same lines has been inaugurated, data having already been obtained on the changes taking place in eggs of known history and of low commercial grade, during periods of storage and at different temperatures, which will serve as the scientific basis for the study of commercial conditions.—U. S. Ex. Sta. Record.

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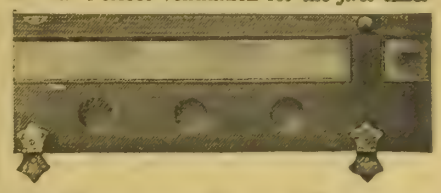
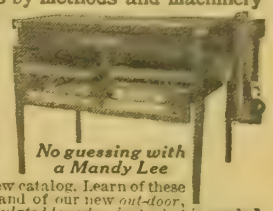


Mandy Lee Incubators

supply life-giving oxygen freely to the eggs and just as naturally draw off the poisonous gases. The most important step ever taken in incubator ventilation—neither above nor below, but *right at the eggs*—the correct principle, for the new Mandy Lee is making better hatches of *stronger* chicks than any other incubator in the world.

We Measure Everything

Heat—moisture—ventilation. You *guess* at nothing. If the eggs are good and you follow simple directions your work with a Mandy Lee is as nearly an absolute certainty as anything can be. There is no more reason why you should buy an incubator that regulates nothing but heat than for a farmer to continue to harvest his crops by methods and machinery used 100 years ago. Your success with poultry depends on your ability to select equipment that is *right*—that's what you *always* get from us.



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The latest method of solving the problems of the desert finds expression in a single unique institution—the Desert Laboratory of the Carnegie Institution of Washington. About eight years ago the institution determined to establish a department of botanical research, the chief function of which should be the study of the relation of plants to physical environment. It was decided that the most profitable results could be obtained in a dry climate where conditions are rigorous and botanists have as yet done comparatively little work. Accordingly a laboratory was established near Tucson, the largest city of Arizona, and is now actively at work with a considerable staff of botanists under the direction of Dr. D. T. MacDougal. The purpose is to study the abstract problems which are essential as the foundation of real progress. They bear the same relation to agriculture that a knowledge of human antomy and pathology bears to the practice of surgery and medicine. The problems are not selected with a view to immediate "practical" results, although their solution may ultimately be of incalculable importance in the affairs of every-day life. They may require tens or scores of years for solution. No government institution could possibly undertake them, for legislatures are not yet educated to the point where they can see that abstract science pays.

The tale of man's conquest of nature is an old, familiar story. In the portion dealing with the desert a new chapter is now being written. For ages the world has seen men like the rancher from Kansas who passed us in the twilight with his tale of failing crops and starving cattle. Their pluck and endurance have won great victories, but in the end the rigors of the desert have defeated them, except where streams from the mountains furnish verdure and life. Their cry has gone up for succor, and the country has answered with great irrigating dams and ditches on the one hand, and with experiment stations on the other. But those who build the dams are the first to tell us that the total supply of water, both above ground and below, is so small that scarcely a tenth of the land can ever be adequately watered; and those who experiment with crops know that their knowledge of how plants grow is so slight that half their work is in the dark. And so there is another cry, much fainter than the first because only the far-seeing realize how great is the need. That cry demands pure knowledge apart from any practical result. To obtain that knowledge is the work of the laboratory. Part of what is learned may help the world materially tomorrow, and part may remain unused for a hundred years, or may never be used except as a step toward some other phase of truth. Yet even so its value is incalculable. The very fact of the existence of the desert laboratory will stir ten men to think where one man thought before. —Ellsworth Huntington, in Harper's Magazine.

A whisk broom is ideal for sprinkling clothes. If dipped lightly in the bowl you will find it evenly distributes the water.—Interested Reader, in Wallace's Farmer.

ENCOURAGE TREE GROWING.

Tree growing is a fascinating work for children and may be profitable to them as well if they will grow good ones which is possible for them if they will but give the work careful attention. The work certainly adds to their knowledge of the everyday things about them. This is realized by the University of California which issues circular No. 59, "Tree Growing in Public Schools." It is written by Ernest B. Babcock and Harry A. Greene. In the foreword they say:

"Tree-study and tree-growing comprise a special phase of nature-study and gardening. Gardening is one kind of manual work that is possible in some degree for every school. Moreover it is found to offer the most interest, opportunity and educational value of all manual work when properly conducted, while it can be correlated with most of the other studies to great advantage. Children have studied about trees in school for years. As a part of nature-study the work with trees has been largely confined to practice in identification and to observation of life histories, together with stories about trees in lower grades, and, rarely, elementary forestry from books and bulletins in upper grades. This is good as far as it goes, but it lacks the one thing essential to vital teaching. Boys and girls should learn to grow trees. Then they will have a sound basis for intelligent appreciation of the economic importance of trees. We have made pupils learn dry facts about lumbering long enough. Now let us have them first understand what it means to grow trees for lumber and we shall see the next generation more intelligent on the great subject of conservation."

Lists of best trees to grow and other information is given. It should inspire extension vacational studies in all schools.

PRESERVING THE NATURAL COLORS OF FLOWERS.

Take very fine sand, wash it perfectly clean, and when dry sift it through a fine sieve into a pan. When the sand is deep enough to hold the flowers in an upright position take some more sifted sand and carefully cover them. A spoon is a good thing to take for this, as it fills in every chink and cranny without breaking or bending the leaves. When the pan is filled solidly, leave the flowers to dry for several days. It is a good plan to warm the sand in the oven before using it, as the flowers will then dry more thoroughly. In taking the sand off great care must be taken not to break the leaves, as they are now dry and brittle. Pansies preserved in this way will keep their shape and brilliancy of color and many other flowers can be equally successfully treated—anything, in fact, where the full pressure of the sand comes on both sides of the leaf; otherwise they will shrivel. To fill in flowers with cuplike shapes it is better to lay them on the sand and with a small spoon fill in and around each flower. Ferns when preserved in this way have a more natural look than when pressed, and the maidenhair fern looks almost as well as when it is freshly gathered.

100,000 fruit trees will be set in Sacramento county this year.

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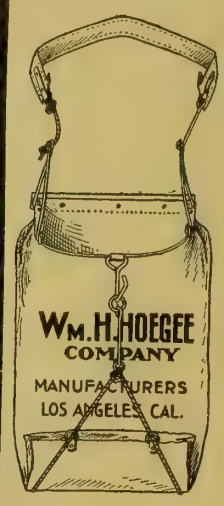

Picking Bags,
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Canvas and Khaki Suits for Men and Women.

The Wm. H. Hoegee Co. Inc.
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THE CLIPPER

There are three things that destroy your lawns Dandelions, Buck Plantain, and Crab Grass.

In one season the Clipper will drive them all out.

Clipper Lawn Mower Co Dixon, Illinois.

Use
HYDRATED LIME
Fertilizer
Increases Yield of Alfalfa
and Our Sulphur Mixture, or a dry spray, for
Red Spider
Hydrated lime is the ideal diluent and vehicle for the sulphur—and reduces the cost.
$15.00 a ton net in 100 lb. Sacks. Sacks 15c extra.

W. H. TAYLOR 846 Commercial St. Los Angeles, Cal.
or
J. S. SCHIRM 4th. and K Streets, San Diego, Cal.

Garden and Field Crops

SYMPTOMS OF DISEASE IN PLANTS.

It is highly important that farmers and horticulturists should be able to recognize plant diseases. Many fail to do this because they do not know the general symptoms that indicate the attacks of insect or fungous enemies.

Plant diseases may be divided into three groups: (1) Nutrition disturbances due to unfavorable conditions in the environment of the plant or inherent in the plant itself; (2) troubles due to parasitic plants, usually either bacteria or fungi, but sometimes to flowering plants, which deform, stunt, or kill the plant; and (3) insect pests, which are in many cases very evident but often not easily detected.

The first step of importance to the farmer is to be able to determine the presence of disease and to endeavor to find out its cause, nature, and probable outcome, and the treatment which should be employed. The principal symptoms of disease in plants are the following: (1) Discoloration, or change of color from (a) normal green to a yellow or white pallor; (b) colored spots or areas, as white or gray on leaves or stems, such as mildews or white rusts, many leaf spots of yellow, red, orange, brown, black, or variegated colors, red or orange rusts, black rusts, tar spots, and the like; (2) shot-hole perforation of leaves; (3) wilting, such as damping off or wilt; (4) necrosis, such as death of parts of plants, leaves, twigs, stems, or flowers; (5) reduction in size, such as dwarfing or atrophy; (6) increase in size, such as hypertrophy; (7) replacement of organs by new structures; (8) mummification; (9) change of position; (10) destruction of organs; (11) excrescences and malformations, such as pustules, tumors, corky outgrowths or crown galls, cankers from malformations in the bark generally resulting in an open wound, punks, or conches and other fruits of fleshy fungi, witches' brooms, rosettes, and hairy root; (12) exudations, such as slime flux, gummosis (especially for stone fruits), and resinosis (especially for coniferous trees); and (13 rotting, such as dry and soft rots, root rots of alfalfa, cotton, beets, or cherries (generally of fleshy or woody roots), stem or trunk rot, such as dry rot of trees and of modified stems like rhizomes, bulbs, or tubers, and bud and fruit rot of various fleshy fruits.

Soils decidedly alkaline, lacking in proper drainage, or deficient in iron may produce a yellowing of the foliage, while discoloration of restricted areas on the leaves is usually due to the attacks of some insect or plant parasite, presumably the latter.

In general, any marked variation in color or shape from the normal type is a sure indication of disease which in many cases may be controlled and the crop saved if taken in hand prompty.—Farmers' Bulletin 430.

GAMBLING IN MUSHROOMS.

Some more of our readers are tempted by certain claims of advertisers to try mushroom growing. It is well they should try, if they will not set their expectations too high. Of all garden crops or cellar crops or greenhouse crops I have ever tried, the mushroom is the most elusive. At times I got some. At times I got none where I planted the spawn, and some (usually scattering) where I did not plant them. If everything goes right, you may get mushrooms four weeks after planting the spawn. You are more likely to get none in less than three months, and most likely to get none at all.—T. Greiner in Farm and Fireside.

CULTIVATION OF POTATOES.

As soon as possible after the potatoes are planted the cultivator should be started. This implement has four shovels, each four or five inches wide and about fifteen inches long, two on each side of the row, and is drawn by two heavy horses. These shovels should run as close as possible to the planted tubers without disturbing them. The first cultivation adds to the depth of the dirt over the seed, and permits the use of a light smoothing harrow without disturbing the tubers. The cultivator also loosens the soil on each side of the row and better fits it for the potato roots which will soon invade it.

After this the potatoes should be harrowed once a week, if possible, first lengthwise of the rows and then across, until the vines are five to six inches high. This practice gets rid of the weeds so thoroughly that the use of the hand hoe in the row is rendered unnecessary. It destroys all the weeds in the hills and between the hills in the row.

After this the cultivator is used but is not run so deep as at the first cultivation. Frequent shallow cultivation keeps the surface of the soil loose, conserves the moisture, and gives a chance for the root system to spread.—Farmers Bulletin 386.

At a meeting of raisin growers at Reedley the million dollar corporation plan for handling raisins was favorably discussed.

MORSE'S Sweet Corn

OUR GOLDEN CREAM SWEET CORN is our sensational 1911 novelty. A yellow shoe-peg sweet corn of most delicious flavor. This will prove a most popular corn and we highly recommend it to our customers.

Our "1911 Garden Guide" is a splendidly illustrated catalogue of seeds, plants, bulbs and trees. It's free.

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Now is the time to make your Spring and Summer Gardens.

All varieties of **Garden Seed,** if bought from **Morris & Snow Seed Co.,** will prove thoroughly satisfactory,—that's what our Customers say.

Beans—our stock is clean and carefully **Hand Picked.**

Full line of **Nursery Stock**

Deciduous and Citrus Fruit Trees, Bedding Plants, etc.

Eucalyptus in quantities.

ASK FOR OUR CATALOG, FREE

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High Grade Fertilizer

For Orchards, Vineyards, Gardens, Lawns.

GUARANTEED ANALYSIS shows a fine compound of sheep manure and commercial plant foods. Write for free booklet "A Recipe for Making Gold." It gives details and instructions for using.

FANCHER CREEK NURSERIES, Fresno, Cal.

GEO. C. ROEDING, Pres. and Mgr.

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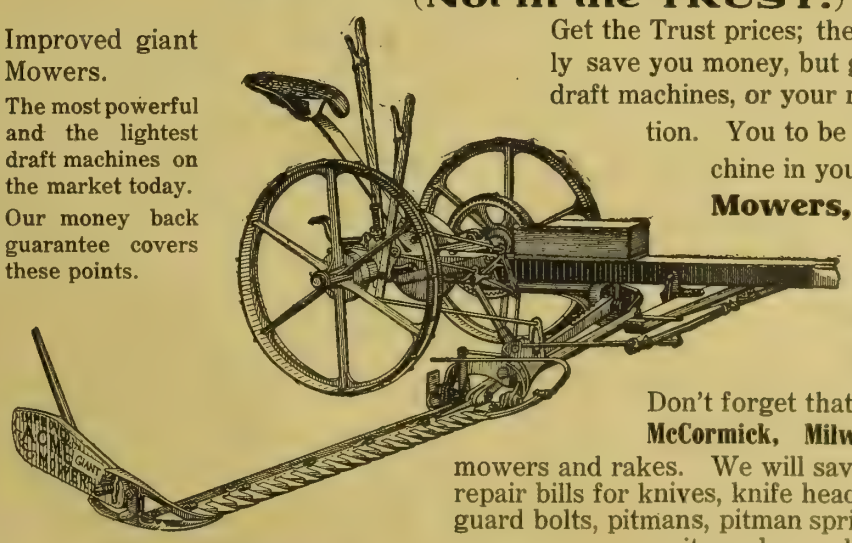
(Not in the TRUST.)

Improved giant Mowers.

The most powerful and the lightest draft machines on the market today.

Our money back guarantee covers these points.



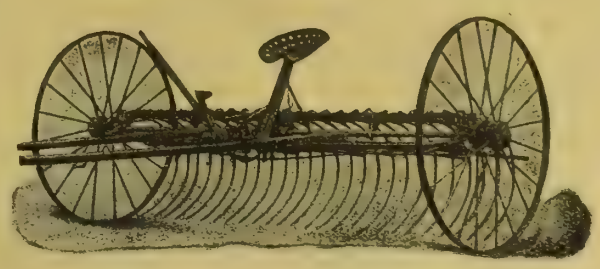
Get the Trust prices; then come to us and we will not only save you money, but guarantee you better and lighter draft machines, or your money refunded without a question. You to be the judge after you test the machine in your field.

Mowers, Rakes, Sweep rakes, Stackers and Binders.

We pay the freight. Write at once for catalog, prices and testimonials.

Largest stock of repairs on the coast.

Don't forget that we carry repairs for the **Acme, McCormick, Milwaukee** and all other makes of mowers and rakes. We will save you from 25% to 50% on your repair bills for knives, knife heads, sections, guards, guard plates, guard bolts, pitmans, pitman springs, pitman straps, pitman bolts, pitman boxes, knife clips, wearing plates, rivets, rake teeth and chain.



Acme self dump rakes. 8. 10, and 12 foot. Better than the rest and much lower priced.

Send in your orders and ask for price list.

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Handy Tools for Unhandy Places

E. C. SIMMONS KEEN KUTTER TRADE ST. LOUIS MARK U.S.A.

A hard job is made easier by a handy tool. A man in a narrow trench digs more ditch with a well-balanced, properly-angled Keen Kutter shovel than he possibly could with one less perfectly fitted to its job.

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fit everyday farming conditions. In other words—whatever the purpose for which you need a hand farming tool—a "Keen Kutter" will fill it *best.*

Buy your forks, hoes, rakes, shovels, spades, garden forks, manure hooks, potato hooks, scythes, ditch tools and corn knives under the Keen Kutter trademark. It means absolute satisfaction, or money back.

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THE BEST Sulphur to be had at any Price

WRITE US FOR PRICES AND SAMPLES FREE

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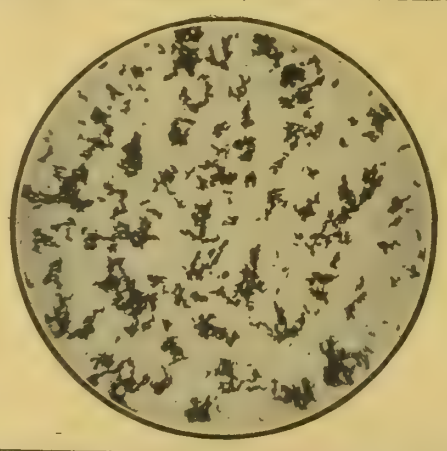

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THE BEST IN THE WORLD; HAS NO EQUAL

The Original R. I. Knapp Side-Hill Plow

Orchard and Vineyard Plow received first premium at State Fair.

If you cannot get our plow send us the name of your dealer and we will see that you are supplied. Has given entire satisfaction for over thirty years. Equally as good for valley as hill sides. We manufacture five sizes—from one-horse orchard and vineyard plow, to the strongest grading plow.

SAN JOSE, CALIFORNIA **H. G. KNAPP & SON**

Tell us where you saw this advertisement

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Gophers.

Is there anything I can put around little trees to keep the gophers from barking them?—Subscriber, Anaheim.

The best thing to put around little trees to protect them from gophers is gopher traps. If trunks are protected the pests will still do injury to the roots, therefore complete eradication is the only safety. If the gopher trap is objectionable on account of time required, poisoning is the next best remedy.

Orange Vinegar.

How can I make orange cider, orange vinegar and orange wine?—Subscriber.

This question has been referred to several and has gone to Washington to the Bureau of Chemistry of the Department of Agriculture, and the most we have from them is, "We have no information on the subject." We will pass this on to our subscribers and will appreciate any information they can give us.

Duroc-Jerseys.

If the inquirer who recently asked for information regarding Duroc-Jerseys will write and give his address we can give information which may be of value to him.

Weevil in Beans.

Anent your reply to "Subscriber," about keeping weevils out of dried beans, I have an up-to-date neighbor who says carbon bisulphide will kill the weevil all right, but does not affect the unhatched eggs in the beans. He dips his beans in scalding water for a minute or two, then spreads out to dry and is never troubled with the pest. It is perhaps needless to add that the bean germ goes the road with the weevil germ and that beans thus treated should not be used for seed. —W. O. D., San Marcos.

Hardpan.

I am a beginner in the citrus fruit business. Am located in the foothill section of the San Jacinto mountains. Soil is decomposed granite so hard that I cannot turn with ordinary plow. We graded sufficient for 600 trees which were planted last season. I find in irrigating that the water does not reach down to the roots. In grading it is necessary to remove the surface on the higher parts and fill the lower. A few inches of the surface removed shows a stratum of soil composed of decomposed granite, very hard. On plowing with specially prepared points the ground can be broken into lumps which work into what feels like gravel as far down as the plow has entered, below that still the hard substance. How should this ground be fertilized and brought into best productive condition?—Subscriber, Hemet.

That our subscriber is correct in naming this soil decomposed granite, we question; the description is more that of a shale formation. In any case it is too complicated and difficult a proposition to prescribe for at this distance. Apparently it is a case of good, stiff hardpan, and whether its thickness, nature of subsoil and other conditions are such that it will pay to try to create a profitable orange property there can only be determined by careful examination. The use of a soil tester, or in its absence a good post hole auger, in various parts of the orchard would be the best way of securing information. If the surface is rich and underlying the hardpan is good subsoil, it is possible that blasting or work with a good subsoiler pulled by four or six mules might break it up and make of it a profitable orchard.

Tree Protectors.

How can I make at home tree protectors out of yucca palm?—J. H., Hinkley.

We question very much the ability of the inquirer to make home-made tree protectors from the yucca. We have seen the process of manufacture many times and it is indeed most simple but necessitates proper machinery and power. A large turning lathe with long knife shaves thin layers from the surface of the log, working in until the heart is reached. These long strips are then hung to dry and later cut up into small pieces for the tree protectors. We do not believe any hand contrivance could be made which would shave these strips off unless it cost too much to justify its use in so limited a way. The regular manufacturer advertising them in the Cultivator can doubtless supply them in large quantities very cheaply.

Plowing at Blossoming Time.

In your issue of the 16th you say don't plow deeply at blossoming time. Kindly tell me what is the best time to plow deeply and what is the right depth.—Subscriber, El Cajon.

The statement referred to was made in regard to citrus trees. It is generally considered that the shock to the citrus tree is sufficient to prevent setting of fruit, and we doubt not the same would be true with all deciduous trees. If the plowing can be done, say in February or early enough for recovery from the cutting of the roots, we do not believe there will be any perceptible injury. As to depth of plowing, that is a question of variety of trees and manner of handling in former years. We have seen orange orchards plowed eight and ten inches, sometimes even with subsoil plow, with generally beneficial results. We believe in deep plowing but it must be done with judgment, for if an orchard which has been given shallow culture for a period of years is plowed deeply on both the row sides, especially near blossoming time, the crop would probably be gone or reduced for that year. Again, time of plowing would depend somewhat upon the season, a warm spring causing early blossoming would call for early plowing.

Bees Dying.

I send bees for specimens. Others in hive seem to be killing them and throwing them out. These are smaller and black. The ground is covered with them. What is the cause and remedy?—Subscriber, Ceres.

Mr. C. H. Clayton of Los Angeles answers:

In absence of personal examination anything we may say is more or less of a guess. Our opinion is that it is nothing more nor less than an aggravated case of what is called "spring dwindling." The bees are dying of old age. The specimens sent were badly mashed in the mails and as far as we can see show no signs of disease, only abundant signs of old age. The colony probably went into winter quarters with scant stores and a very old queen, not being able to keep up to normal conditions have been dying

very rapidly and the living bees, as a sanitary measure are removing both the dead and dying.

If the queen is any good they will get over the trouble as soon as they can begin to gather nectar and pollen. It might be well, however, to take a comb of sealed brood about ready to hatch from another colony and give them, removing an empty comb and putting the sealed brood in the middle of the cluster. Follow this in a few days with another comb from some strong colony. This second comb should have larvae in all stages from fresh laid eggs to sealed brood. This will encourage the colony to get busy and if the queen is missing or old they will probably rear themselves a queen from the eggs you have given them. We see no occasion to destroy the old queen unless you have a laying queen to give them at once. The bees will attend to her case as soon as they find she is no longer doing her duty.

Hardpan for Olives.

Will you please tell a tenderfoot what kind of soil is best for olives. I have a piece of land that is a heavy brown clay loam with a few small spots of alkali. Some call those cement clay. They are grayish in color and I notice they do not absorb water. Would dynamite help any or would they run right together again as soon as irrigated? Those spots do not exceed two per cent of the land. Would you advise me to plant olives on this land or would those alkali spots be injurious to the trees. Would alfalfa grow on this land? It is all underlaid with hardpan 3 to 5 feet from the surface.—Subscriber, Lindsay.

We would prefer a lighter loam soil than that described for olives, and would prefer not to use land underlaid with hardpan. If we were to plant trees in this soil and the hardpan is underlaid with a loam, we would surely blast it for every tree, putting blasting powder well below the hardpan so as to lift and shatter it as much as possible. Of course, this is only generalization as knowledge of the hardpan, of the soil and the subsoil is necessary to an intelligent answer. There are some hardpans that roots will penetrate without necessity of blasting. As to whether the hardpan will run together and be equally as hard the next dry season depends upon its structure. The spots could best be handled by plowing under a heavy application of stable manure, and if black alkali, we would make application of gypsum.

Mr. Mills informs us that he has seen olives do exceptionally well on hardpan when blasting was done before planting.

Wire Worms.

A Dinuba subscriber sends very large specimen of wire worm, which was referred to Mr. E. O. Essig, of Santa Paula, and he writes:

"The worm from the Dinuba subscriber proves to be the larva or young of the elater beetle, which is commonly called snapping or click beetle. The adult form varies from three-quarters to one inch in length, and is very common. The young, known as wire-worms, feed upon the roots of all kinds of plants, including vines, weeds, grasses, vegetables, etc. If vegetation is allowed to grow in the vineyard during the winter months the beetles may be attracted in great numbers, so that during the summer months, the growing season of the vines, when the vineyard is clean cultivated, the wire-worms take to the roots of the vines, and may collect in great numbers. This has been found true in the vineyards near Hanford, where considerable damage has been done. But the fact that only a few worms were found near the roots of a great number of vines need not cause any alarm, since these larvae are common everywhere, and a few might be expected in hoeing twenty acres. In such a case no treatment is advisable. In fact, a satisfactory remedy is yet to be found for this pest. Carbon bisulfid may be used with some good effects, but is slow and expensive. Clean culture is perhaps the best method to employ. Keep the vineyard free from weeds throughout the year, and hoe or cultivate close to the vines."

Cannibal Chicks.

We have White Leghorn chicks two weeks old, some of which attack others in the pen and pick at them until killed.—Subscriber, Chico.

This is a hard trouble to overcome. It can be prevented by giving plenty of meat in the diet, but once the habit is formed the little fellows seem to prefer attacking their own kind, and it may be necessary to remove the most aggressive. With the next flock feed meat scraps or dried blood and in addition suspend a large head of lettuce or a small cabbage so that chicks have to jump and exercise to get it. Of course, the little ones which have been attacked should be removed at once.

Bats in the Belfry.

Those who are annoyed with bats in a belfry, or elsewhere, may secure relief by using a loose bunch of hemp or flax tow. If this is not available a piece of rope of fine fiber untwisted will answer. Pull it apart to make a thin netting and hang this over holes or in passways where the bats fly in and out. The hooked claws on their wings will catch in the tow and the more they struggle the worse they become entangled.—G. Cosner, Ontario.

O. I. C. Hogs.

What is the origin of Ohio Imported Chester hogs?—R. W. C., Los Angeles.

This strain of the Chester Whites was built up by Mr. L. B. Silver of Salem, Ohio, about 1865, and is simply the Chester Whites in the hands of an expert breeder who has properly selected his stock until a magnificent animal has been developed. The Chester White originated in Pennsylvania in 1820. After the Civil war these Pennsylvania hogs gained a wide reputation and Mr. Silver conceived the idea of bringing out the very best in the breed. They are classed amongst the largest swine known, ranging from five to six hundred pounds, but it is not uncommon to find them weighing a thousand pounds or more.

Chronic Indigestion.

A Jersey calf three weeks old was purchased in December and taken from the cow, and fed a mash of milk, bran, alfalfa meal and oil meal. After a week she refused this ration and was given rice water, milk and lime water and an occasional raw egg, with only temporary improvement. The alfalfa meal was dropped first, then the oil meal, and oat meal gruel was tried, but the bowels continued loose. So bran gruel was combined with it. Still her food passed undigested and now she refuses the bran. She has been allowed to run on green alfalfa and grass when the weather permitted, but she eats very little and the diarrhoea continues.—Subscriber, Anaheim.

Bran, oil meal and alfalfa meal are by-products, often containing refuse and damaged material which can be made soluble only by grinding, and doubtless one of the first ground foods given irritated the tender stomash of the young calf and resulted in chronic indigestion. Bran is poorly digested by young ruminants and cotton seed meal is poisonous to young

Available Nitrogen

is *the* thing in practical fertilizing.

Nitrate of Soda

is the cheapest and most available form of Nitrogen for all crops.

"The Cost of Available Nitrate," Sent Free

It is worth dollars to you. In this book Prof. Voorhees shows how the American farmer could have saved $17,000,000 on the cost of nitrogen in 1909. Address

Dr. William S. Myers, Director of Propaganda **71 Nassau Street**
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States of Sonora and Sinaloa

Tracts of all sizes at low prices.

We have several tracts of from 1000 acres up, at first cost. These would make ideal small colonies, for parties who contemplate co-operating in purchasing land in Mexico. They are fine soil, good water conditions, and close to the railroad. We can save you subdividers' costs and profits if you and your friends can handle one of these tracts. They are suitable for anything from general farming to fine fruit and vegetable raising.

Fine river bottom silt soil, in the State of Sinaloa, with gravity or shallow well water for irrigation. Prices in small tracts, $12.00 and up an acre, according to location and improvements.

Arrange to join one of our excursions which we are sending down at frequent intervals. Write us for free illustrated booklets and bulletin of prices.

BEN W. McCLOSKEY & CO.
700 Union Trust Building LOS ANGELES, CAL.

PURE ANIMAL MATTER AMMONIATES
GOLD BEAR FERTILIZERS
FOR CALIFORNIA SOILS

TANKAGE

The Citrus Fruit Growers of California use thousands of tons of Tankage annually. Tankage is the best form of Organic Nitrogen.
HUMUS-FORMING. ALL AVAILABLE
We are the largest Pacific Coast producers of High Grade Tankages in perfect mechanical condition and of
"GOLD BEAR" FERTILIZERS
Will ship DIRECT TO YOU if no agent near you.
WRITE FOR FREE PAMPHLET.
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EUCALYPTUS TREES

Large quantity, extra quality to select from. **ORANGE and LEMON TREES,** A. 1 quality, A large assortment of **PALMS.** Orange Seed Bed Stock, Sour and Sweet.

Our trees guaranteed best grade, true to name. Our long experience is a guarantee of our reliability. We especially call attention to our large stock of **EUCALYPTUS TREES.**

COVINA NURSERIES
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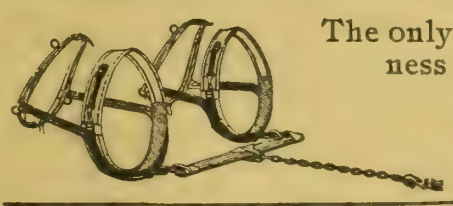

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PRICE, $17.50
Write for circular.
The H. C. Shaw Co.
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TREES--Eucalyptus, Pines and Cypress in Boxes
ORNAMENTAL TREES AND ROSES,
Prices on application.
PACIFIC NURSERIES
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FEED CUTTERS HAND AND POWER
All Sizes. Best Makes, Lowest Prices. Agents Wanted
Write for Catalog
Arnott & Company,
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Flour City Gasoline Engine

That's what pays my Profits.

You Can Buy

A { 20 H. P. for $2,000
30 " " " $2,600
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The same Price they sell for in the East.

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Dealers in Farm Implements and Vehicles.

HAWLEY, KING & CO. sold 9 of these ENGINES last fall and they "MADE GOOD." One customer plowing 1600 acres, often 40 acres per day, and hauling 24 Plow Bottoms and 20 feet of Harrow.

The "FLOUR CITY" is the acme of strength, lightness and durability.

Our catalog tells the story. Send for a copy.

All sizes on hand. Call and see them.

KIRKMAN NURSERIES

TREES THAT GROW AND BEAR TRUE TO NAME

We have a surplus of

2000 Valencia Orange Trees

of our own growing at very attractive prices, also other Citrus trees and a large surplus of all kinds of Deciduous fruit trees and Emperor rooted vines.

Write for prices at once.

Address Main Office, Fresno, Calif.

ONE MILLION BABY CHICKS

Barred Rocks
White Rocks
White Wyandottes
Buff Orpingtons
Black Orpingtons
White Minorcas
Selected White Leghorns
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Is what we will sell during the year of 1911. Send today for 64-page book, "The Story of the Baby Chick." It's the finest book of its kind ever printed.

We sell all varieties listed in this ad. All are illustrated in our catalog. Tells prices, the way we ship chicks, hatching eggs, laying hens, pullets, cocks and cockerels, etc.

We are hatching and shipping thousands of chicks every day at present. Write us your needs.

We are the World's Largest Chick Dealers.

The PIONEER HATCHERY Co.

108-118-E.-8th LOS ANGELES

calves. Cotton seed meal is now being freely mixed into the cheaper grades of linseed meal.

Feed the calf barley gruel, boiled milk and roasted oat meal or cracked oats. Physic with castor oil 3 or 4 ounces in boiled milk and follow with powdered cinnamon bark, powdered gentian and bismuth subnitrate equal parts, mixed and given in teaspoon doses three times daily.—F. G. M.

Fertilizers on Lemons.

When should lemon trees be fertilized, and how much should be applied? —Subscriber, Lemon Grove.

To answer this question would require a book. May we not ask our subscribers to be more explicit with questions. What is the age and condition of trees, nature of soil, is it exhausted by years of cropping, or is it virgin soil, is it a deep loam over gravel or a thin layer over hardpan, have you access to stable manure or must you buy commercial fertilizer? If we should prescribe for an old, exhausted orchard, it would not prove a satisfactory treatment for trees recently planted on virgin soil.

Our query department is growing beyond our capacity to care for properly. For it we are glad, for it is the aim of the Cultivator to be helpful, and we will do our best, but will our subscribers save us much time by a little extra care in stating their case?

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Draining to Road Side.

A and B each own forty acre tracts on high side of county road. Wish to co-operate and lay tile through low land to county road ditch which has plenty of fall to carry the water along till it would seep away. C owns below road and has continuation of same slough but will not tile. Can C prevent A and B from draining onto county road? Can county prevent it? —Subscriber, Ventura.

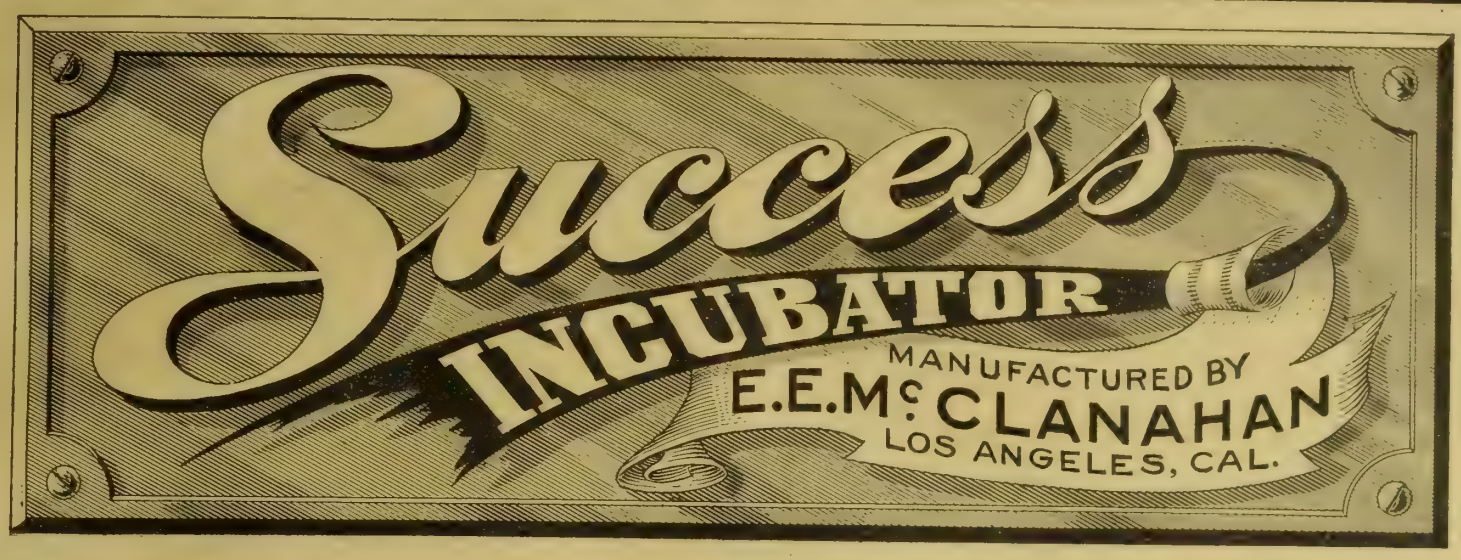
C can have no legal objection to the draining of A's and B's land onto county road, unless the drainage in some way injures him. The county can prevent such drainage if it is injurious to the county, otherwise not. —E. L. P.

Buried Horse.

A bought a piece of land from heirs of an estate. B an heir living on the property, is given notice that C has rented the place. B's horse dies and he buried it, leaving one foot exposed, 40 feet from house on D's land. Can B be compelled to move the horse? —Subscriber, Arroyo Grande.

B cannot be compelled to move the horse, but the owner of the land, or the one in possession under the lease, might recover damages for the nuisance.

Where the nuisance consists of something which can be done away with simply by ceasing to do that which is offensive, the courts will, in an action to abate the nuisance, enjoin it, but where, as in a case of this kind, to abate the nuisance would require the court to order the offending party to do something as distinguished from ceasing to do something, an injunction is almost never granted, and the only practicable remedy is for the party on whose land the nuisance is, to abate the nuisance himself and recover damages from the other party. In this instance, on account of the small consequence of the matter, it is probably better for the injured party to do the best he can without resort to the courts.—E. L. P.



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Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Snake Bites.

We lose from one to three horses a year from the bites of the rattlesnake. We use the knife, ammonia and injections of permanganate of potash. Kindly instruct us as to the proper method of procedure and instruments, dosage and medicines to be kept on hand.—Subscriber, Plano.

The most important of all measures is to prevent if possible the absorption of the venom by applying a tourniquet, or a rubber band above the point of injury and then use the knife freely at the point the fang entered. If a tournaquet is not available, a strong strip of muslin twisted by the aid of a stick may be substituted. Encourage a free flow of blood from the wound by continual kneading, hand rubbing, etc. Abstraction of the venom is to be preferred to medicinal antidotes. After the blood has ceased to flow apply a strong solution of permanganate of potash on cotton pressed into the wound and bandage to hold in place. Ammonia is painful and less desirable as a local application. Hypodermic injections if not cautiously used, may prove as destructive as the bite.—F. G. M.

Cholera Serum.

I notice recent article on serum as a preventive of hog cholera. Where may this be had, how is it applied, how effective is it, may I keep it on hand and use in case cholera appears, or will it not keep?—Subscriber, Sheridan.

Hog cholera serum, prepared as recommended by the Bureau of Animal Industry, is known to retain its potency six months, and probably longer. Experiments have demonstrated that serum, to be of any value, must be made from the blood of swine. That from the blood of the horse or donkey is worthless. There is serum on the market said to be taken from the latter animals. Many of the state experiment stations, Iowa, Minnesota, Texas, etc., furnish serum to parties within their respective states, but I am not certain they send it to other states on any terms. The H. K. Mulford Company, Philadelphia, Pa., has placed the serum on the general market.

The serum should not be relied upon to cure hog cholera. It is used almost entirely as a protective agent. There is no question as to the efficiency of the serum when used for that purpose. The length of time injections of serum alone will protect hogs appears to be unsettled. Some say four weeks, others say four months. In order to prolong the period of protection, the vaccinated hogs are exposed to the disease by placing hogs sick with cholera among them, or blood containing living hog cholera germs is injected at the time of inoculation. This latter procedure is termed the "serum-simultaneous" method, and is not recommended for use except by specially trained veterinarians.

The dose for pigs weighing fifty pounds or less is 20 c. c., injected under the skin on the inner surface of the thigh. Larger doses are required for larger hogs.

In case the farmer decides to vaccinate his own hogs, it would be advisable not to purchase the serum till the disease appears in his neighborhood. But it would be well to have one or two graduated hypodermic syringes of 30 c. c. capacity on hand, and also have arrangements made in advance with those who are to prepare the serum, to supply it upon demand.

Since it is not advisable for persons other than trained veterinarians to use the disease-producing blood, and equally contrary to good advice to transport pigs sick with cholera to mingle with non-infected herds when vaccinated, as a means of prolonging the protection, and since it is known the protection from serum alone is only temporary, the proper course for the farmer to pursue would be to secure fresh serum when the disease threatens his herd, and hold it in readiness for use when the first pigs show symptoms of the disease.

The subscriber is advised to write the Department of Agriculture, Washington, D. C., for Farmer's Bulletin No. 379 on the subject of hog cholera. —F. G. M.

Lameness.

An old horse has become lame after working a single plow. The collar used was too large. The shoulder muscles are shrinking, and the chest muscles bag down some. Stiffness is noticeable after standing and when turning.—Subscriber, Hanford.

Examine the limb from the bottom of the foot up for complicating defects, such as sidebones, ringbone, splints, etc. A good liniment may be made of turpentine one part, ammonia one part, and sweet oil two parts. Shake and apply with brisk rubbing once or twice daily.—F. G. M.

Chewing the Bit.

How may I prevent a horse from chewing the bit?—Subscriber, La Mesa, Cal.

If by "chewing" the bit reference is made to the habit of champing while the bit is in the mouth, try changing for one less objectionable to the horse. Some horses take the bit between the first grinders. This may be remedied by cutting off the crown of the upper and lower teeth involved. Another disagreeable habit is tongue lolling. This is corrected by a bit constructed with an apron-like plate in the middle, which prevents the animal from getting the tongue above the bit.—F. G. M.

Correspondence Schools.

Can you tell me if horse training and breaking can be properly taught by mail, and could you recommend a trainer or school?—Subscriber, Norwalk, Los Angeles County.

I cannot recommend a correspondence course for horse training. Courage, skill and natural adaptability are prerequisites in the development of a successful horse trainer. I cannot understand how a correspondence school could give you much more information than could be acquired by reading books on the subject.—F. G. M.

Itch.

Some kind of itch has been spreading over the neck and sides of my mule. Other animals have not contracted the disease, though in constant contact with him during the past year. Round swellings a half inch in diameter form, break, and exude a yellow, watery matter, and the itching is intense. Otherwise the animal is in good health.—Subscriber, Jamacha, San Diego County.

Mix equal parts of boiled linseed oil and liquid sulphur, shake, and apply with rubbing. Repeat every third day. Give one tablesponful of Fowler's solution in the feed morning and evening.

Abscess.

A swelling under the throat of my cow breaks and runs at times. Before breaking it is as large as a man's fist, and very hard. It is just under the skin and appears not to involve the bone.—Subscriber, Winters.

When the abscess breaks press upon every part of the swelling to force out all the matter possible, then inject zinc chloride, ten per cent solution, into the tract with a syringe. Repeat the injections two or three times at intervals of fifteen minutes, endeavoring each time to force the liquid into all parts of the cavity. Wait five days, then begin injecting hydrogen peroxide once daily.—F. G. M.

ORANGE SAUCE.

Cream one tablespoonful of butter with one teaspoonful corn starch. Place in a double boiler and add the well beaten yolk of an egg, to which has been added two tablespoonfuls of powdered sugar and a cup of thin cream. Beat until light and cook over hot water until it begins to thicken, and then add the juice of an orange and serve at once.

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"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gang-plow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

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We have secured a stock of a dwarf variety that has been thoroughly tested in Southern California and Arizona, yielding two and one half tons of grain per acre. It grows a stalk 4 to 5 feet high with large, compact, erect heads, and stock especially like the sweet flavor of the stalk.

Write for cultural directions and prices.

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When you see for yourself how this machine has been built expressly for heavy baling on the coast, how strong it is, how easy it is on horses, what smooth bales it turns out, you will understand why we make such an offer. It has 7-in step-over, pull power, high baling chamber, positive plunger rebound; it stands up to its work, no taking off of wheels. Has record of 39 tons per day. We will ship you one to try. If you don't want it we will pay freight both ways. Write now.

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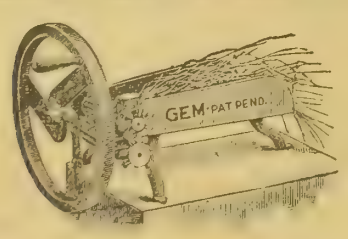

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Department of Agriculture Selection No. 160. An early maturing yellow flint corn that has produced 78 bushels shelled per acre. Will produce a fair crop with a minimum of water if planted early. Sold only in the ear. Price $3.00 per 100 pounds, smaller lots five cents per pound.

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Anaheim, Cal.

Timely Ranch Suggestions

THE SUB-SOILER.

Address Before the Western South Dakota Dry Farming Association by Hon. Frank Gardner.

One lesson nature presents every year, and insists on its being learned, is that, since moisture is necessary for the growth of plants, it is possible for the farmer, by right cultural methods, to conserve a sufficient moisture supply for the ordinary summer crop, even without the summer shower. In many parts of the country the past season, like the two preceding years, there was a deficiency in rainfall, and many farmers placed the responsibility for poor crops upon providence, not noticing that the same providence dealt lavishly with the neighbor across the way.

The observing neighbor had learned years ago that a soil well filled with humus, plowed deep, thoroughly and continuously cultivated, would retain moisture through a long, dry season and produce a crop.

The Deep Seed Bed.

The proper preparation of the seed bed is the fundamental step in all successful farming. European farmers have recognized the important part it plays in the production of their lands, hence have become renowned for their excellent system and the consequent heavy yields. Some parts of America have adopted the European system of a more thorough preparation, but it has not become general in any section of this country.

The experimental stations of the several states, the federal department of agriculture, and the experience of the successful farmers of all countries, have established the fact that deeply-broken and well-pulverized seed beds give best results. The question might be raised as to what constitutes deep preparation. It can be briefly answered by saying that nothing less than eight inches could be called deep plowing, and the depths between this and 18 inches may be called real deep breaking. The depth to go in each instance can be governed only by circumstances and by the exercise of good judgment on the part of the farmer.

Deep Plowing.

In the past few years much has been said and written about the conservation of moisture, and all of our recognized authorities on this question agree that deep plowing is the first and most important thing to do. That is good as far as it goes, but we have a peculiar condition in all of the counties west of the river country. There are three factors that together bring about this peculiar condition referred to: First, the country is more or less rolling. Second, we have (generally speaking) a very hard clay subsoil, making it practically impossible for water to soak into it. Third, our rains come in heavy downpours. With these conditions, you can readily see that we do not get much, if any, benefit from the rains that fall from time to time, and these together have made this peculiar condition referred to—that is, a dry, hard blanket formation.

We can go out on the prairie in the spring and dig down from six to twelve inches from the surface, and we come in contact with this hard, dry soil that is from four to six feet in depth. And as long as this dry blanket formation is in evidence, we can not expect to be successful in the growing of crops, for the reason that we would have to depend entirely upon the summer showers, having no reserve moisture to draw from. It isn't the rains that come from above that insure our crops, but the moisture stored below that comes up by capillarity. There is no state in the United States that gets enough rain, at just the right time, to insure a good crop every year.

Sub-Soil Plow.

Real deep plowing will, in time, gather and hold enough moisture to soak through this dry blanket formation. But the sub-soil plow will bring about this result much sooner, for the reason that you can get down deep in that hard sub-soil, and by so doing make a reservoir for catching and storing the melting snows and heavy rains, instead of allowing them to run off the land into the ravines, into the creeks, into the Missouri river, and eventually into the Mississippi to assist in swelling the great floods that cause the loss of life and property.

A sub-soiler makes the sub-soil more pervious to water and plant roots. A sub-soiler is not intended to bring the sub-soil to the surface, in fact, I believe it would be a detriment rather than a benefit to the crop to do so, as sub-soil is usually devoid of humus.

It does, however, create a loose condition whereby water is rapidly absorbed, instead of running away on the surface and often washing the land and carrying fertility with it.

In nearly all of the West, the sub-soil must be loosened up to sufficient depth to admit of the percolation of all the water that falls.

Holding the Rainfall.

Whenever the farmer can go out on his plowed fields, regardless of how hard it is raining, and see any water escaping, his ground has not been plowed or sub-soiled deep enough. I know, by observation and actual experience, that a sub-soil opened up to a depth of 18 inches will absorb all of the moisture that comes in any of our downpours of rain.

The farmer that began sub-soiling a few years ago and has, by proper cultural methods, conserved as much of the moisture as possible, has succeeded in soaking up this dry blanket formation, made the connection between the moisture below and the moisture above, and made it possible for the water to rise by capillarity, and with a fine and well-firmed seed bed, raised good crops, producing as much as 21 bushels of good, marketable wheat to the acre. And by the use of the sub-soil plow, and practicing the up-to-date dry farming methods, the so-called semi-arid counties of the West will raise as good crops every year as are being raised in the more humid districts.

SQUIRREL ERADICATION.

We have a communication from Mr. Geo. DuQuitte of San Fernando in which he refers to a method of killing ground squirrels described once before in the Cultivator. However, his testimony as to its effectiveness induces us to publish as he sends it to us. Mr. DuQuitte says:

"Saturate a small cloth with gaso-

line or high grade distillate and insert well into the hole, then thoroughly tamp with dirt. This should be done in the middle of the day when the squirrels are sure to be in the holes. In a few days go over the ground in case any should be outside the holes and dig the others out."

THE INTERNATIONAL INSTITUTE OF AGRICULTURE.

The International Institute of Agriculture was established under the International Treaty of June 7th, 1905, which was ratified by forty governments. Seven other governments have since adhered to it.

It is a government institution in which each country is represented by delegates of its choice. The institute is composed of a general assembly and a permanent committee.

The institute, confining its operations within an international sphere, shall: Collect, study and publish, as promptly as possible, statistical, technical, or economic information concerning farming, both vegetable and animal products, the commerce in agricultural products, and the prices prevailing in the various markets; Communicate to parties interested, also as promptly as possible, all the information just referred to; Indicate the wages paid for farm work; Make known the new diseases of vegetables which may appear in any part of the world, showing the territories infected, the progress of the disease, and, if possible, the remedies which are effective in combating them; Study questions concerning agricultural cooperation, insurance, and credit in all their aspects; collect and publish information which might be useful in the various countries in the organization of works connected with agricultural co-operation, insurance, and credit; Submit to the approval of the governments, if there is occasion for it, measures for the protection of the common interests of farmers and for the improvement of their condition, after having utilized all the necessary sources of information, such as the wishes expressed by international or other agricultural congresses of sciences applied to agriculture, agricultural societies, academies, learned bodies, etc.

The institute publishes: a Monthly Bulletin of Agricultural Statistics; a Bulletin of Agricultural Intelligence and Diseases of Plants; a Monthly Bulletin of Economic and Social Intelligence.

David Lubin, formerly of this state, represents the United States in the institute. The work of the institute is not receiving as full support as it should on the part of this country. The three publications which have been distributed gratuitously will hereafter be charged for at the rate of 36 francs per annum.

THE RURAL TELEPHONE.

The day has passed when it was necessary to argue the value of the telephone in the farm home, and yet the matter is stated so convincingly in a paper recently read before a fruit growers' association in Georgia that it may be well to consider the points as brought out there. A subscriber sends the following synopsis of the paper:

"It is generally recognized that a nation's wealth comes from the productiveness of her fields. Any movement that tends to increase their fertility, or to improve conditions in the open country so as to turn the stream of population away from instead of into the cities and congested manufacturing centers, should receive constant encouragement.

"The one thing which has done most to hamper the South's development has been lack of transportation facilities. The one thing which will most easily, cheaply and effectually overcome this lack is a reliable method of quick communication. This is the part played by the telephone. And after the telephone come good roads and the rural mail carrier.

"Each one is an evidence of material prosperity—each one reduces the expenses of a farm, each one serves as a close link between the farmer and the outside world or the next-door neighbor. Only one, though, is on duty day and night, fair weather or foul, and instantly available. To receive the benefit of the good roads, you must hitch up a team; you must wait for the whistle of the rural free delivery man to get your paper or letters; but with the telephone in the house, a turn of the crank puts you in touch with points near or far.

"Probably the first and most direct appeal of the telephone is to the farmer's wife. She has less opportunities of getting away from home than other members of the family, she sees fewer new faces and receives fewer new ideas, so that anything which will serve to break the monotony of her life is welcomed as a Godsend. And the amount of visiting which can be done over a long rural line is truly surprising. All of the neighborhood news spreads along the wire even quicker than the 'grapevine telegraph' could tell it, and during bad weather or on cold winter nights, the 'voice in the box' is a great comfort.

"Besides its social side, though, another and even greater appeal the telephone makes is as an aid in emergencies. It is a watch dog that never sleeps, but that is always ready to summon assistance in any crisis. Two cases where a telephone saved a life have come to my attention within a week. One occurred at Eastman, Ga., where Mr. Bond had his left arm completely severed above the elbow in a gin. His wife immediately telephoned for a doctor eight miles away, who arrived twenty minutes later, soon enough to stop the hemorrhage and thus keep him from bleeding to death.

"The other case occurred at Hiram, Ga., where a little boy was bitten on the ankle by a rattlesnake. In less than two minutes a doctor seven and a half miles away had told the parents how to apply a bandage to stop the circulation, in twenty-five minutes the doctor himself was on the ground, and the boy's life was saved.

"In neither case would it have been possible to even notify the doctor in the total time it took the telephone to get him to the spot. Instances of this sort are not rare—they occur every day, and have gone a long way toward demonstrating the value of the telephone on the farm."

Among the factors which deserve credit for revolutionizing farm life, elevating the plane of farm living and bringing country and city into closer touch and harmony, none stands out more prominently than the rural telephone. Together with the rural free delivery, the interurban and the automobile it has made farm life not only more complete, but more profitable. In the grain belt the farm telephone has been accepted as one of the necessities of the home. The South seems to be behind the times in this respect, but the awakening cannot long be deferred. The telephone is not a plaything, it is not a luxury, it is one of the daily necessities of farm life. —Wisconsin Farmer.

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If you use Fertilizers, or if you are in touch with people who do, write for particulars about our new Gypsum product, the best and cheapest.

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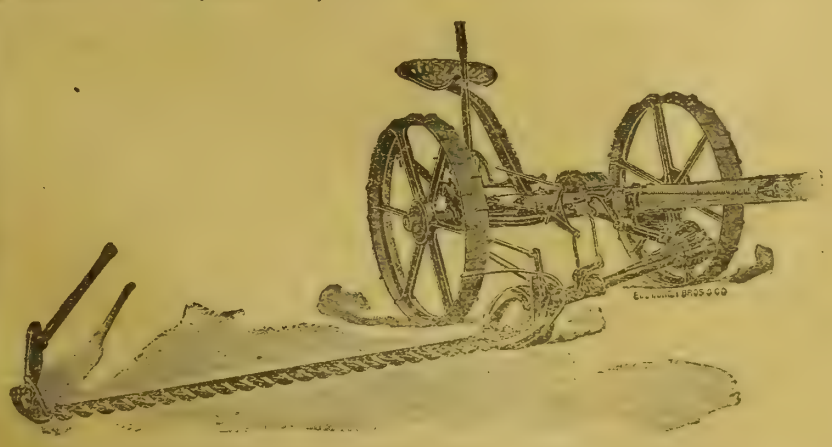
A FRICTION STORY

A small boy can slide faster down a smooth, greased board than he can down an ungreased board full of slivers.

MORAL: A mower which comes closest to eliminating friction will require the least power to operate.



THE NEW STANDARD MOWER

The Cutter Bar is curved when raised, so as to be mathematically straight, to form a frictionless channel for the knife, when lowered. This Bar is patented and can be used only on the New Standard Mower.

The entire weight of the Cutter Bar is transferred through the Suspension Spring to the main wheels. The bar is carried—overcoming the friction of a dragging bar which is pulled or pushed on the ground, besides adding to the grip of the drive wheel on the gear.

Steel Rollers surround the main shaft.

The New Standard Mower develops more cutting power from its special high speed gearing and the grip of the main wheels on the ground than is developed in any other mower—although less power is required to operate it on account of less friction.

A folder giving full detailed description of the New Standard Mower and our other Haying Tools will be mailed free on application.

NEWELL MATHEWS COMPANY

Established 1886.

Los Angeles, California.

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Extra fine draft stallion. He combines the world's two greatest draft breeds. Sire is an Imported English Shire, weighing 2100 pounds, one of the best of this great breed on the Pacific Coast. Dam is a very fine, pure bred Percheron. This colt will be 3 years old in May, weighs 1750 pounds now, in ordinary condition. He will weigh 2100 or 2200 pounds at maturity. He has good, heavy bone, splendid conformation, excellent color, style and action, and is a horse that will please the most critical. Price very reasonable. Write for particulars. Geo. A. Smith, Corcoran, Cal.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L448 Marden Bldg., Washington, D. C.

Bee Men Wanted—One man to run apiary, in hills between Pomona and Fullerton, on shares. Another man to care for apiary by the month, current wages, on ranch, Kern county. Employment all the year. Address Palm Fruit Co., Wasco, Kern Co., Cal.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal

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For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits complete or separate. Also wagons, buggies, harness, plows, scrapers, header, baler, road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

15 WINDMILL OUTFITS.

8, 10 and 12-foot sizes with tanks and pumps complete, or separate.

Several Gasoline Pumping Plants.

TANKS, TANKS, TANKS.

from 50 gallons to 50,000. Have special prices on 30,000 and 50,000 gallon; 15,000 on 20-ft. stand, 5,000 and tank house.

COMPLETE BRICK YARD.

including all modern machinery for 50,000 daily capacity, including one 100 H. P. boiler, brand new, also one 60 H. P. boiler, and 50 H. P. engine, 50,000 new brick $3000 plant, complete or separate. This material must be closed out immediately at sacrifice prices. Why buy new material when we save you half and guarantee all material. Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main, Los Angeles.

For Sale—40 H.P. Stover gas engine, used less than month. Also new 5-in., 2 stage vertical, centrifugal Byron-Jackson pump, with frame, shafting and fixtures complete. This outfit can be had at a bargain. Will sell separately if desired. All in fine condition. Baille & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—Complete pumping plant consisting of Ames No. 2 seven-inch cylinder head; 180 feet of rods, 180 feet eight-inch O. D. casing, 12 H.P. Daniel Best engine; all in good condition. Will lift from 12 to 15 inches water. Price $350. P. C. Bashore, Covina, Cal.

For Exchange—5-passenger automobile; original cost $1850. Engine and all bearings guaranteed first class. Value $500. Is fully equipped. Has wind shield, two sets lamps, one very large set Carbide lamps, two sets horns, mirror, top. Accessories alone worth $150. We must have $200 cash, balance of $300 will take team horses, mules, farm machinery, equity in lot or what have you? Was left with us by lady to dispose of. Demmitt Windmill & Tank Company, 120 North Main St., Los Angeles

For Sale—16 H. P. Foos Gasoline Engine, just overhauled and made like new. Will sell on time and guarantee for a year. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

Agricultural Implements—Vehicles.

Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

FARM LANDS FOR SALE.

24 Acres in the Famous "Orland Project," 18 acres alfalfa, 6 acres bearing oranges; all irrigated by the U. S. Government; Orland's best soil; small residence, barn, dairy-house, etc.; right in town, and will double in value in a short time; worth $12,000 now if cut into city lots. Will sell for $8,000 for a short time. Address owner, J. Vance Wilt, Box 71, Orland, Cal.

For Sale or Exchange—Imperial, 160 acres, patented land; 100 acres alfalfa, 50 acres barley. Small orchard, vineyard, corrals. Supporting now large dairy and raising cattle, horses and hogs. A good home and money-maker. $25,000. 80 acres desert claim, 40 acres in alfalfa, balance ready for corn or cotton. 5 acres to young orange trees. The dairy income alone from these two places over $400 per month. $8,000. Total $33,000. Wish good paying property on coast. Prefer acreage. Address Box 547, Imperial, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Irrigated Land—The famous Gridley Colonies. Improved lands, best homeseekers' proposition in California. Write for particulars. Gridley Land Co., Gridley, Cal.

For Sale—A bargain. Orange land in small tracts. 1095 acres pasture, some water, fenced in three fields; $12 per acre, $4 down; terms. Fred M. Hart, Exeter, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

For Sale—Two small farms, or both as one. Plentiful water supply. Good house and barn on one. Part in alfalfa. Ideal for poultry raising. Address owners for particulars. Leonard Coates Nursery Co., Morganhill, Cal.

If you want an orange grove or ranch of any description it will be to your advantage to see me. I have some of the best buys in Southern California. John W. Shepardson, 215 Katz Building, San Bernardino, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Anuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal

TURKEYS.

Turkey Eggs for Sale—$2.50 per 13. From thrifty, vigorous stock. Order now for April delivery. Mrs. J. L. Jones, Cleveland, Merced Co., Cal.

White Holland turkey eggs and gobblers. Large, vigorous stock. Toms $8.00 and $10.00. Eggs from best matings $7.00 per dozen. From second yard, $5.00. Winner of 1st prize at Los Angeles, 1911. Mrs. Hocking, Guasti, Cal.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

White Holland Turkeys—Eggs $5.00 per setting. Order now for April and May delivery. Mrs. A. R. Sutherland, R. F. D. No. 2, Santa Barbara, Cal.

$2.00 for 12 Mammoth Bronze Turkey eggs, $16.00 per 100. We can fill any order any day. Order now. Pioneer Hatchery Co., 108-118 E. 8th St., Los Angeles, Cal.

For Sale—Have three young Bronze Turkey Toms left, all grand birds. Your flock will be greatly improved by securing one. Mrs. A. C. Wisegarver, San Fernando, Cal

MISCELLANEOUS

For Sale—About 3000 Washington Navels and 7000 Eureka and Lisbon Lemons, one year old, thrifty stock and free from scale. Nursery near Mentone. Address 428 Court St. San Bernardino, Cal.

Panama Canal. My book reproduces Panama and Canal, 100 pages; 20 illustrations including map and profile. Sent postpaid for 25c. C. C. Muldner, Jr., 2861 Laclede, Maplewood, Mo.

For Sale—Ringed-neck Pheasants, Mongolian, $5 a pair; also pheasant eggs now for April delivery, $3 for 15. Mrs. Geo. W. Jenkins, Route 1, Box 40, Sonoma, Cal.

Bees for Sale Cheap—20 hives in 10 frame Langstroth hives, with supers for comb honey. I. D. Jaynes, Buena Park, Cal.

For Sale—Pure White Fan-Tail Pigeons, $1.50 per pair. F. o. b. express office. Bert L. Nunnaley, Yuma, Ariz., R. D.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Poultryman with experience on this coast, capable of managing a large plant and producing satisfactory results in both egg production and the rearing of chicks, desires position. Address Poultryman, 211½ 2nd St., Portland, Ore.

Light Brahmas, Bulah Hill strain, champions of the West. Grand in shape and color; winners of blue wherever shown. Eggs $2.00 to $7.00 for setting; 75 per cent fertility guaranteed. Exhibition and breeding stock for sale. Correspondence solicited. J. E. Chandler, 220 N. Ave. 23, Los Angeles, Cal.

Eggs for Hatching—I am now booking orders for February and March from the following breeds: Brown Leghorns, R. I. Reds and Black Minorcas. Guaranteed to be full-blooded stock. Prices are reasonable. Write me for particulars. A few cockerels for sale. A. H. Sjosten, 23 Laurel Ave., Petaluma, Cal.

Kellerstrass White Orpington Eggs, $2.00 per 15; $12 per 100. R. L. Warren, National City, Cal. R. F. D. 1.

Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene, Waukena, Tulare Co., Cal.

Eggs from our famous winter laying strains of trap-nested bred to lay Rose and Single Comb Rhode Island Reds. $1.50 per 15, $6.00 per 100. A. L. Harmon, Glen View Poultry Yards, Pasadena, Cal.

Thoroughbred White Rock, Rhode Island Red, Buff Orpington eggs, $1.50 per 15, $6.00 per 100. White Leghorn eggs, $1.00. Thoroughbred Bronze Turkey eggs, 20c each. Orders taken for baby chicks. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Buff Orpington Eggs for hatching from prize-winning stock, $1.50 a setting. Also White Leghorns (Howard) and Pekin duck eggs, $1.00. Miss Fletcher, Banning, Cal.

Day Old Chix—White Leghorns, Black Minorcas and Barred Rocks a specialty. First class stock only. Also a full line of nursery stock. Sussex Poultry Manor, Los Gatos, Cal.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

Ancona Eggs for Hatching—Extra good stock. Eggs, $2.50 and $2.00 per setting of 15. Also White Mammoth Pekin Duck eggs $1.00 for eleven. C. S. Norton, Corning, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Magnolia Poultry Farm—S. C. White Leghorns (Wyckoff stock). Vigorous, healthy birds, good layers, large, white eggs. Eggs, $2.00 per 15; $3.00 per 30; $7.50 per 100; $60.00 per 1,000. C. H. Hosford, 351 Magnolia Ave., Riverside, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

POULTRY

Select, trap-nested stock; no culls. White Wyandottes, the most prolific winter layers; White Rocks, Barred Rocks, Black Minorcas, Rhode Island Reds, Black Orpingtons, Black Spanish, Blue Andalusians, all $2.50 per 36 eggs, $6.00 per 100. White Minorcas, beauties, fine layers of the largest white eggs, $3.00 per 36, $7.00 per 100. White and Brown Leghorns, heavy laying strains, no better on this coast, $2.25 per 36, $4.50 per 100. White Indian Runner Ducks, $3.00 per 36. Bronze Turkeys, grand birds, $2.50 per 13, $5.00 per 30. Am placing orders now for pure bred Pearl Guineas, $2.00 per 15. W. D. Rose, R. D. 6, Santa Ana, Cal.

Lasher's Hatchery, 15 Kent St. Petaluma, Cal.—Why my chicks live and grow in the hands of my customers, they are all hatched from free range stock, bred right, mated right, fed right. I have the most up-to-date hatchery building in the country, built of brick, with dead-air space in wall, giving me a uniform heat that means strong, healthy chicks; 16 years in the hatching business, 10 years at present stand. It is no experiment or guesswork with me. Prices per 100, White Leghorn, $7.25 and $8.50. Leghorn-Minorca cross, $7.25. Black Minorca, $10.00. Terms, cash with order.

Start Right—Try White Orpingtons, Kellerstrass strain. Four years with these wonderful layers with marvelous egg records, vigorous, healthy breeders. Eggs for hatching reduced after March first 20c each straight. Order early. Buff Wyandottes, the classiest bird in America, 10c each straight. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Jubilee Orpingtons—Just received from Wm. H. Cook, England, a pen of Jubilee Orpingtons. Will have only a limited number of settings for sale. These are the best that England can produce. F. S. Washburn, Direct Importer, 240 Anita Street, San Jose, Cal.

Overcrowded; will sacrifice a few splendid White Rock roosters, 20 months old, fine breeders, $5.00 apiece while they last; also 6 hens, 20 months old, for $10.00. Write Dr. T. J. DeVaughn, 30 N. First St., Alhambra, Cal.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

Don't simply buy eggs; buy eggs from Kuechel. Fertility and vigor. Always satisfactory. Buff, Black, White, Cochin Bantams, Cornish Games, Houdans, Rocks, Reds. Fancy and utility Pigeons. 114 prizes, 6 cups in 1910. B. Kuechel, Orange, Cal.

Incubator Chicks die by hundreds. We tell how to save them. Send us the address of ten people using incubators, and get, free, details of how we hatched, fed and raised 1400 incubator chickens. Alva Remedy Company, Alva, Okla.

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

For Sale—Eggs from genuine White Indian Runner Ducks, $3.00 per 15, $6.00 per 50, $10 per 100. Fawn Indian Runner ducks and Howard strain White Leghorn eggs $1.00 per 15, $3 per 50 and $5 per 100. Dustins White Wyandottes, $1.50 per 15; fertility guaranteed. J. C. Carlisle, R. D. 4, Box 249, Los Angeles, Cal.

Baby Chicks—Order now from R. I. Reds (Thompkins strain). S. C. Black Minorcas (Northrup strain). White Minorcas, Buff and White Leghorns. Eggs for hatching. C. U. Chamberlin, Los Gatos, Cal.

Anconas of Quality—S. C. White Minorcas, Leghorns, R. I. Reds, baby chicks also. Eggs for hatching. Incubator lots or settings. Satisfaction guaranteed. Triumph Incubator Co., C., Corning, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Eggs for hatching, $1.00 per 15; $5.00 per 100. Day old chicks, $15.00 per 100. Barred Plymouth Rocks, R. I. Reds and Buff Orpingtons. Stamped envelope or cash with order. L. W. Neilsen, R. D. 2, Box A-1, Petaluma, Cal.

Barred Rocks exclusively. Eggs from best matings $1.50 and $3.00 for 15, incubator lots $3.00 to $6.00 per 100. Prices right. G. L. Hawley, Madera, Cal.

Eggs from select thoroughbred stock; $1 for 13 or $6 per hundred; Rhode Island Reds, Plymouth Rocks, White and Brown Leghorns. Call 439 E. 3rd St., Glendale, Cal. Phone, Sunset 452-J.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

R. I. Reds—Phenomenal strain. See display ad, this issue, poultry department. The Luedkes, Anaheim, Cal., R. D. 1.

Greenleaf "Reds"—Single comb cockerels, and eggs for sale. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Trios from my 226 egg strain of White Leghorns; also eggs and day-old chickens from same stock. Ocean View Yards, San Ysidro, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

White Plymouth Rock and Rhode Island Reds, thoroughbred eggs, $5.00 per 100, $1.00 for 15. Palm Fruit Co., Wasco, Cal.

For Sale—Thoroughbred S. C. Black Minorca cocks and cockerels from special matings. R. Toon, 1337 West 24th St., Los Angeles.

Houdan eggs $1.50 per 15, $4.50 per 50, $9.00 per 100. Baby chicks 20c. Mrs. Hocking, Guasti, Cal.

Pit Games, seven leading strains. Dead game stock and eggs. R. H. Crane, Jr., Santa Rosa, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V. Peterson, Guerneville, Cal.

POULTRY

Viereck's Anconas, Charleston, Wash.—"The Best Anconas in America." Not one but many years an Ancona breeder. Settings $5.00, $3.50 and $2.00. Circular now ready.

White Orpingtons—High grade stock. Heavy layers. Eggs $5.00 per 15; $25.00 per 100. Day-old chicks 75c each. H. E. Dickinson, R. D. 1, Napa, Cal.

NURSERY STOCK.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

Nursery Stock—A full line of nursery stock at the right prices, more especially ornamental trees, Bottle, Italian cypress, Texas Umbrella and Camphor. We have a lot of Placentia Perfection walnuts, 5 to 10 ft., at a price you will pay if you want them. Write or phone us. Orange County Nursery, Santa Ana, Cal. Phone Blk. 5131.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Berbara, Cal.

For Sale—Loganberry and Mammoth Blackberry tips; 12, 60c; 100, $5. Prepaid. W. N. Sweeney, Hollister, Cal.

Canary Pines, 2 to 3 feet, in 5-gallon cans, 50c; 8 to 10 feet, in 5-gallon cans, $1.50. Magnolia, gallon cans, 2½ to 3 feet, 50c. Ballou's Nursery, Pasadena, Cal.

Ferns—8,000 Boston and Piersoni, 3, 5 and 6 in. stock. Also runners. Write for prices. California Fern Nursery, R. D. 1, Box 188, Los Angeles. Phone East 2541.

For Sale—Orange seedbed stock, sweet. Write for prices. Frank Morris, Covina, Cal.

Thompson's Seedless, Muscat, Malaga and Emperor rooted vines for sale by the Gridley Colony Nursery. Write for prices.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

White Indian Runner and Buff Orpington Ducks. Stock and eggs. Belgian, Angora New Zealand and Flemish Giant Rabbits. Belgian Hare Guide, illustrated; price 50c. List free. Caldwell Bros., Los Angeles, Cal.

For Sale—Aylesbury ducks and eggs. Apply Ocean View Yards, San Ysidro, Cal.

TREES.

For Sale—5000 (more or less) Washington Navels and about the same number of Valencias, one-year-old buds, from 1 ft. to 2 ft. high, at 35c. These trees are in nursery form between orchard trees and therefore did not make full growth. Guaranteed healthy, scale free, frost free, and must be moved. Carroll B. Smith, Box 9, Redlands, Cal.

For March Delivery—First-class peach trees at 10c each; first-class apricot trees 15c each; first-class almond trees at 13c each; first-class prune trees at 13c each; first-class plum trees at 13c each. Sour orange seedbed stock at $12.00 per thousand. We pay freight on all orders of $10.00 or over. Address S. E. Courtney, Rose Lawn, Hanford, Cal.

Special prices on Tilton apricot, apples, Salway peaches, Satsuma plums, lemons, Navel and Valencia oranges, seedling walnuts. Grafted walnuts on own and black root. Anything in nursery line. Get my prices. A. R. Marshall's Nurseries, Cor. 3rd and Bush Sts., Santa Ana, Cal. Box 64.

Wanted—Owners of Kumquat or dwarf orange trees to send their address to Hugh Claudin, 54 Valley St., Pasadena. Kumquats bought for cash.

Lemon trees wanted in exchange for an automobile. Will accept scrub trees and give a good deal. Address H. H. M., 1154 East 23rd St., Los Angeles, Cal.

Write for Special Price on peach trees and French prune trees, on Myrobolan root. Gridley Colony Nursery, Gridley, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine Line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Eureka Lemon Trees for sale. B. A. Ropp and W. H. Fowler. R. D. 2, Ventura, Cal.

HORTICULTURAL PRINTING.

The Kruckeberg Press, 128 South Los Angeles St., Los Angeles, Cal., makes a specialty of Horticultural Printing and Engraving. Cuts and illustrations of all standard, economic and ornamental plants on hand and subject to the use of patrons without cost. Samples and estimates cheerfully furnished. Remember, we design, write, engrave, bind and print; in brief, do the "whole thing," at no additional expense to the customer. Correspondence a pleasure.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks —White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S WHITE FOWL FARM, Moorpark, Cal

A Boon to Cabbage Growers—A New and Sure Remedy for the destructive Green Cabbage Worms, which will save the loss of millions of dollars, will be sent Free to all who send 10 cents for a trial package of New "Early Snowball" Cabbage, the finest early variety yet. Tillinghast, the Seedsman, Scranton, Pa.

Business

LARGE TRACT TO BE SUBDIVIDED.

A transaction involving 6000 acres belonging to the Crocker estate in Merced county was completed this week. The Co-operative Land and Trust Company of San Francisco has secured this tract and will begin the subdivision and colonization at once.

This deal marks a change in the policy of the Crocker estate, for heretofore no part of their great holdings has passed for sale into other hands. The Crocker estate of Merced county comprises about 37,000 acres, and includes some of the finest colonization land in the whole valley.

The greater part of the land involved lies about two miles north of Atwater. Three thousand acres will be placed on the market at once in five, ten and twenty-acre tracts.

The soil of the new tract is a very rich sandy loam similar to that throughout the Atwater district. It is especially adapted to the raising of alfalfa, peaches and grapes. This district is particularly famous for its sweet potatoes and the land is also adapted to the production of this profitable tuber.

The Co-operative Land and Trust Company is well known in Merced county, where they have colonized 9000 acres. The last colonization tract sold by them, which is known as "Merced Colony," adjoins the city of Merced.

IN SUNNY STANISLAUS.

One of the most important irrigation projects that has been opened in California for a long time is that of the Patterson Irrigated Farms, whereby 18,000 acres in Stanislaus county is now open to settlers, who will make a specialty of alfalfa, dairy products and deciduous fruits.

An absolutely modern system of irrigation has been established, including concrete lined ditches. One of the most wonderful electric pumping plants in existence is used for the elevation of the water from the San Joaquin River to the reservoirs supplying the land.

The property that will be served by this water supply is owned by the Patterson Farms Company. and Mr. L. G. Sinnard, the well-known land expert, formerly with the Southern Pacific Railroad, is general manager of the project. The Chas. F. O'Brien Company, of 112 West Sixth Street, are the Los Angeles sales managers and promise to prospective settlers a combination of perfect soil conditions and unlimited water now ready for delivery.

WAFFLES.

An Ohio man who is extremely fond of waffles is credited with the following statement:

"I have a regular formula for eating waffles," he said to a friend, "and I recommend it to everyone. You eat the first fourteen waffles without syrup, but with lots of butter. Then you put syrup on the next nine; and the last half dozen you eat just simply swimming in syrup. Eaten that way, waffles never hurt anybody."

Without endorsing his system, the following recipe for rice waffles will be found delicious for experimenting with: One and one-half cups cold boiled rice, one and one-half pints of flour, one cup thin sour cream, one tablespoonful sugar, one teaspoonful soda, a teaspoonful of salt, and three eggs. Beat eggs and sugar together and add to the rice and salt. Stir the soda into the cream and add to the first mixture, then stir in the flour. Beat to a batter thin enough to pour, and bake in hot, buttered waffle irons.

A SHORT CUT.

An easy and quick way to gather is on the machine. Loosen the tension of the machine slightly and stitch where the gathers are required. If the tension is loose the thread can be pulled easily and the gathers evenly arranged. This method is even better than that of using the gatherer.

General Household Notes

CALIFORNIA'S GOLDEN SPRING.

Wild pansies are here,
The beautiful things—
Pansies as golden
As new wedding rings.

Pale yellow cowslips,
And buttercups sway,
Poppies, our poppies,
Make all the land gay.

And we know it is spring
In this gold land of ours,
This radiant country
Of sunshine and flowers.
—Grace Hibbard in Sunset Magazine.

OUT OF THE FOG.

The skipper, who has been leaning back with his shoulders against the after bulkhead, bent forward and squared his arms on the table. "I've often enough called myself hard names for treatin' that boy as I did," he said. "But hard names don't split cut ropes, Mr. Burke."

I nodded. It was not my place to comment freely, for at that stage of my varied career I was filling the humble position of mate of the stout bark Arctic Hare. However, I had nothing to complain of. Captain Halyard treated me, unfortunately, as an equal—and where is the duke or king who can lay claim to more than that from a master mariner aboard his own ship?

"The boy was all for the sea, and wouldn't hear of any extra schoolin,' so I gave him a chance," continued the skipper. "He signed on with me for a voyage to Brazil and back as an ordinary seaman. He bunked and ate for'ard. That was his place. That's where I was when I first went to sea. He was in the mate's watch and I told the mate to see that he did his work.

"On Sundays I called him aft and let him read in here; but other days I treated him just like the other men —which was fair and square, but pretty undemonstrative. I thought it was all fine and noble of me, and used to brag about it to the mate. He wasn't enthusiastic, though. He said that nobody could consider his father as nothing but the skipper. I told him that was the right way of it, and that the lad would thank me for it some day, when sailing with a stranger.

"'On work days,' said I, 'I am the skipper. On Sundays I am his father. He understands that it's for his own good.'

"You see I was mighty sure of myself in those days!"

Here Captain Halyard paused, and stared vacantly at the gay cage of the skylight above him.

"Evidently something went wrong. How was that, sir?" I ventured.

"How was that " he exclaimed, sitting up, savagely. "Ah, if I could only forget how it was, Mr. Burke!"

His voice dwindled. He eyed me appealingly, and glanced away. "It was about his playing the accordion," he added.

I had nothing to say to that. I listened to the footsteps of the boatswain on the poop overhead. I could see that Halyard was anxious to tell me the story, and yet was ashamed of it. He fingered an almanac that lay before him, and fussed about it in a most exasperating manner.

"Well," he said, "to make it short, the boy had a weakness for playing the accordion. He played it well, too. He kept the fo'castle gay with his music.

"But it jarred on me, somehow or other; and one night I called him aft and told him to quit—told him that a boy who was content to pump tunes for a lot of common seamen would never get aft of the galley himself. He took the word quietly, standing here on this very strip of carpet, with his cap in his hand.

"If he'd argued, maybe it would have been better for both of us. About a week after that, late one night, I awoke and went on deck by way of the after companion, I heard the accordion playing very softly and cautiously. The man at the wheel had the tail of his eye on me.

"I went fo'ard, quiet as a thief in my canvas slippers. It was a fine night, with the moon clear and full and the trade blowing steady. The old girl was walking along as if a giant had her on a tow-line.

"Fo'ard of the men's deck-house I found Jack and the accordion. Both watches were squatting round. The lookout had his back to his business, and his eyes and ears on the player.

"I gave the boy a piece of what I thought was my mind. It was as nasty a tongue-lashing as you'd want to forget. At the end of it I told him I couldn't thrash him because he was a British seaman. Then I sent the men hopping and I went back to bed.

"Next Sunday Jack didn't come aft. Like a fool, I didn't send for him. So we made the round trip without another word between us. 'I'll fix him when we get ashore,' I used to say to myself.

"Well, Jack got paid off with the rest of the crew, and that's the last I have seen of him. I hear he is on the Banks, fishing with the Gloucester fleet now. About a year ago his mother received a letter from him, with a Boston postmark on the envelope."

Halyard stood up and pulled on his oilskins.

"That's the story, Mr. Burke," he said, quietly. "Please don't tell me what you think of it. I'm going on deck. You had better turn in."

Just then a seaman knocked on the door and opened it with a crack.

"T'ickenin' up, sir!" he said. "Bo'sun wants to know if he'll get out the foghorns."

"Yes," said the skipper. He pulled his sou'wester well down on his head, tied the strings under his chin, and followed the sailor. I hastened to my berth off the outer cabin, and, like the skipper, attired myself in rough weather clothes.

When I reached the high deck of the poop the fog lay over us and round us, cold and damp. One horn was being worked on the fo'castle-head and another on the poop. The noise was appalling.

"That's too much! Make it once in two minutes and alternately!" shouted the skipper to the boat swain.

"Aye, aye, sir," replied the boatswain, briskly.

Then, aside to me, "What do he mean by dat?" he asked.

"One at a time—turn and turn about," I whispered.

Halyard and I stood side by side, with our hands on the windward rail and the fog smoking round us. The old bark pitched to the gray valleys,

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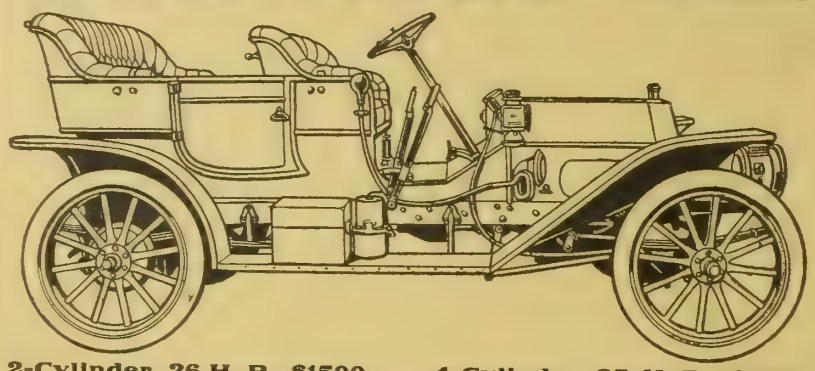

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THE DOVES OF WAR
By Lieut. Paul W. Beck
SUNSET MAGAZINE, MARCH

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and climbed again up the gray, unstable hills.

"No need of the lead to tell us we're in soundings," I remarked.

"We're on the Banks—just on the edge of them," replied the skipper.

"Queer we don't hear a horn or two in answer to the row we're making," I said, leaning over the iron rail of the poop and straining my eyes against the thickening fog.

"Hark!" said the skipper, with a hand on my shoulder. I turned an attentive ear to the wind.

"Don't you catch that?" he asked. His voice was low and eager.

I shook my head. I could hear nothing in the lull between the bellowing of our horns except the tumbling of the seas and the complaining passage of the ship.

"There!" Dead to windward!" exclaimed Halyard, after a minute's silence.

This time I caught something—hardly more than a suggestion of sound—like a faint strain of music. Then the horns gave tongue again, like a pack of unearthly hounds hunting in the fog.

When their clamor was done, the skipper glanced at me shyly.

"Wasn't it music?" he asked.

"I am not sure that I heard anything," I replied.

He had nothing to say to that.

Presently I heard the noise again, loud enough to be sure of it.

"It's an accordion," I said.

"See here, Mr. Burke," said Halyard, "what's a man about, playing an accordion off there in the fog? Is he just amusing himself? Or is it a signal? Or is he trying to keep up the hearts of himself and his dory mates?"

"The last two reasons seem likely enough, sir," I replied. "The playing sounds pretty weak, too.' '

"Take the port life-boat, Mr. Burke, and men from your own watch. We'll lay to."

I nodded and started down the ladder to the main deck.

The port life-boat was soon swung out and lowered. My four men of Harbor Grace pulled her up to windward with every ounce of muscle, from toes to shoulders, in the stroke. I glanced back. The bark loomed like a shadow in the fog.

The waves swelled above us with dizzy regularity. Now the rowers were under me, with their red, set faces turned upward. Now they were high above me, with all their weight on their feet. But they pulled as steady as clockwork, with Bill Duncan giving them the stroke.

Suddenly the accordion sounded again, close in front.

Bow-oar turned his head.

"Easy, all!" I cried.

A crest of gray sank under our cutwater, and there, in the valley, lay a dory. She was drifting sullenly before the wind. A figure crouched astern, steering with a fragment of board. A second figure sat forward, feebly closing and expanding a battered accordion.

The story was plain. The dory mates, fishing from a Banks' schooner, had been lost, probably for days, in the fog—a common enough accident there.

The dory wallowed to meet us. We drove along her gunwale, knocking the piece of deal from the steersman's hands. In less time than I'm taking to tell it we dragged the weak and bewildered voyagers into the boat, and pulled away from the dory. It was cleverly done, though I have to say it myself.

We pulled back to the ship with only two oars. The others of the crew held each a half-conscious fisherman, and forced brandy between his blue lips. We ran under the lee of the bark and tackled on, fore and aft, in short order. Then I gave the men the word, and they went up the "falls" like monkeys, and over the side. Anxious faces stared down at us under black sou-westers. I held the boat off with an oar. The rescued fishermen lay between the seats.

"Hoist away!" I shouted.

Up we went, clear of the bulwarks, and were swung in by eager hands. I jumped to the deck, and in so doing collided violently with the skipper. He shouldered me aside without a glance, and caught up the limp figure of the youth with the accordion.

"Jack!" he cried. "Jack, boy, it's your old daddy!"

We made way for him as he started aft with his burden. At the cabin door he turned. We could see that the lad's arm was round his neck.

"Mr. Burke, you see to his dory mate," he said. "It's food and blankets they want, poor lads!"

"Well," exclaimed the boatswain, as we rolled the other castaway in blankets, "if dat don't put the comether on de story books I has been readin', then ye may name me for a liar!"—Youth's Companion.

.. AN APRIL FOOLS' FROLIC.

Will you come for dance and play
On April first, the day,
At 8:30 by the clock.
Wear your most becoming frock.
We will not do things by rules,
We will all be April ——!

So the invitations ran, and the guests arrived at the house to find that the doorbell handle was tied tight; but the door opened mysteriously and a placard against the wall read, "This way to the dressing rooms." And when they went "this way," through the two doors at the end of the hall, they found themselves entering a dining room and a pantry and signs bearing the words, "April Fool," reminded them that they had not found the place where they could leave burdensome wraps.

But they succeeded after a little, and in the ladies' dressing room were funny surprises. The whisk broom holder held the buttonhook, pins were in the powder puff box, and the comb in the handkerchief box.

Signs on the doors, "Entrance" and "Exit," caused some fun, as the "Exit" proved to be a creepy sort of back stairway where the ever-present "April Fool" maxim greeted the confused guest at the bottom.

The guests were told to go out into the kitchen to make fudge. There were many glances at pretty silk waists by dainty maidens, but in the kitchen under the chocolate cakes, the butter pot and sugar bowl, little cards saying "April Fool" caused a gay fluttering of skirts as a bright waltz from the deserted parlor led them back to its kindly four walls again.

Favors of cornucopias, presumably holding candy, were distributed when the dancing reached its height, but they were found to be weighted with a few shot, while an artificial flower was the only other inclosure. These were in twos, one pink rose in a lady's cornucopia, one in a man's; two bunches of daisies, two of red roses and so on, while little verses gave the instruction:

Seek your partners by this posy—
May your luck be fair and rosy,
May you play the game of hearts,
Playing each the others' parts.

Little tables were provided and tally

cards given, all made ready for a game of cards, when lo! the tally cards being turned over, told a different story.

An April Fools party can have ever so many variations. Try it and see how willing everybody will be to play the fool for once, so long as it is only an April Fool.

RAISIN BREAD.

In view of the coming raisin day the Fresno Republican waxes eloquent over raisin bread as follows:

There are two sorts of people in the world. One sort eats rice and fish. The other sort eats bread and beef. And, so far, with the single exception of the Japanese, the rice and fish nations have been compelled to yield precedence to the bread and beef ones.

So bread is the staff of life, and at least half of the fount of courage. From bread comes the world's brain and brawn; the wheat farmer is the pioneer of the world's civilization; the wheat market is the barometer of the world's trade. North, South, East and West of the wheat line dwell strange races of dark men, with strange customs, costumes and religions. Within the wheat line dwells our sort of civilization. And, looking back in time instead of out in space, we find that the democracy of modern life dates from the time when wheat bread became the common diet of the common people.

So bread makes a race, a civilization, an era, and an industrial system.

Now comes the new era, when bread is to be not merely the staff, but the crown of life—the era of raisin bread. No longer a mere staple—the prose of dietetics and commerce—bread takes on with its raisins the romance and poetry of the vine. It becomes bread, meat and dessert; staple, substantial and luxury; grain and fruit are sweet. Bread-fed armies have conquered for European civilization all that has been conquered. On "molita cibaria," Caesar's armies unified the world. The outside civilization has broken the ancient ramparts on only one corner—the Turkish intrusion. And Turkish soldiers are fed on raisins! So, adding raisins to bread, we add to the ration that conquered all worlds except one, the ration which conquered that one.

Forgotten the fish-rice age; ignored the fish-rice nations! Proudly remembered the era and the world of bread! But welcome, thrice welcome, the new age and the new peoples and the higher civilization, founded on raisin bread!

THE HOME BEAUTIFUL.

There are so many little things we can do that cost little both in time and in money, yet count so much in the making of the home beautiful. For instance, take papa's old pants; how many of you stop to think out the possibilities of using them in the home? And yet they can be used in more attractive little ways, when off papa, than you would ever dream was possible!

I have one bright little friend who has utilized them in such a pretty, sweet way, by making hanging jardinieres. This she does by tying the bottom of each leg with bows of ribbon, filling the whole with sand, then planting ferns at the top and hanging them up by the suspenders.

This is a particularly pretty decoration for a bay window, especially if papa is a stout man, for then, of course, the contour of both the pants and the window coincide, which is always a good point in interior decoration, as all lines should be harmonious.

Another pretty idea is to use them as parlor portiers. This can be done with very little work and small expense, by tacking the waistband to the upper frame of the door, and drawing a leg back to each side of the door frame and fastening it there with a cord or bright ribbon. You have no idea, girls, what a sweet effect this gives, and it is absolutely good taste for any room or hall.

If they are so worn as to be fringed at the bottom, so much the better, as fringed portieres are oftentimes handsomer than when only hemmed. Red flannel underpants are especially pretty and cheerful used in this way during the winter, while all weights and colors look well at the windows during the entire year, if draped over lace curtains.

Of course a great deal depends on the size and shape of your papa. If he be tall and slender one of his legs will make a long pincushion, such as are so much in vogue now for dressing table use. This can readily be done by cutting the pants leg the desired length, stuffing with sawdust, and sewing securely at both ends. When covered with a dainty bit of lace this makes the prettiest cushion imaginable.—Helen S. Woodruff in Harper's Weekly.

OSTRICH PLUMES FOR DRESSY HATS.

For dress hats, ostrich is used more than any other feather trimming, in all sizes, from tips, which are used in full clusters, to long Amazon plumes and bands, either plain or willowed, almost a yard and a half long, and tall willowed "Grenadier" pompons. The new item in ostrich, and which has been used to a limited extent this winter, is the "Defrise" plume, which looks like a drooping French curled plume which has had every vestige of curl taken out by dampness. The new shadings and color combinations are in soft tones, and are both novel and handsome, and which tend to bring ostrich more into favor than if only plain colors or black were shown.—The Millinery Trade Review.

SURE ENOUGH, WHICH?

Little four-year-old Robert, like many other boys of his age, liked to ask questions. So when the first downy chicks came in the spring and his mother saw him studying them most intently, she knew something was coming. And it did, for presently he turned to his mother and asked, "Mamma, are chickens' legs hind legs or front legs?"—Woman's Home Companion.

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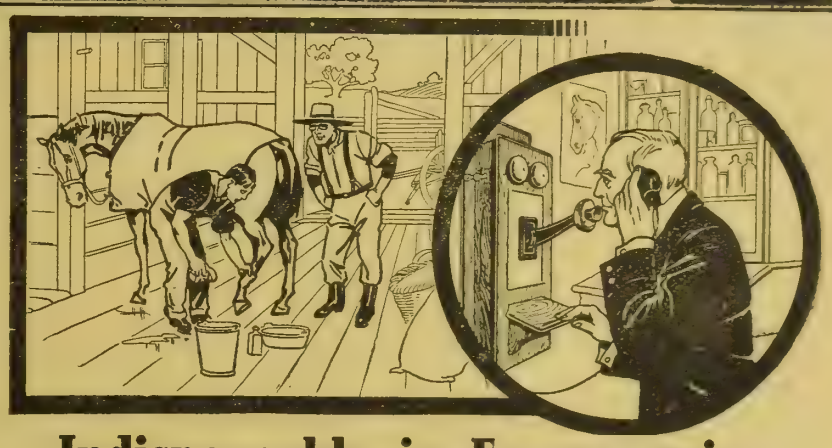

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Morganhill, California.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, March 29.

Butter.

The agitation against cold storage is rather depressing the market. At least, the manipulators are charging the prevailing conditions to that cause. Quotations are exactly as last week.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	25
Firsts	24
Ladies	22
Country	18

Cheese.

Oregon Daisy	16½
Northern	14@16
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Eggs are in liberal receipt, the daily average running 800 to 900 cases. Price is disappointingly low, with few going into storage.

Paying price f. o. b. Los Angeles is:

Local ranch candled	22
Case count buying price	18
Northern	16@20
Eastern	20

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	18
Roosters	10@12
Broilers	31
Fryers	28
Roasters	24
Turkeys	25
Ducks	22
Geese	22
Guinea hens, doz	4.00
Squabs, doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	8¼
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.25@2.40
Watsonville	2.35
Oregon	2.50
Northern Early Rose	2.25
Lompoc	2.75@3.00
Idaho	2.00@2.25
White Rose, local	2.25
Colorados	2.50
Sweets, yellow, cental	4.75
Sweets, white	3.75
New potatoes, lugs	2.00

Onions.

Wholesale quotations:

Oregons	3.00
Northern	3.00
Australian browns	3.00
Nevadas	3.00
Utah	3.00
Garlic	8

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.00
Asparagus, lb	17
Beets, sack	90
Brussels sprouts, lb	12
Bell peppers, lb	35
Green chilis	25
Cucumbers, doz	1.00@2.25
Cabbage, sack	85@90
Celery, crate	3.50
Cauliflower, crate	2.50
Carrots, sack	1.25
Egg plant, lb	10@12½
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, per doz	40
Lettuce, crate	1.00@1.50
Oyster plant, doz	40
Peas, lb	7@8
Parsley, doz bunches	30@40
Parsnips, doz bunches	50@60
Radishes, doz bunches	20@25
Rhubarb, Crim. Winter, box	75@1.00
Rhubarb, Strawberry	1.25@1.50
Spinach, doz	20@25
Squash, Hubbard	3½
Tomatoes, Mexican	1.25
Turnips, sack	1.25

Citrus Fruits.

Navels	1.75@2.00
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.50
Tangerines	1.50@1.65

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.40@1.75
Spitzenbergs	2.50@3.00
Greenings	1.25@1.50
Pearmains	1.40@2.25
Newtown Pippins	1.50@2.00
Bananas	4½
Pineapples	10
Pears, lb	5@6
Winter Nelis	2.50@2.75
Strawberries	25

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	10½@13½
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.75
Black eyes	6.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.45

San Francisco Market

SAN FRANCISCO, March 28.

Butter.

Butter continues downward, with large receipts, 75,000 to 80,000 pounds daily, and market rather weak.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	25
California prime firsts	24½
California firsts	23½
Seconds	22½

Cheese.

California flats, new	10@12½
Cal. Y. America, fancy, new	14@14½
Oregon fancy	12½

Eggs and Poultry.

Eggs showed a decline during last week, and still show a weak market condition. On Friday a half cent under present quotations was the prevailing price.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	19
Firsts	17½
Seconds	16½

Hens, doz	5.00@12.00
Fryers, doz	6.00@7.00
Ducks	6.00@10.00
Broilers	3.50@5.00
Roosters, doz	5.00@10.00
Turkeys	18@20
Geese	2.50@3.50
Pigeons	1.50@3.00
Squabs	3.00@3.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6½
Cows and heifers	4@5½
Calves, lb	5½@7
Hogs	5½@8¼
Yearling lambs	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.70@1.95
Salinas Burbanks, cwt	2.35@2.45
Oregon Burbanks, cwt	2.00@2.15
Lompoc	2.35@2.45
Sweets, cental	8.00

Onions.

Onions	2.25@2.35

Vegetables.

Wholesale quotations:

Asparagus, lb	3@5
Beans, string	25
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	1.00@1.25
Celery, crate	1.50@2.50
Bell peppers	10@20
Beans, string	20@25
Chili peppers, lb	30@40
Egg plant, lb	12½
Lettuce, crate	75@2.00
Peas, lb	6@8
Rhubarb, Southern	50@65
Rhubarb, Bay	75@1.00
Summer squash	1.50@1.75
Tomatoes, Mexican	1.25@1.50
Turnips	60@75
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.40
Grapefruit	75@2.50
Lemons	1.25@3.00
Limes, Mexican	7.00@7.50
Tangerines, halves	50@1.25

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.40@1.60
Spitzenberg	1.50@2.75
Bananas, Hawaiian	1.25@1.50
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 11½@13c; Apricots, 10½@12¾c; do, Moorparks, 14c; Peaches, 6@7½c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 9@9½c; Figs, 1911, 4@5¼ for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6@6¼c; Choice, No. 16, 5⅝@5¾c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 4¾@5c; do, 3-crown, 4½@4¾c; do, 2-crown, 4@4½c. Dried Grapes, 2¾@3c. Seedless — Muscatels, 3¾@4c; Sultanas, 4¾@5c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.00
Pink	5.65
Black eyes	5.50@5.60
Small white	3.50
Large white	3.50
Kidneys	6.25
Garbanzos	3.00
Bayou	4.80
Horse beans	2.50
Red Mexicans	5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	19@20
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week have amounted to 2,825 tons, a slight increase over those of last week, which were 2,424 tons. Receipts moved off fairly well, although there has been no advance in prices of any description of hay in this city or Oakland. People seem to be unwilling to pay more for hay than they have been paying, and buy from hand to mouth, which does not make a demand sufficient, with the receipts as heavy as they are, to cause any advance in prices.

Considerable hay has changed hands in the country of late at prices in excess of this market.

There has been somewhat of demand in the country for hay, but prices obtained when freight rates are added are on a par with the prices prevailing in San Francisco.

Export demand has taken on a very quiet appearance since the government took delivery of their final shipment on the steamship Mongolia last week, and there is nothing of interest in this line.

Alfalfa and straw remain unchanged.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Wheat, No. 1	1.45@1.47½
Barley, fancy	1.32½@1.35
Barley, good to choice	1.27½@1.30
Barley, poor to fair	1.22½@1.25
Oats, white	1.50@1.55
Rye, new crop	1.27½@1.35
Alfalfa seed	18@20
Mustard, brown	4½

Feed Stuff.

Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50
Alfalfa meal	17.00
Bran, ton	25.00@26.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	27.00@28.00
Rolled oats, ton	29.00@31.00
Middlings	33.50@37.00
Oil cake, ton	40.50@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	25.00@26.00

Citrus Fruit Market

LOS ANGELES, March 29, 1911.

A little carelessness in the matter of picking and packing immediately after the storms is resulting in heavy losses from decay. It is possible the picking was begun too soon after the rain and was somewhat soft. In any case very heavy decay, sometimes to the extent of 30 per cent, has resulted in bad conditions. The variation is, however, great, a little fruit going forward without any decay, but the greater part of it showing 10 to 12 per cent. This condition has, of course, depressed the market, though strictly sound fruit of first grade will yet demand $2.50 on nearly all markets.

Lemons are still stronger than last week, and every offering is promptly cleaned up at top of the market. It is probable this condition will be maintained until the warm weather gives a still bigger boost to the prices.

Shipments.

Shipments of oranges to date since November 1, 1910, 16,845 cars; lemons, 1,979; total, 18,824. To same date last season: Oranges, 10,835; lemons, 1,652; total, 12,487.

LOS ANGELES, Friday, March 24.—Six cars oranges sold here today.

NAVELS—	Avge.
Knight, fy or, Pomona, not shipped, iced	1.37½
Bishop, ch, Pomona, not shipped, iced	1.12½
Red Raven, fy, Riverside, not shipped	1.62¼
Victory, or, Pasadena, not shipped, iced	1.17½
Ocean, fy or, Rialto, shipped 23d, ventilated	1.45
Knight, fy or, Pomona, shipped 23d, iced	1.45
Bishop, ch, Pomona, shipped 23d, iced	1.20
Sky Blue, ch, Alhambra, shipped 24th, iced	1.10
SWEETS—	
Victory, or, Pasadena, not shipped, iced	.92½

LOS ANGELES, Monday, March 27.—Seven cars oranges sold here today.

NAVELS—	Avge.
Knight, fy or, Pomona, shipped 25th, iced	1.37½
Bishop, ch or, Pomona, shipped 25th, iced	1.12½
Ocean, fy, Rialto, shipped 25th, ventilated	1.50
Hub, ch Rialto, shipped 25th, ventilated	1.25
Red Raven, xf, Riverside, not shipped	1.57½
Monrovia Heights, fy or, Monrovia, not shipped	1.40
Robin, sd, fy or, Monrovia, not shipped	1.15
Naralimo, fy or, Riverside, shipped 24th, iced	1.37½
Del Oro, sd, or, Riverside, shipped 24th, iced	1.12½
Tower, or, shipped 24th, Ogden, iced	1.42½
Eclipse, sd, shipped 24th, Ogden, iced	1.17½
Monrovia Heights, fy or, not shipped	1.40
Robin, sd, not shipped	1.15

NEW YORK, Monday, March 27.—Fifty-seven cars navels, one car bloods and two cars lemons sold. Market lower on navels, steady on lemons. The weather is partly cloudy.

NAVELS—	Avge.
Euclid, or, Growers F Co	2.85
Uplanders, or, Growers F Co	2.60
Slover Mountain, Growers F Co	2.10
The Hub	1.75
Lion Head, xf, I L Lyon Sons	2.55
Uplanders, or, Growers F Co	2.50
Ideal, High Prot F A	2.50
Delicious, High Prot F A	2.35
Stock Label, High Prot F A	2.15
Independent, iced, Growers F Co	2.65
Beauties, iced	2.30
Golden Cross, O K Ex	2.95
Red X, O K Ex	2.50
Bear, O K Ex	2.60
Quail, O K Ex	2.25
Redlands Best	2.30
Redlands Pride, xc, M O Dis	1.80
Mercury	2.30
Redlands Pride, M O Dis	2.10
Redlands Pride, M O Dis	2.25
Mutual, fy, Red M O Dis	2.15
Titus Ranch, fy, S Marino G P A	2.40
El Toreador, sd, S Marino G P A	2.20
Titus Ranch, fy, S Marino G P A	1.85
El Toreador, sd, S Marino G P A	1.65
NAVELENCIAS—	
Lotus, O K Ex	2.85
Monogram, O K Ex	2.60
BLOODS—	
Pointer, iced, A C G Ex	2.10
Slover Mountain, Growers F Co	2.30
Ostrich, S B Ex	2.70
SEEDLINGS—	
Quail, O K Ex	2.20
Majesty, O K Ex	2.00
Quail, O K Ex	2.20
Majesty, O K Ex	2.00

NAVELS, Halves — Golden Cross, $1.60; Mahala, iced, $1.80.

BLOODS, Halves — So Beauties, $1.30; Justrite, $1.20; So Beauties, $1.25; Ostrich, $1.40; Redlands Best, $1.40; Redlands Pride, $1.20.

TANGERINES, Halves — Slover Mountain, $1.20; Lion Head, $1.30; Orchard, $1.65; Lotus, $1.70; Monogram, $1.45; Quail, $1.40; Lotus, $1.75; Primrose, $1.00; Quail, $1.50; Golden Orange, $1.20; Blue Seal, $1.30; Mahala, iced, $1.80; East High A, $1.55.

LEMONS — Limoneira selected, $3.00; Squirrel, $2.40.

CINCINNATI, Monday, March 27.—Cold. Market steady. Seven cars navels, two cars lemons, three cars Floridas sold. Floridas, $1.30@2.40. Bloods, $2.45@2.75.

NAVELS—	Avge.
Billiken, Riverside, Pach	2.05
Cal Orange, Riv Ex, Riverside	2.10
Big R, S B Ex	2.05
Red Globe, Riv Ex, Riverside	2.35
Conqueror, xc, Independent F Co	2.25
King, S A Ex	1.15
Red Globe, Riv Ex, Riverside	2.20
Yacht, S B Ex	1.75
Cal Orange, Riv Ex, Riverside	2.15
Citrus Belle, sd, Independent F Co	1.80

LEMONS—Monte Vista, $2.40; Pet, S A Ex, $3.10; Arab, $3.00; Pup, $2.35.

CHICAGO, Monday, March 27.—LEMONS easy and rather quiet. There is plenty of stock offered. Boxes, California fancy 300s, $3.25@3.50; 360s, $3.25@3.50; off sizes, $3.00; extra choice, 25c discount; choice, 50c less.

ORANGES—Californias are in good supply. They are easy and just moderately active. Boxes, California navels, extra fancy, all sizes, $2.85; fancy do, $2.60@2.75; extra choice do, $2.25@2.50; choice do, $2.00@2.25.

BOSTON, Monday, March 27.—Twenty-seven cars sold. Raining. Easier on oranges, doing better on lemons.

NAVELS—	Avge.
Pointer, A C G, Glendora	$1.80
Robusta, A H Pach	2.45
Quality, S T, Nord	2.40
Alta Cresta, A H, Pach	3.15
Hobo, A H, Pach	1.85
Majesty, O K Ex	2.10
Camel, Q C, Corona	1.90
Paul Neyron, S A Ex	2.50
Pet, S T, Fernando	2.15
Pinnacle, O K Ex	2.70
Bear, O K Ex	2.45
Orchard, or, National O Co	2.70
Alpha, xf, R Henderson	2.60
Euclid, or, Growers F Co	2.60
Uplander, Growers F Co	2.40
Regal, fy, Growers F Co	2.30
Elk, R Henderson	2.25
Delicious, High Prot F A	2.15
Standard, sd, National O Co	3.10
Rialto, Growers F Co	2.30
Regina, ch, Growers F Co	2.20
Royal Crest, Growers F Co	2.15
Clover, xc, Red O G A	2.10
Regent, sd, Growers F Co	2.00

BLOODS—Brownie, $2.05; Marguerite, $3.00; Dan Patch, $2.15; Pony, $1.80. Halves—Quality, $1.10; Homer, $1.20; Dan Patch, $1.15; Pony, $1.05.

TANGERINES, Halves — Quail, $1.35; Quality, $1.10; Bear, $1.50.

SEEDLINGS—Homer, $2.00.

LEMONS—Tally Ho, $2.20; Big R, $1.75; Rey, $3.30; Homer, $3.30; Queen Bee, $3.45; Blue Flag, $3.20; Pride of Corona, $3.40; Laurel, $3.40; So Beauties, $3.30.

PHILADELPHIA, Monday, March 27.—Three cars navels, four mixed cars, one car bloods and two cars lemons sold; also twenty-one cars Floridas. Oranges, $1.55@3.25; average, $2.60. Grapefruit, $1.55@2.75; average, $2.20. Tangerines, 65c@$1.90; average, $1.40. Market strong.

NAVELS—	Avge.
Trail, A C G, Lamanda Park	2.90
Blue Label, A C G, Charter Oak	2.50
Hunter, A C G, Glendora	2.45
Prong Horn, O K Ex	2.70
Pointer, A C G, Glendora	2.70
Salt Lake, sd, King F Co	2.70
Brownie, fy, Rialto F Co	2.55
Salt Lake, imp, King F Co	2.75
Canon, A C G, Lamanda Park	2.60
Pointer A C G, Glendora	2.55
Moose, O K Ex	2.80
Stag, A C G, Glendora	2.95
Hunter, A C G, Glendora	2.45
Rialto, Growers F Co	2.55
Redlands Best, xf, MODis	1.80

TANGERINES, Halves—Stag, $1.50; Stag, $1.45; Stag, $1.40.

BLOODS—Salt Lake, $2.85; Golden Pheasant, $1.65.

LEMONS—Euclid, Growers F Co, $3.05; Flower, Growers F Co, $2.60.

ST. LOUIS, Monday, March 27.—Clear and cool. Market weak on account of condition of fruit and heavy offering. Thirteen cars navels sold.

NAVELS—	Avge.
Volunteer, S A Ex	2.00
Hawk, S A Ex	1.50
Sunset, S S, Orange	1.40
Lochinvar, R H, E High	2.40
Greyhound, S A Ex	1.95
Searchlight, S S, Orange	2.00
Belt, R H, E High	2.15
Pointer, A C G, Charter Oak	2.35
Possum, A C G, Charter Oak	1.95
Belt, R H, E High	2.00
Golden Circle, R H, Redlands	1.90
Florencia, xc, Randolph F Co	2.35
Anchor, ch, Randolph F Co	1.90
Cactus, xc, High F G A	1.80

CLEVELAND, Monday, March 27.—Nine cars navels and two cars lemons sold. Market slightly higher. Prices low on navels on account of condition. Higher on lemons. Raining. Predicted cold.

NAVELS—	Avge.
Yankee Doodle, A F, High	1.95
Parrot, S A Ex	2.40
Lochinvar, R H, E High	2.35
Uncle Sam, Riv Ex, Riverside	2.10
Pony, Riv Ex, Pach	1.90
Iris, D M, Monrovia	2.55
Jasmine, D M, Monrovia	2.00
Sunlight, imp, R H, Redlands	2.00
Elephant seconds	1.95

LEMONS—Joy, $2.40; Pet, $3.10; Arab, $2.85; Pup, $2.40.

PITTSBURG, Monday, March 27.—Seventeen cars sold. Market easier on oranges, higher on lemons. Cool.

NAVELS—	Avge.
Orchand, or, National O Co	2.85
Elephant, or, Elephant Orchard	2.50
Golden Gate, xc, Red G O A	2.10
Newsboy, R H, Redlands	1.70
Owl, O K Ex	1.60
Mt Baldy, Riv Ex, Riverside	2.10
Parrot, S A Ex	2.10
Majesty, O K Ex	2.15
Jasmine, D M, Duarte	2.40
Coyote, O K Ex	2.05
Hawk, S A Ex	2.20
SEEDLINGS — Preferred Stock, $2.30.	
LEMONS—Parrot, S A Ex, $3.05; Mountain Crest, $2.30.	

NEW YORK, Tuesday, March 28.—Thirty-nine cars navels, one car bloods and one car lemons sold. Market lower on navels, steady on lemons. Cloudy.

NAVELS—	Avge.
Titus Ranch, fy, S Marino G P A	2.00
El Toreador, sd, S Marino G P A	1.80
Elephant, or, Elephant Orchard	2.85
Elephant seconds, Elephant Orch	2.10
Blue Banner, Sutherland F Co	2.45
Green Banner, Sutherland F Co	2.25
Blue Banner, Sutherland F Co	2.05
Valle Vista, sd, Sutherland F Co	1.75
Green Banner, Sutherland F Co	1.90
Corona, National O Co	2.35
Corona, National O Co	2.20
Old Mission, ch, iced, Chapman	1.95
Golden Eagle, iced, sd, Chapman	1.60
King Midas, fy, iced, Whitcomb	2.65
Independent, iced, Growers F Co	2.15
Pointer, iced, A C G Ex	1.80
Hunter, iced, A C G Ex	1.65
Half Moon, xf, Red G O A	2.25
Tally Ho, S B, Rialto	2.10
NAVELENCIAS—	
Glendora Heights, fy, iced, A C G	2.65
SEEDLINGS—	
Quail, O K Ex	2.15

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BLOODS, Halves — Euclid, $1.05; Uplander, 95c; Redlands Best, $1.35; Pride, $1.15; Florencia, iced, $1.25; Golden Cross, $1.25; Red X, $1.10; So Beauties, $1.20; Justrite, $1.10; Volunteer, $1.15.

TANGERINES, Halves — Orchard, $1.70; Euclid, $1.35; King, $1.00; Lotus, $1.90; Glendora Heights, fancy, iced, $1.30; Quail, $1.25@1.45; So Beauties, $1.30; Visto Bonita, $1.20; Blue Seal, $1.25.

MANDARINES, Halves—Vista Bonita, $1.20.

LEMONS—Pet, $2.80; Arab, $2.55; Pup, $2.15.

BOSTON, Tuesday, March 28.—Twenty-six cars sold. Cloudy. Market is doing better on good fruit, easier on decayed stock.

NAVELS—	Avge.
Lincoln, A H, Casa Blanca	1.70
John Alden, S B, Highland	1.55
Alta Cresta, A H, Pach	3.10
Hobo, A H, Pach	1.75
Princess, Q C, Corona	2.25
Camel, Q C, Corona	2.25
Red Globe, Riv Ex, Riverside	1.60
Pinnacle, O K Ex	2.55
Tally Ho, S B, Rialto	1.75
Swan, R H, Redlands	1.90
Honor Bright, A F, Highland	1.90
Kennilworth, A H, Riverside	2.55

LEMONS — Captain, $2.05; Our Navy, $1.75; XXX, S T, Leffingwell, $3.25; EEE, $2.90.

TANGERINES, Halves — Priscilla, $1.05; Bear, $1.50.

BLOODS—Royal Knight, Ruby, $1.

CHICAGO, Tuesday, March 28.—LEMONS are quiet; supply is good; feeling easy. Boxes, California fancy 300s, $3.35@3.50; 360s, $3.25@3.50.

ORANGES—Arrivals are fairly liberal of California navels. A good many are arriving in soft order, and a good deal of repacking has to be done. Demand is good for sound fruit. Boxes, California navels, fancy, all sizes, $2.60@2.75; extra choice, all sizes, $2.25@2.50; choice do, $2.00@2.25.

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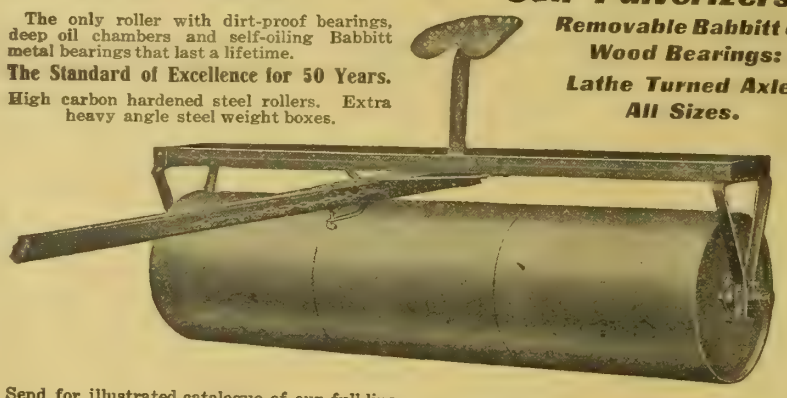

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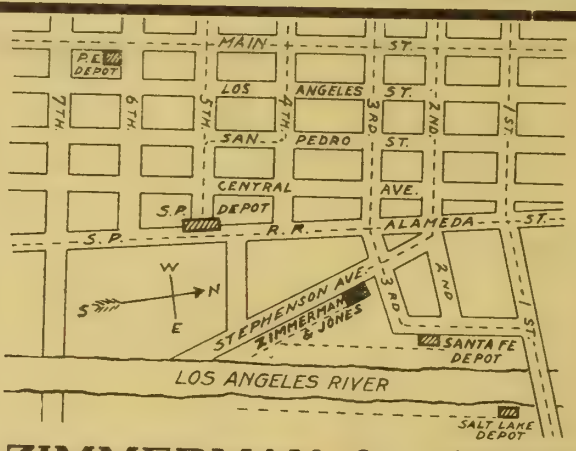

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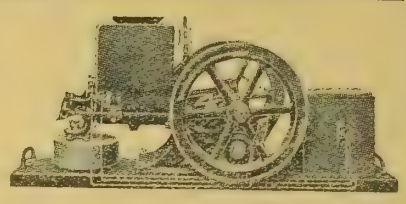

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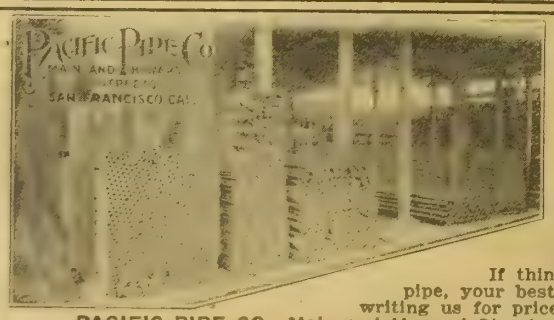

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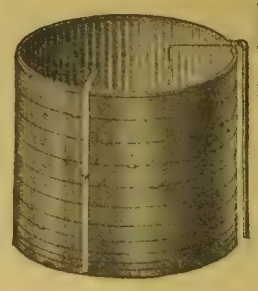

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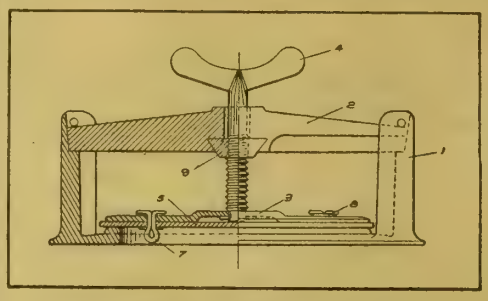

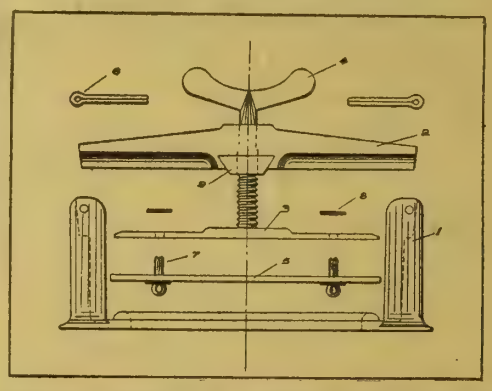

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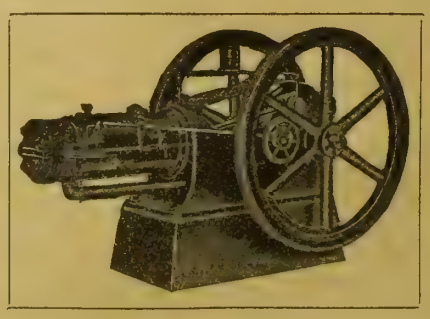

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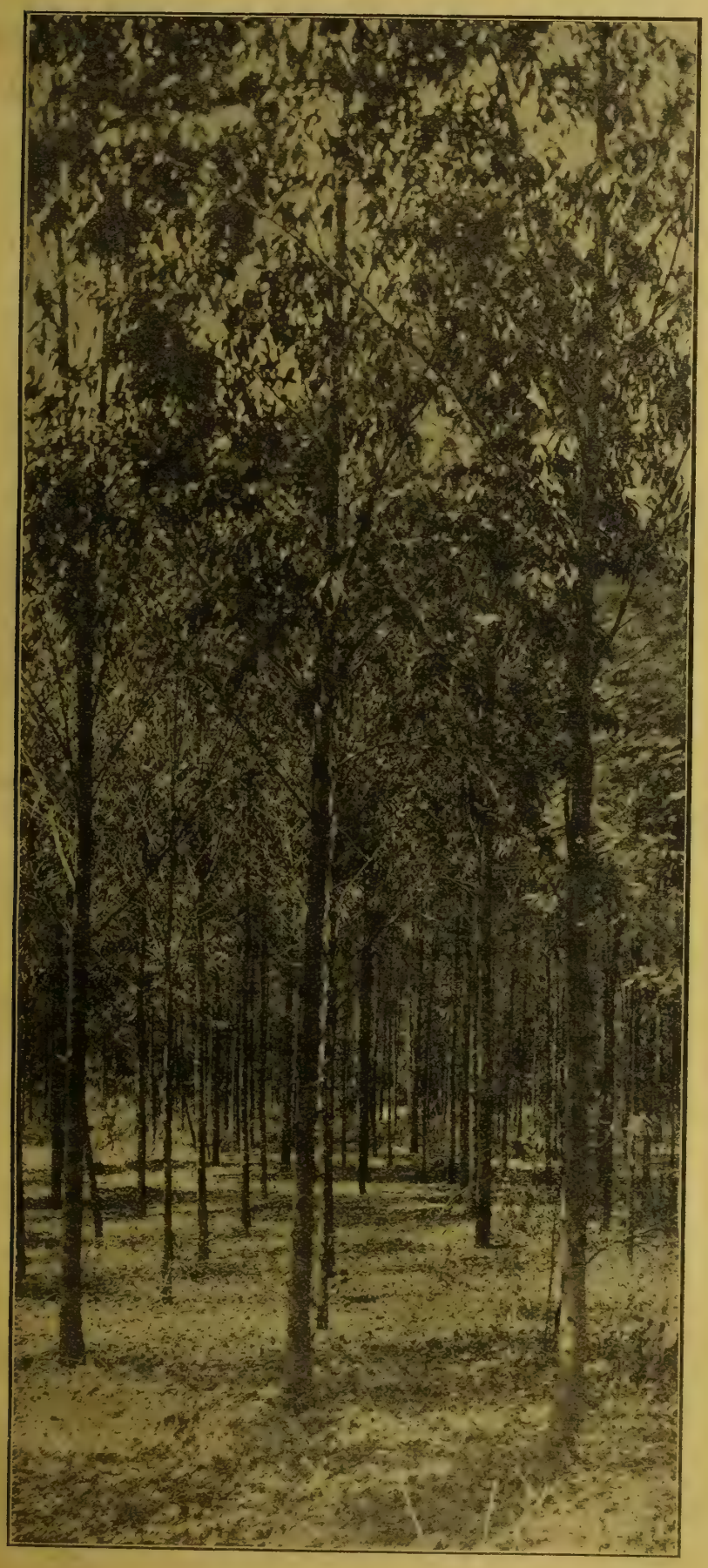
LOS ANGELES APRIL 6, 1911 SAN FRANCISCO



Time For Planting the Eucalyptus

Theodore Payne of Los Angeles, Gives Condensed Information as to Planting and Early Care.

The hardwood forests of the United States are practically exhausted of mature timber; the lumber interests are even now stripping them of their second growth, which will also be exhausted, at the present rate of consumption, within a comparatively few years. From this emergency there is but one way of escape, and that is to plant freely of the Australian eucalyptus, the most durable and rapid growing genus of forest trees in the world.

This is not said to give any force to the fabulous claims of the fake eucalyptus concerns promoted so fiercely a few months ago, and which only injured an industry of great promise. Within proper bounds the extended planting should be encouraged. To that end field planting hints are in order, as within the next few weeks the young tree should be put into its permanent location.

Planting Out in the Field.

The land should be plowed as deeply as possible and well harrowed. The time to plant varies according to the climatic conditions. In localities where there is little or no frost, planting may be done in the winter time, thus getting the benefit of the rains, but in sections where frost prevails, planting should be deferred until spring. The size at which the plants are best to set out is from six to ten inches. The boxes may be taken to the field and left at convenient points. One side of the box should be taken off, and each plant cut out with a square of earth and then planted with a trowel, taking care not to break this ball of earth, and the plants should be set about one inch deeper than they were in the box. A quart or so of water should be given to each plant as soon as it is set, and afterwards hoe a little dry soil up around each plant. The distance at which to set the young plants varies according to the species planted, the soil and the purpose for which they are grown. On heavy soils where irrigation is not practiced they may be planted 6x6 feet apart; where irrigation and cultivation are practiced, 4x8 feet is a suitable distance and leaves an eight-foot space for plowing and irrigating. On lighter soils 8x8 feet is a good distance. Some are planting 7x8 feet on the alternate or triangle system, placing the trees eight feet apart in the rows and seven feet between the rows, which makes the trees eight feet apart every way. It is claimed for this system that they do not throw so much shadow and get a more even amount of sunlight, causing the trees to make a straighter and more even growth when young.

Care of the Young Trees.

As the value of the grove depends largely upon the trees making a good start, it will pay wherever practical to irrigate and cultivate the trees for at least the first two seasons.

Thinning the Trees.

To produce good lumber it is necessary that the trees grow straight. Close planting induces a straight growth. It is therefore better to plant closely and at the end of the first season grub out all weak and inferior trees.

Species to Plant for Profit.

In localities where the E. globulus, "blue gum," thrives, there is probably more money to be made, and quicker returns, by planting this species than any other. For the hot interior sections, E. rostrata and E. tereticornis are recognized as the leading commercial kinds. In localities not subject to frost, E. corynocalyx may be planted. For those who have the right conditions and can afford to wait longer for returns, E. resinifera will probably prove one of the most profitable on account of its very valuable wood, which is used for furniture and interior finishing, and is imported very largely by railway companies for the inside of cars under the trade name of Australian mahogany.

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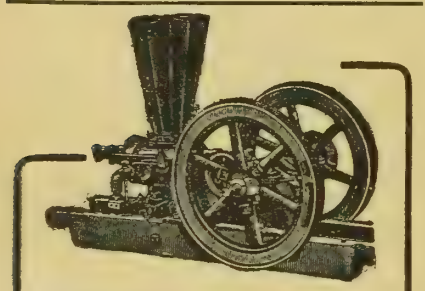

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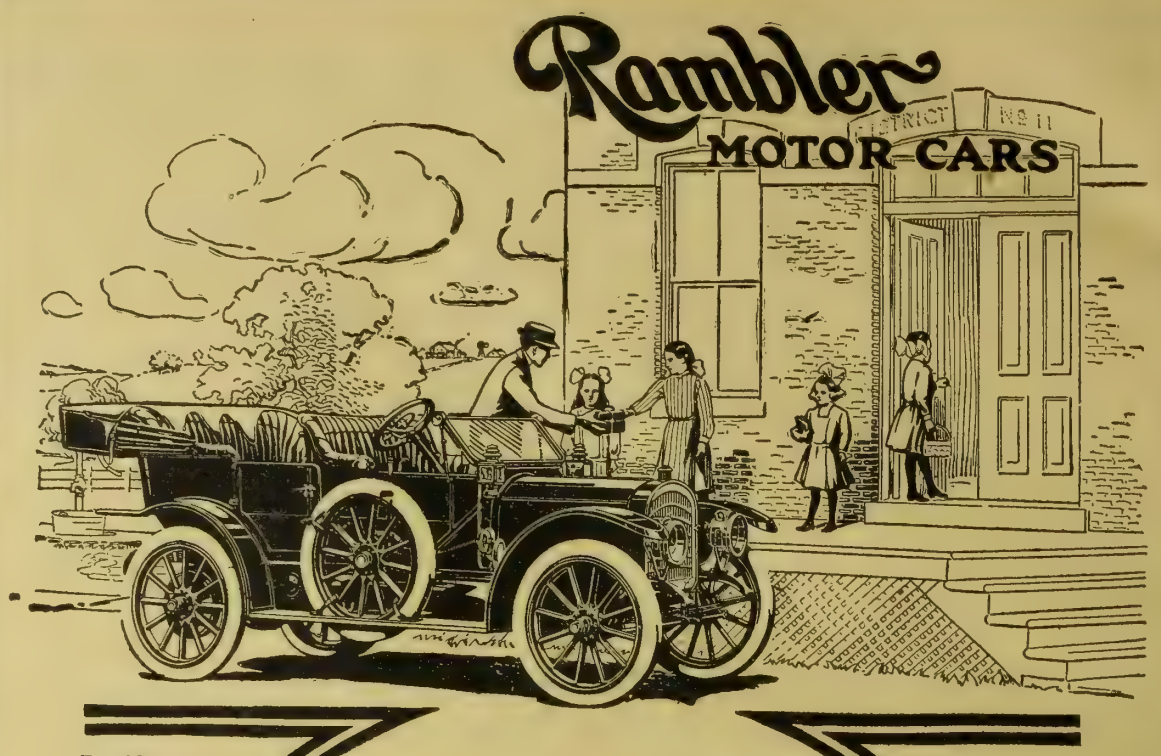

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California Cultivator

Vol. XXXVI. No. 14. LOS ANGELES: THURSDAY, APRIL 6, 1911 One Dollar the Year

Fructification of the Fig by the Blastophaga

An Address by G. P. Rixford, Bureau of Plant Industry, United States Department Agriculture, Before a Meeting of the Pacific Association of Scientifiic Societies at Berkeley March 31.

The subject of this paper is both botanical and entomological, and to make it clear it is necessary to mention some of the botanical characteristics of the fig.

Botanists are now generally agreed in the acceptance of the ideas of Linneus and others that the caprifig is the staminate form, and the Smyrna and all the common figs in cultivation the pistillate form of a dioecious species. Hegardt reached this conclusion as early as 1844, and this view is now generally accepted.

The fruit of the fig tree is not a fruit in the sense in which we regard the apple, peach, etc., but is what is known to botanists as a receptacle upon the inner surface of which are arranged hundreds of unisexual flowers. At the apex of the receptacle is an opening which in the young fruit is closed by a number of scales or imbricated bracts. The blossoms of the fig tree are therefore never seen except by opening the fig. The flowers thus being effectually cut off from the outer world, there is no way by which the pollen from the male flowers can reach the female flowers, except by the assistance of some outside agency. In this case the medium of conveyance is the female Blastophaga grossorum.

Crops of the Fig Tree.

All the female fig trees, both of the Smyrna class, the fruit of which never matures without pollination, and the other large class which does not require pollination, have two well defined crops. The first pushes from the old wood and is the first to appear in spring, ripening in July and August, in the south of Europe called brebas, figues fleurs or figues d'ete. The next, which is the main crop, called in France figues d'automne, spring from the axils of the leaves of the new wood and ripen in summer and fall.

The crops of the male or capri tree are two well defined, and a third which is in doubt by some authorities. To these, for convenience, the Neapolitan names, mamme, profichi and mammoni, have been applied. The first or mamme crop forms in late summer on the wood of the current season, and the blastophaga from the preceding mammoni oviposits in them when they have reached the size of filberts. By December these are the size of small walnuts, and change but little during winter. The insect hibernates in them in the larval condition, and will endure a temperature of about twenty degrees without injury. As the weather becomes warm in spring the wasps develop rapidly, and in April are ready to issue. At this time the spring or profichi crop on the same or other capri trees is in a receptive condition. This crop grows in clusters on the old wood, at the extreme ends of the branches, and, unlike the mamme, which is nearly spherical, is much larger, and usually has a pronounced neck. It is produced in enormous numbers—many times greater than any other crop—a wise provision of nature, as it is the one which is most abundantly supplied with pollen, and also the one which is exclusively used to pollinate the main Smyrna fig crop.

The third or summer crop of the capri tree, known as mammoni, unlike the others, pushes from the axils of the leaves on the new wood, and matures from September to the middle of November. The only purpose of this crop seems to be to carry the blastophaga through the late summer and fall months and to produce seed. Dr. L. O. Howard, chief of the Bureau of Entomology of the United States Department of Agriculture, has doubts as to the existence of three distinct crops of caprifigs, and with good reason, for at times and in some climates belated mammoni hibernate with the mamme. The chief difference between the two is that the former contains a well-defined cluster of staminate flowers, while in the mamme no male flowers have been observed. These hibernating figs are so similar in form and general appearance that without cutting them open it is difficult to tell them apart. They can be found on some capri trees at the present time. Last Saturday the writer, in company with Prof. Harper, found considerable numbers of them on a tree at Niles. When their habits are better known they may prove to be an important source of pollen for the early crops of Smyrna and other breba figs, which often fail to develop. The blastophaga oviposits in the winter crop, and thus the cycle of the yearly life of the insect is completed.

The Fig Flowers.

Count Solms-Laubach and Dr. Meyer, the German botanists; Olivier, the Frenchman, and Gasparini, Gallisio and Pontedera, the Italians, and later Dr. Gustav Eisen, author of the leading treatises on the fig in the English language, are all agreed that there are four kinds of flowers in the fig. It may seem presumptuous to take exception to this array of distinguished authorities, but it is nevertheless a fact, easily demonstrable with the abundant material now accessible in California, that there are but two kinds of fig flowers, namely, pistillate and staminate. These authors enumerate the four kinds as the male and female of the caprifig, the regular female flower of the Smyrna fig, and, lastly, the female flowers of the Adriatic class, which some of them contend have imperfect stigmas and cannot be pollinated, and are therefore called mule flowers. Pontedero and Gallesio call such flowers fico mula and fico semi-mula, the latter, a few of which are susceptible of pollination, and the former not at all. This idea has become so fixed in the minds of some horticulturists that they are calling this class of figs "mule figs," a positive misnomer and entirely unwarranted by the facts.

The staminate flowers of the caprifig are arranged in a zone or cluster at the upper part of the fig, just within the eye. The remainder of the receptacle is filled with gall flowers, which are nothing more than female flowers, the pistils of which are modified for the purposes of the female blastophaga. The styles of these flowers are short and thick compared to those of the Smyrna and other female figs, and are provided with a duct down which the female wasp pushes her ovipositor into the ovary where she deposits the egg. These styles are surmounted usually by forked stigmas, the surfaces of which are provided with the usual cells or glands and the viscous coating to which the pollen grains adhere. With sufficient magnifying power the pollen tubes can be seen pushing their way from the surface down through the cellular tissue into the ovary. The gall flowers of all caprifigs are alike, except for slight variations in the shape of the stigmas.

We now come to the regular female flower of the Smyrna fig, upon the character of which all are agreed. The style is long and slim, two or three times longer than the style of the caprifig, and this is the reason that it is unsuited for the purpose of the insect. It is divided at the summit usually into two stigmas, and they appear to be identical with those of the Adriatic class, to which belong all those figs which reach an edible condition without pollination. The stigmas of the latter, the books say, are mostly malformed and cannot be fertilized.

To show how erroneous is this conclusion, it may be mentioned that during the spring of 1909 the writer, by applying the blastophaga to the so-called "mule figs" in more than forty cases, found that in every instance heavy fertile seeds were produced, and, in as large proportion as in the Smyrna fig, from these seeds thou-

(Continued on Page 439.)

Olive Culture from Nursery to Bearing

Written for the Cultivator by Mrs. M. E. Sherman.

In this morning's paper I find the following item in regard to olives:

"The olive is another fruit for which the soil and climate of Fresno county is ideal. The trees require almost no care and yield with amazing profusion. An acre will produce two or three tons of the varieties suitable for picking, and bring from $80 to $100 a ton. The smaller varieties, used for making olive oil, yield three and a half to five tons per acre, worth from $40 to $50 a ton. The average cost of cultivation is $20 per acre. The average crop of Fresno county is about three hundred and fifty tons, but the industry is advancing very rapidly."

Paragraphs like this have much to do with the failure of the olive orchards. The interior valleys are ideal for the olive at present as we do not have the black scale to contend with, but it is to be remembered that careless cultivation of any fruit will give its enemies a chance to increase. The sun is the great foe of black scale, and unpruned olive trees means interiors that escape the benefit of a sun bath. Unpruned olive trees therefore are an invitation to scale to move in and occupy the tree. The fact that an olive tree will endure great hardships and still live is not valuable at all to the commercial orchardist. The tree must fruit well to be profitable and unless it has good soil, abundant water and fertilizers when needed, it will not produce a paying crop. Size in the olive berry is also desirable as the fruit is bought under grades, oil olives, or the smaller sizes, selling for $45 a ton, while number one, pickling olives, sell at $100. The average crop runs a little over three tons to the acre with us, and twice we have gone over four tons to the acre. As the trees are young for an olive orchard (20 years) the crop may reasonably be expected to increase up to say five tons to the acre in favorable seasons.

Varieties.

When it comes to recommending the best varieties to plant the problem is an unsolved one as yet. We have in the state in bearing olive orchards the following: 80 per cent Mission, ten per cent Manzanillo and the rest mixed olives. In the Mission olive tree there seems to be three strains in the state. We do not know if these are accidental differences or if they are really different olives. The large Mission is the one desirable for planting. The Manzanillo is a little larger olive and ripens a couple of weeks in advance of the Mission, which is a distinct advantage in Fresno county, as it escapes nipping if the early frosts come in November. While light frost does not injure the olive for oil, it does sometimes affect the texture enough to make it grow soft in pickling. The two last seasons a few olives of the Manzanillos have been brought to me to examine for dry rot. They certainly showed it in the larger specimens. If this continues they will not be desirable. The Sevillano, or Queen olive of Spain, rots at the pit and for that reason the Spaniards always

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FLORIDA SOUR ORANGE SEED.
and Sweet Seedlings For Sale
OTIS E. HYDE, 1314 W. 51st St., LOS ANGELES, CAL

pickle it green. We have no market for green olives, so it will hardly pay to plant of this variety very heavily as it is not good for oil if rotted. The Ascolano is another candidate for favor, but it has poor color when ripe, and the market pays highest for a black pickled olive. There are a large number of other kinds of olives, but as they are not planted in any quantity it will hardly pay to go further into the discussion of varieties. The only other two that have any prominence at present are the Nevadillo Blanco and Oblitza. The Nevadillo is not fruiting well and as it blooms freely may prove to require another variety to be planted with it as a pollinator. The Oblitza does not have enough increased size over the Mission to make it worth while to plant many and its inferior color when pickled is greatly against it. The ordinary Missions run about 110 to the pound while the Oblitza runs 105. Well-grown Mission olives when the trees receive summer irrigation will run larger than this. The Pendulina is a small olive of high flavor and it pays to have a few trees scattered through a Mission orchard as it adds greatly to the bouquet and flavor of oil.

Planting.

At present the money is in the pickles, but with the increasing reaching out of the women for knowledge in household economics the use of olive oil should increase yearly. The olive trees when first planted out should be given ample distance apart, as the trees are expensive and will need much more room when twenty-four years old than twenty feet by twenty. I have given them room from the first and planted a row of peach trees between the olives. This puts the olive trees forty-four feet apart with peach trees alternating in the rows and a row of peaches between rows of olives. The peach orchard acts as a wind break in a little while to protect the olive trees. The peach trees bear enough from the fourth year to make the orchard profitable. The olive trees bore six tons on thirty acres the fourth year and have never failed since. The cultivation of the olive is the same as for any other orchard and it should be watered twice in the summer, if possible, certainly once if large fruit is desired. This second watering should come as late as possible in the season, August, if possible. I am about to put in a well for this purpose as the ditch water is often too low to reach the land rapidly enough for economical handling.

Pruning.

The olive must be kept low-headed as the expense of picking is greatly lessened. This season the Japanese picked the home orchard for $13.50 a ton and made about three dollars a day for each man employed. A small crop that was sent in by a tenant was also picked and this cost nearly $20 a ton, and the Japanese would have refused to do it except that it was only a small amount of olives and the crop was ninety-six tons. The tree is headed down low at first and then regularly pruned by cutting back the top sharply; it is also well thinned out in the center. The tree bears its fruit on last year's wood, so that good pruning consists in leaving enough wood to bear next season and not enough to overbear, as that would mean a crop only every other year. The inside pruning of the olive and the cutting back of the bearing tree is nearer like the pruning of the peach than any other tree. If the pruning is too severe in either of these trees an excessive wood growth takes place and little fruit is produced. The trees must not be allowed to have long naked limbs with a tuft at the top, but must be kept in round balls and as they increase in size it must be in circumference, not height.

Propagation.

At present the nurserymen are rather disposed to grow Picholine seed and then bud the seedling with other varieties. I regard this as objectionable because of the care required in watching that the root does not sucker and take the place of the top. The olive trees that we hear about as a thousand years old have grown by renewing themselves from the roots. There are two ways used to start the olive from cuttings. The nursery way is the use of small tip cuttings. The small green wood must be just at the hardening stage, but not quite hardened as yet. The cuttings are made about four inches long and two sets of leaves are left at the top. They are placed in sand beds and bottom heat used to induce rooting. The home grower without glass or bottom heat often has good success by using flats to put the cuttings in and standing these in a regular hot bed, using canvas for covering. The regular way of growing the olive is to use ten-inch cuttings made of mature wood, hardened, of a thickness from lead pencil size up to that of an inch and a half. These cuttings are planted in the nursery rows and root readily if sufficient moisture is supplied all summer long. Those that do not come along well the first year will grow into trees the second year. This is the best way to grow them into healthy trees for California conditions. The true Italian way is to cut any sized wood up to great trunks into cord wood lengths and bury them six inches under moist soil. When the shoots show they are chiseled off and planted out as regular cuttings with a good-sized piece of the trunk at the roots. These rarely fail to make fine growth the first season.

Budding and Grafting.

The olive buds take readily when the dormant bud is used. These are found at the base of the short twigs on the inside of the trees. The bud is taken off with the regular shield shape bit of bark with a little wood left in to support it. The twig is taken with it and the bud with the twig is slipped into the tree bark by using the regular T-shaped cut. It is tied in place and watched carefully, When it has united the string is removed and the end of the limb cut a little back to start it to growing. As soon as strong enough it may be allowed to take the place of the original limb or trunk. Grafting of the larger tree trunks is sometimes done but it is more difficult to keep the tree from sunburning. The olive tree often dies if much burnt and seems particularly sensitive to having more than a third of the top removed at one time. The scions are cut the thickness of a lead pencil and the end is cut obliquely about an inch and half long. The bark of the parent tree is split and the oblique end of the scion tied into place under the bark which is then waxed. If the trunk is over two inches thick, then two scions should be used. In making cuttings or scions from the olive use the top or bearing wood, as sucker wood is very much slower in coming into bearing. The Italians give this as their experience and it is certainly true where one does not grow his own

trees that some of the trees will be in full bearing at six years old and others will not fruit until from seventeen to twenty years old. As the care is the same there must be some other cause for this difference. The only explanation offered has been the difference in character of the wood from which the original cutting was made.

THE RELATION OF BLACK ROT TO BLUE MOULD DECAY IN ORANGES.

From Citrus Protective League Circular.

Nearly twenty years ago Mr. N. B. Pierce, of Santa Ana, who was then connected with the United States Department of Agriculture, investigated the nature of black rot in oranges. This disease is unusually severe this season. It is caused by a fungus belonging to the genus Macrosporium. Mr. Pierce found that this fungus gains entrance to the fruit through splits and imperfections in the navel while the fruit is immature and hanging on the tree. The injuries to the navel which appear to be caused by the conditions of growth may be too small to be seen with the naked eye, and may not occur in the exposed parts of the navel. Mr. Pierce found that these spores or seeds of black rot, like those of blue mold, cannot enter the healthy, unbroken skin of the fruit. It is probable that it gains entrance to the orange in the fall, when it is immature, and that the first fall rains or heavy dews cause the spores to germinate and enter those fruits in which the tissues of the navel have been split apart or weakened in growing. It was found by Mr. Pierce that from 10 to 60 per cent of the oranges that dropped from the trees in 1892 as late as March 1 were affected with this trouble. He found, also, that from 1 to 5 per cent of the entire crop was so affected in the sections in which he worked.

The oranges that are affected with black rot ripen prematurely, and can be detected early in the season by their high color, but as the season progresses this distinguishing mark is lost and the affected fruit is packed for shipment.

We do not know the conditions of climate, of soil treatment and of other cultural handling that cause the navel end of the orange to split.

Nothing can be done at this time of the year to prevent the damage caused by black rot. We do not know that it can be controlled in the fall, but it has been suggested by Mr. Pierce that experiments be tried with dry lime and copper sulphate before and after the fall rains. Bordeaux mixture or some of the sulphur remedies might be effective. It might also help in reducing the disease to pick the oranges from the ground and destroy them. It is not enough to plow them under.

There is a direct connection between black rot and the amount of blue mold decay in transit. The black rot breaks down the tissue of the fruit and acts as a mechanical injury in so far as its susceptibility to blue mold is concerned. Therefore, many of the oranges affected with black rot become affected with blue mold while the fruit is hanging on the tree or while it is in transit. These oranges are particularly susceptible to rough handling, as the tissues have already been weakened. It is probable, also, that whenever the conditions of growth cause the navel to split in the fall, this part of the orange remains weak and is unusually susceptible to rough handling. Therefore, in a season like the present one, it is doubly important that fruit be handled with unusual care to prevent injury to the navel, and also that every precaution be used to lessen the chances of infection.

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For every Man-Power Potato and Orchard Sprayer we sell we will credit you with $3.50 or send check.

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We do all corresponding and selling. All you need do is to show the sprayer. Many have paid for their sprayer in this way. This offer is good for only the **first** order in each locality. Don't delay. **Send the coupon or post card NOW.**

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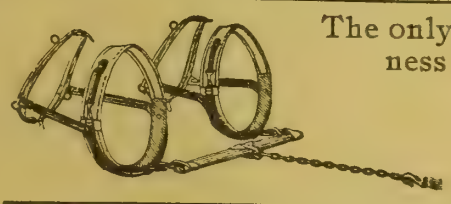

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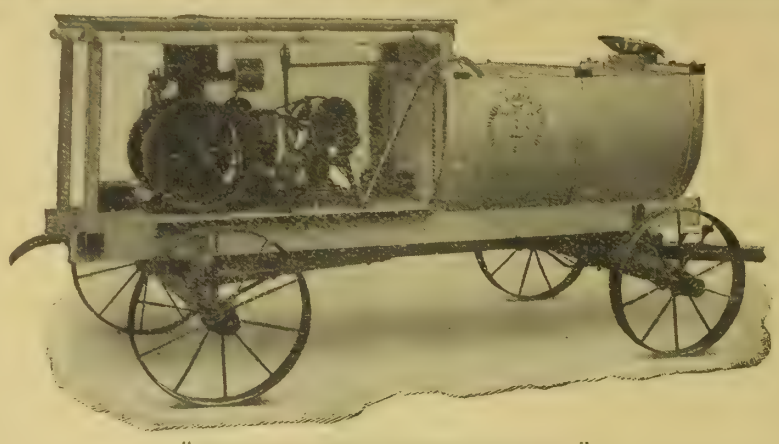

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Deciduous Bush-Tree Fruits

SOIL INVESTIGATIONS.

Report of Special Committee of the Claremont Pomological Club.

It is of utmost importance that the soil should contain those elements found in the plant, and it is of equal importance to know which elements are removed from the soil by the crops grown in order to maintain the fertility of the soil. Reliable analysis shows that at least ten of these chemical elements are required for the normal growth and development of plant life, but four are most liable to become exhausted, since they exist in larger amounts than the others in plants, and in smaller amounts than the others in soil; they are nitrogen, phosphoric acid, potash and lime, the latter to a much smaller extent.

Humus.

Humus is one of the most important factors in the fertilization and care of our orchards for several reasons: In the first place it puts the soil in the best condition for absorbing water either by irrigation or rain and it improves the mechanical condition of heavy soils by making them more porous and less adhesive; it also helps the light sandy soil by making it more compact, thereby enabling it to retain moisture better and prevent excessive leaching of plant food. Humus also aids in the decomposition of mineral or commercial fertilizers by changing unavailable into available plant food.

There are various ways whereby humus can be furnished to the soil, but we believe the raising of green crops in our orchards is the best and most economical; stable manure furnishes considerable humus to the soil, and some are using straw to good advantage. As stated before, we believe it important to know just what elements are removed from the soil by the crops. Mr. George Wright, a chemist of considerable experience in this class of work, gives the following figures upon the average composition of the California oranges, estimating the crop of a full bearing orchard at 500 loose boxes or about 20,000 pounds of fruit to the acre, as removing from the soil nitrogen 36.8 pounds; phosphoric acid 10.6 pounds; potash 42.3 pounds and lime 19.7 pounds. He also shows in the following analysis that the tree takes up nitrogen 1.40, phosphoric acid .53, potash .90 and lime 1.57. In connection with the above analysis there are certain soil conditions that must be taken into consideration, regarding mechanical and chemical losses which can best be determined by the grower who knows these conditions of his land best; but we believe that the above table gives us a proportionate basis to work on.

Soil Analysis.

Satisfactory results of soil analysis have not been realized as our soil on different parts of the same field differs so widely, also there is no known method of analysis by which it can be determined how much nitrogen, phosphoric acid and potash found in the soil are immediately available as plant food. Nearly all agriculturists and chemists agree that liberal applications of stable manure with intelligent cultivation will produce good crops on most soils as it makes quite a complete fertilizer and also furnishes considerable humus to the soil, an important factor. But it is hard to get and expensive to handle, therefore we are obliged to use extensively of commercial fertilizers.

Commercial Fertilizers.

As to the soil needs we believe that this is a question that each individual rancher must to a great extent, work out himself, as our soils differ so much. He must take into consideration the condition of his tree, his crops, his soil, and with the data available of reliable scientists he ought to arrive at the proper proportions of the different elements that his soil requires. A great deal of fertilizer is being bought in a co-operative way through the different exchanges and supply companies at a considerable saving to the grower. The Pomona Growers Fumigating and Supply Co. quote the following prices on simples:

Simples.

Nitrate of soda $40.00 per ton, 15 per cent nitrogen guaranteed, add freight from San Pedro.

Mococa superphosphate $1.30 per unit, guaranteed 17 to 18 per cent phosphoric acid.

Braun Chemical Co., superphosphate, $1.10 per unit, guaranteed 17 to 18 per cent phosphoric acid. Potash $54.00 per ton and freight from San Pedro. The price of simples depends a great deal on the source they are derived from and their availability as fertilizer depends upon this source also. Parties using fertilizer in the simples should exercise great care as most fertilizers in this form act quickly, several light applications being preferable to one heavy application.

Complete Fertilizers.

It is impossible to give one formula for complete commercial fertilizer that will meet the requirements of all on account of the great difference in our soils. The source of the different elements contained in the fertilizer has much to do with the price and quality of the same, and a fertilizer consisting of different elements that become available at different times, some slow working, others faster, is of the greatest value, as thereby the tree is being fed all the time. We also believe two applications of commercial fertilizer is better than giving it all to the tree at one time. One or two light applications of nitrate of soda can be given with good results during or before the time of blooming and after the little oranges have set, as we think it helps in holding the fruit, as during this time the tree is taxed to its utmost. Commercial fertilizers used in the spring should contain more nitrogen than those used in the fall and winter; later in the season a fertilizer containing more potash and less nitrogen should be used as it hardens the wood, thereby putting it in better condition to withstand the cold and it helps the quality of the fruit considerably. The following formula is being used a great deal with good results at this time of the year and for early spring: Nitrogen 4 to 5 per cent; phosphoric acid 8 to 10 per cent potash, 4 to 5 per cent.

In the fall and early winter less nitrogen and more potash than this. The above proportions compare favorably with the analysis of plant food removed from the soil by the fruit and the tree.

The committee consisted of J. J. Becker, C. A. Phelps and H. D. Roe.

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Plants are built in units to hold 200 (thirty-pound capacity) trays and averaging one ton of dried product in 24 hours. Cost of plant is nominal and cost of operating is less than evaporating or even sun-drying.

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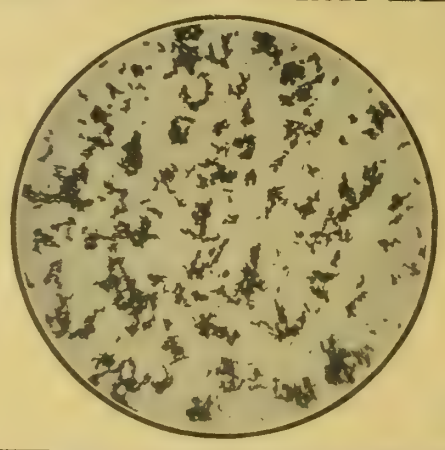

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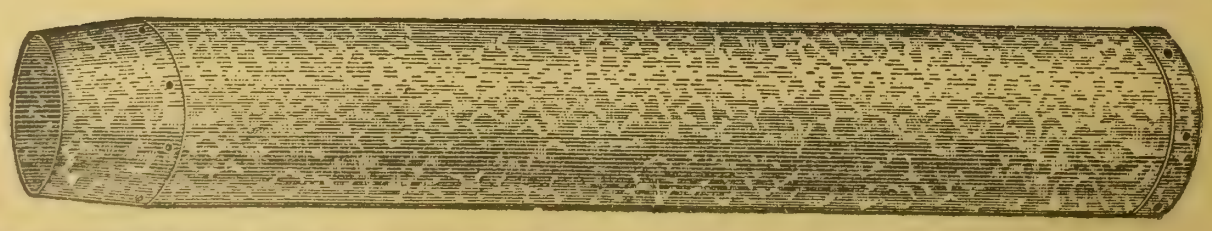

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American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., Los Angeles, Calif.

THE RISE OF THE PRUNE.

The once despised, though delectable, prune has come into its own. Erstwhile it was the prize dried joke. It was associated with most of the attempted humor in which the humble class of boarding houses figured, says the "Packer and Canner." To be "full of prunes" was a few years ago a condition similar to that implied by the more up-to-date term "loony." Times have changed. Prunes have changed. They have joined the flock of useful and worthy commodities that have taken unto themselves wings and may be classed among the aviators, along with hen fruit, hog meat and butter.

Because of a world-wide crop shortage, California prunes are on sale at the highest prices they ever brought.

On a bag basis, California prunes now are selling for 6 cents a pound, and they are expected to advance to 7 and 8 cents a pound during the winter.

"The shortage in this state is very great," said Percy R. Wilding. "Last year 180,000,000 pounds of prunes were grown here, and this year only 80,000,000 pounds were produced.

"Europe, the prune crop of which also is short, has bought about 60,000,000 pounds of prunes from California. The remainder of the state's crop has been, for the most part, distributed throughout the United States.

"The crop now is nearly all marketed. Not more than 100 cars are still unmarketed in California.

"While, of course, the bulk of the state's prune crop is shipped outside its borders, the home consumption is considerable."—San Jose Mercury.

FRUIT PROSPECTS IN ROGUE RIVER.

The prospects for a heavy yield of apples and pears in the Rogue River Valley were never better. During the past couple of weeks I have been pretty well over the orchard districts of the valley from Ashland to Grants Pass and find trees of practically all varieties of pears and apples heavily set with buds. A critical examination of the pear orchards, in particular, shows that they are more heavily set with fruit buds than a year ago. The Bartletts are perhaps in the lead, but this is natural since this variety is not only an early bearer, but a very regular one. The other varieties, however, are well set, and there should be one of the best crops of pears of all varieties that the valley has ever seen.

The present prospects for a heavy crop are brightened by the fact that at this time the excess in precipitation over last year is more than five inches. Up to this time, weather conditions have been ideal, the bright but cool weather has held back the buds, and it is to be hoped that it will continue for some weeks. We hope to see the blooming season for all varieties more nearly the normal this year. Pears should not come into bloom until after the first week in April; and apples, of course, from a week to ten days after that date.

The number of acres of all varieties of fruits to come into bearing this year is about 3000. O course, this is a very heavy increase over last year, but this increase comes from a number of very fine young orchards planted from six to eight years ago and which have been given the best of care. Naturally, we expect such trees to help to swell the grand total. It is a little too early to estimate the number of cars which we expect to ship, but to be very conservative, the amount of fruit to be sent out of the valley this year should easily double last year's output. In connection with this statement I wish to say that every orchardist should avail himself of every opportunity to keep posted on weather conditions, time for spraying, and for every other orchard practice which will help him to protect his crop. There is no trouble in saving crops from any cause whatever in the Rogue River Valley if the orchardist will give intelligent attention to the details of the business.—P. J. O'Gara, in Medford Mail-Tribune.

PLANTING FOR POLLINATION.

Discussion at the Prosser horticultural meeting developed the fact that size and color of fruit are influenced more or less from cross pollen. While many trees will bear fruit from their own pollen, it is safer to plant with suitable intermixed varieties. The Oregon experiment station has in press a bulletin on this subject. A previous bulletin by this station indicated, among many other interesting items, that the Red Cheek Pippin gave best results in cross pollen for Spitzenbergs, but several other varieties gave fair satisfaction, among them being the Arkansas Black. Mr. E. L. Stewart of Prosser is planting Arkansas Black with Spitz, believing it has some influence in producing a darker color. It is the opinion of fruit growers, however, that cross pollen has greater influence on size than color. This is another of the problems requiring further investigation, but the Bartlett pear is known to have been considerably influenced in size from cross pollen, as have also other fruits. One of the essentials is to plant trees intermixed which bloom during the same period. In orchards where four or five varieties of the same class of fruit are grown, cross pollen is most likely to be sufficient, for the distribution of pollen is largely done by bees, yellow jackets and insects of this class. To be on the safe side it is best to plant not more than six rows of trees of one variety in a block, then intermix, but figure on setting suitable varieties to facilitate picking and packing.—N. W. Horticulturist.

Natives digging and loading asphalt at Trinidad Lake

All "asphalt roofing" is not Trinidad Lake Asphalt Roofing—there's a great big difference. Look out for that when you buy your roofing.

Ordinary so-called asphalt roofings are made of artificial products masquerading as real asphalt. They are nothing more than the residue from petroleum oil or native bitumens made into a black pitch, which is easily affected by changes in weather.

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To make sure of roofing that will permanently protect, ask your dealer for Genasco, the Trinidad-Lake-Asphalt Roofing, with either mineral or smooth surface. Fully guaranteed.

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Home Grounds Beautiful

THIS MONTH.

All the spring work which has not been done before this should be taken up with vigor. Gladiolus bulbs should be planted, and those which were planted earlier may be encouraged by abundance of water and a mild fertilizing. Plant at once asters, daisies, pansies, chrysanthemums, salvia, tuberoses, sweet peas, coleus, cannas and elephant's ears. All kinds of annuals, in fact, may be sown. Poinsettias may be reset and cosmos for fall display should be planted at this time.

A little later in the month young carnation plants should be put into the ground. This is one of the best months for transplanting bulbs of nearly all kinds, bogainvilleas, bignonias, and other flowering vines.

There is no better time for starting a new lawn and the beauty and vigor of the lawn for the entire summer may be insured by giving abundance of fertility and care at the present time. Well rotted stable manure scattered over and washed into the soil with the hose, or in the absence of such fertilizer, commercial or bone meal, will answer. In fact, the commercial fertilizer saves danger of carrying weed seeds into the soil.

A PLANT THAT STORES WATER.

A peculiar plant function which Doctor MacDougal and his associates are investigating is the storage of moisture by plants such as the cacti. I felt as if we had become almost as skilful as Indians when we took our first drink from a chunky barrel cactus. Doctor MacDougal cut off the top with a big sheath knife. Then we pounded the pulpy interior with the butt end of a stick of the green-barked palo verde tree. It was hard work, for our cactus was unusually large and tough. Little by little, however, the fibre broke up, cool drops of sap flew into our faces at every blow, and soon a mass of soft broken pulp filled the hollow which our pounding had produced in the top of the truncated cactus. With our hands we squeezed the fluid out of the pulp into the hollow, and then drank it—a whitish, but not unpalatable, liquid with no special taste except that of plants in general. All the cacti and many other desert species of the xerophytic type possess this same property of storing water. The length of time that they can remain moist is amazing. Doctor MacDougal has removed specimens from the ground and placed them in dry air for several years. No new water has been accessible to the plants, and yet year after year they keep on thriving. The gourd-like storage organ or bulbous stem of an Ibervillia which he placed in the New York Botanical Gardens in 1902 has sent out green shoots each year at the proper season. After producing them, it has, as it were, drawn back part of the moisture from the stem and leaves and gone once more into dormancy. Except at the time when it sends out leaves the plant loses water at an extremely slow rate, as is shown by frequent weighings. Doctor MacDougal estimates that the plant can live at least twenty years, and possibly more if the rate of loss should diminish as it grows older. Compare this with any plant of moister regions. There is scarcely one that could live twenty days, let alone twenty years, if pulled up by the roots and hung in a dry room. Desert plants are very slow in growing; they are correspondingly slow in drying.—Harper's Magazine.

INGENUITY OF FENCH GARDENERS.

Speaking of the great ingenuity manifested by French gardeners in producing flowers out of season, an English paper says:

"Not content with producing the earliest vegetables, the primeurs of every kind which are raised by infinite industry and skill in the market gardens round Paris and other cities, they are able in mid-winter to supply the market with flowers which are generally believed to be grown only in the south. You must have often seen omnibuses in Paris—those dear, clumsy, swaying, three-horsed omnibuses—marked "Montrouge." You have only to take one, and for the sum of threepence as an inside passenger or three-half pence on the top you will be set down close to an establishment where lilac in great qpantity is at this moment flowering to perfection, although the month is January and the temperature last night went down to twenty-four degrees.

"A vast hothouse is filled with bushes transplanted thither in the autumn and brought to maturity by artificial means. The air has to be kept very dry and the temperature must remain always at about sixty-five degrees. Further, the lilac, of course, needs very careful tending. A host of gardeners is at work all the time, trimming, snipping, straightening, so that each branch may fetch its full price and make a brave show in the shop window. Nor does the ingenuity of man (Frenchman) stop here. The lilac can be colored according to demand. If the natural hue, the mauve, is in fashion the plants grow in the full light. White is produced by darkening the hot-house. Even variegated lilac can be grown by a combination of light and shade. Also, the flowers can be made to blossom whenever they are wanted. There are in that Montrouge establishment plants in every stage—some merely with the earliest little pellets of blossom; others just in bud; others, again, full-flowered, ready to be cut at once."

THE MELON PAPAW.

Carica payaya growing in the open at Hollywood are finer sepcimens than we have ever seen under glass, where climatic conditions may be created and maintained to grow it to perfection, yet it requires two years' time to perfect the fruit. Even then it is little better in quality than a pumpkin. If grown in a high temperature and moist atmosphere we have been reliably informed that in twelve months from seed it will ripen its delicious fruit. This information is given and these facts stated for the benefit of the novice, who, having a consuming desire to have an extensive botanic garden of tropical subjects, may proceed to attain that end, in an intelligent way, so that, if failure is the result, the chief contributing factors may be known as the lack of heat and moisture.

The rainfall to date at Yuba City, Sutter county, is 26.83 inches.

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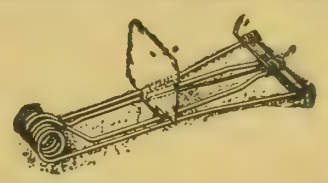

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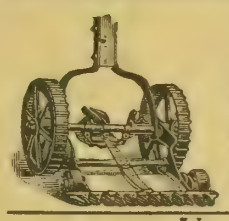

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In one season the Clipper will drive them all out.

Clipper Lawn Mower Co Dixon, Illinois.

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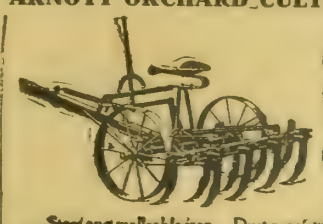

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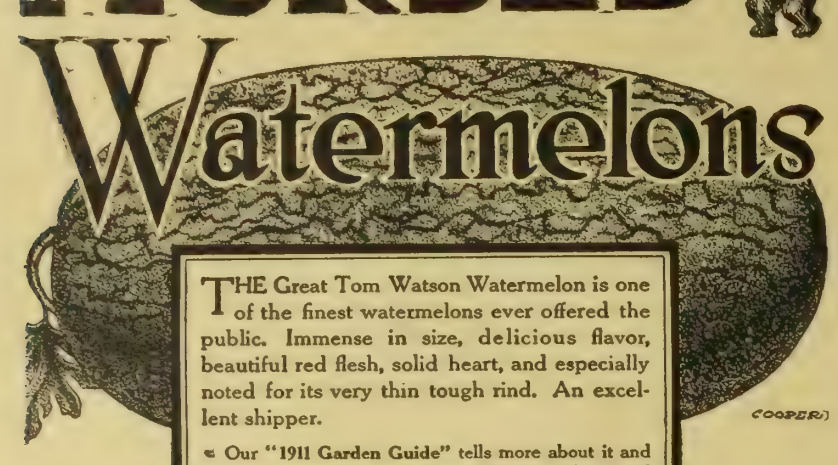

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Our "1911 Garden Guide" tells more about it and many other new things in seeds, flowers, plants and bulbs. It is free for the asking.

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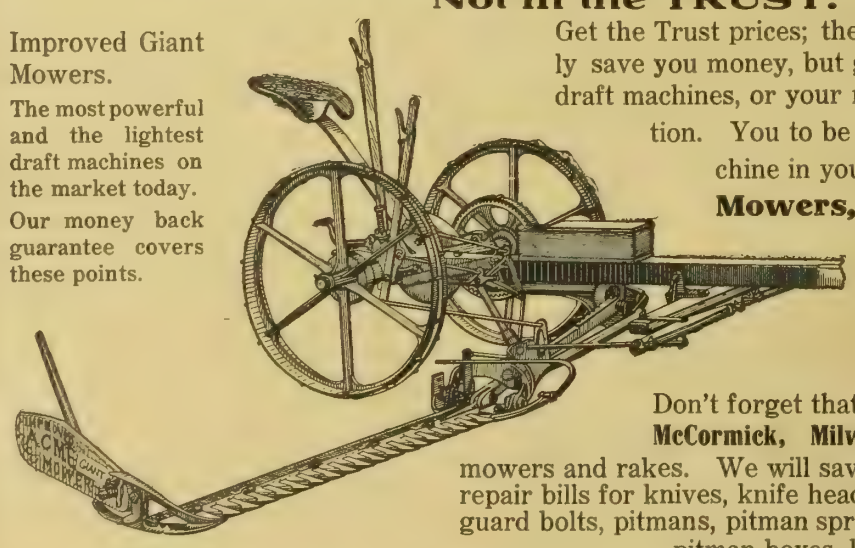

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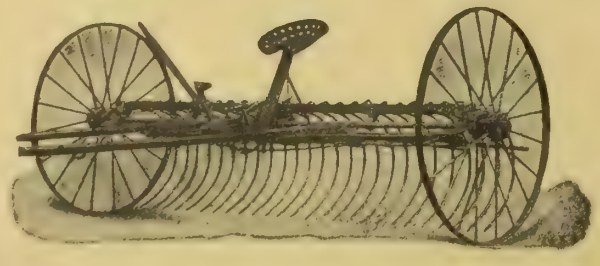

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WOOD & COMPANY

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Garden and Field Crops

THIS MONTH.

Early potatoes which were not planted last month should be planted in practically all sections now. Even melons, squash, cucumbers and sweet corn may be put into the ground. In the very frostiest sections it would possibly be safer to plant the more tender vegetables in paper containers which may be broken away from the ball of earth, after starting, and planting in the open field. If the ground is cold it is well to plant cucumber and squash seeds very shallow, as if planted deeply the sun does not warm the ground enough to prevent rotting of seed before it sprouts. Orange, lemon and loquat trees may be planted to good advantage this month, and of course the deciduous trees which should have been planted earlier may still be handled if greatest care is used. Berries also should have had earlier planting, but may still be planted if necessary.

For succession of crops, radish, lettuce and all other succulent vegetables for the table should be planted almost weekly. Particularly as the days become warm these crops which have their principal value in tenderness and crispness will need frequent irrigations. Garden soil can hardly be too rich for best results.

GARDENING UNDER DIFFICULTIES.

If an English gardener can get results in gardening without sunshine, the Californian should revel in garden truck. The following from the London Daily Mail is an indication of some of the difficulties:

The French garden at Preston Park, to which the King is expected to pay his second visit this week, would please any gardener's eye—French or English. It is probably the most perfect garden in the world, and it is under the care of a Frenchman acknowledged in Paris to be the king of his craft. Major Fraser, the mayor of Hove, who owns the garden, has given the garden artist everything that he desires, and the results are wonderful—even as seen when everything is in preparation for a year's work and we are in the middle of a winter stark and wet beyond parallel.

The garden, which lies very picturesquely, flanked on one side by the railway embankment, on the opposite side by fine elms, on the third and fourth sides by a farmyard and by two houses, is less than one and a half acre in extent, but many parts of it yielded no fewer than six successive crops. The first leaves of the first radish crop were already visible between the lettuce. The radishes and lettuces will be followed by carrots, by cauliflower, by endive, by celery, and winter lettuce. Most of these will be grown on the same spot without any addition to the soil, the later crops, of course, without glass.

The failure of the year was the tomato crop. The plants flourished in rare vigor and bore plentiful fruit, but the sun was too often absent to allow them to ripen. As regards celery, one variety succeeded well, one failed.

LIME AND BARNYARD MANURE.

Burned lime and manure should not be mixed above ground. Ground limestone will not injure the manure, but burned lime will act chemically to set free ammonia in the form of gas. For this reason burned lime should not be mixed with organic manures above ground. When lime and manure are mixed in the soil the ammonia is set free, but will be largely held by the soil so that plants can use it. The lime will have no injurious effect upon potash. It acts on the soil to some extent to make potash available. With phosphoric acid the lime unites with soluble phosphate to make it less available but does no great damage to it usually. It would depend upon the soil and the crop whether to use lime a year before or a year after manure. The manure usually acts to sweeten the soil, though not as much as the lime. From choice we should use lime if possible when seeding down to wheat or grass, rather than with corn. Certainly not with potatoes. It is quite a common rotation to use the manure on corn and follow with potatoes, and then wheat or oats and grass. In such case we should want to use the lime after potatoes. All the way from half a ton to three tons of burned lime per acre have been used, depending on the condition of the soil and the crop. Alfalfa or clover, etc., need most, as do the cold and sour clays.—Rural New Yorker.

THE BLOSSOMS ON THE TREES.

Blossoms crimson, white or blue,
Purple, pink and every hue,
From sunny skies, to tintings drowned
In dusky drops of dew,
I praise you all, wherever found,
And love you through and through.
But blossoms on the trees,
With your breath upon the breeze,
There's nothing all the world around
One half as sweet as you!
Could the rhymer only wing
All the sweetness to the lees
Of all the kisses clustering
In juicy used-to-bees,
To dip his rhymes therein and sing
The blossoms on the trees,—
"O, blossoms on the trees,"
He would twitter, trill and coo,
"However sweet, such songs as these
Are not as sweet as you;
For you are blooming melodies
The eyes may listen to-"

—James Whitcomb Riley.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

ORIGIN AND HISTORY OF THE AYRSHIRE.

The county of Ayr, in which the Ayrshire breed of cattle originated, is situated in the southwest of Scotland, backed by mountains on the east and washed by the ocean on the west, having the form of a crescent and embracing the Firth of Clyde in its circle. The face of the country is hilly, and rises from the level of the sea some 2000 feet to the top of the mountains on the east. The soil is strong and somewhat heavy, being a clay and clay-loam, but thinner on the tops of the hills and mountains, the whole being originally covered with a dense growth of timber. The climate is moist, with a temperature ranging from about twenty-five to sixty-five degrees, with a mean temperature of about forty-seven degrees, regulated by its proximity to the sea, and with frequent rains, which are favorable to growth of grass, giving luxuriant pasturage, though sometimes the country is swept by fierce coast storms.

The Ayrshire is probably the youngest of the thoroughbred dairy breeds, and though her origin is veiled in some obscurity there are many things that confirm the theory that the native wild cattle of the country are the foundation of the Ayrshire of modern times. The original native wild cattle of the country were said to be white, with red ears and black noses, high white horns with black tips, with an animal now and then having more of the brown, black or red, very mild, and the bulls fierce, but when calves are taken young grow to be quiet and tame. This theory seems the more reasonable when we consider how easily the Ayrshire color reverts to the white.

The first we hear of any effort being made to improve the native stock of the country was about the year 1700, and this was said to have been accomplished by selection and better care.

We read from Aiton that about 1750 the Earl of Marchmont purchased from the Bishop of Durham, and carried to his seat in Berwickshire, several cows and a bull of the Teeswater or other English breed, of a brown and white color. He also writes that about 1770, bulls and cows of the Teeswater or Shorthorn breed were said to have been introduced by several proprietors, and it is from them and their crosses with the native stock that the present dairy breed has been formed.

In 1811, in "Survey of Ayrshire," Aiton writes that the Ayrshire dairy breed is "in a great measure the native indigenous breed of the county of Ayr, improved in their size, shapes and qualities, chiefly by judicious selection, cross coupling, feeding and treatment for a long series of time and with much judgment and attention."

From about the beginning of the last century we find frequent mention of efforts for improvement in the shape of body, and especially in the shape of the udder.

At the present time writes Prof. Fraser:

"There are two types of Ayrshires in Scotland; the show type and the producing type. The show type has been developed for the show ring, and bred for beauty alone. The genuine show udder must be compact and closely attached, both before and behind. The sole must be flat with no indentations between the teats, and the udder must not protrude behind, but be carried up even with the thighs, and have small cylindrical teats, evenly placed on the flat bottom. This is the only kind of udder that can be shown many years in succession and not become too pendant for the show ring. Any intelligent dairyman knows that this type of udder is fleshy and does not belong to the best producers. This craze for tight, close, shallow udders started in the show ring about 25 years ago. It has been of untold damage to the Ayrshire breed and has split breeders into two factions—one of which is breeding for show and the other for production. The breeders who are breeding for production belong to test associations and keep accurate records of their cows. The latter cows have good udders that milk well away, and large, soft teats that are easily milked. One of the best authorities in Scotland upon this subject says: 'The show ring has been a curse to the Ayrshire breed. Ayrshires would be a different breed today had there never been a show. The leading exhibitors of show Ayrshires of the flat, fleshy udder type have not made money, even if they have sold their stock at large prices, because they did not get enough milk to bring up the profits. One of the leading exhibition herds produced only half as much per cow as did another herd bred for production alone. This shows the folly of running to fads. You American dairymen are making a great mistake in allowing showmen to be your importers, as they are taking over only the show type. By this means you are losing, to the American Ayrshire, the advantages of our record Ayrshires in the economy of milk production.'

"Record Ayrshires are gaining rapidly in popularity. At the Highland show Ayrshire cows must produce, the night and morning before the exhibition, 36 pounds of milk, or they are not eligible to enter the show ring. This has the advantage of preventing the cows being bagged before showing. To prevent fraud in all competitions, cows are milked out in the open. Foolish fads are gradually passing away, and at the present time color does not count for much in the Ayrshire show ring in Great Britain.

To the Ayrshire and dairy interests of America, it is imperative that the Ayrshires imported be not of the show type, but the magnificent producing record Ayrshires so often seen in Scotland. When we consider the low efficiency of the average cows milked in America compared with the average Ayrshires milked in Scotland, it is easy to see the great possibilities yet unattained by the dairymen in this country."

Mr. Valentine writes: "The Milk Records Society of Ayr is doing a great work for the breed in encouraging the keeping of records, the necessity for which has been borne forcibly in upon the Scotch breeders by the

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

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fact that they have lost the Swedish market, owing to the fact that the Swedes, who were at one time among their best customers, have found records so valuable among their own herds and now so universally have them that people in Sweden will not buy even an animal from the Home of the Breed unless she has her certificate of merit in her hand. In Sweden no Ayrshire bull can any longer be registered unless out of an A. R. dam.

Fortunately of late years the importations we have been receiving have been from producing dairy herds, and have been selected by practical men, otherwise the demand would have ceased entirely.—C. M. Winslow, Secy. of Ayrshire Association.

NEUFCHATEL CHEESE.

The soft-curd rennet cheese known as Neufchatel, made extensively in the Department of Seine-Inferieure, France, from cow's milk, either whole or skimmed, has become very popular in the United States, but in this country the process of manufacture has been considerably changed, so that as now made it represents a different type and is ready for use as soon as made, whereas the French variety is allowed to ripen for several weeks. A recent Cornell bulletin describes the process of manufacture as now practiced in both countries.

Foreign Method of Manufacture.

Fresh milk is set at 85 degrees Fahrenheit, with sufficient rennet to cause a thorough coagulation in twenty-four to thirty-six hours. The curd is then placed in cheesecloth bags and allowed to drain for some twelve to twenty-four hours. The draining is assisted by the application of light pressure. When the curd is dry enough it is pressed into cylindrical shapes one and three-quarters by three inches, and salted from the outside. It is then allowed to drain for several hours, and is placed in a ripening room, where in a few weeks it becomes covered with white and blue mold. The cheese is then placed in a cellar for further ripening, and when red spots appear on the outside it is wrapped in paper and tinfoil and marketed.

A Good Method.

J. Michels, of the North Carolina Station, states that American methods of making Neufchatel cheese are unsatisfactory because they are too slow, the souring process is not properly controlled, with a consequent lack of uniformity of product, and the product is not properly packed. A method of procedure which he found was not subject to these objections is as follows:

Whole milk re-enforced with an amount of cream equal to about one-quarter that in the whole milk makes the best Neufchatel cheese. However, whole milk without the addition of cream will make a very satisfactory cheese. It is of first importance to use only milk which is clean and free from taints.

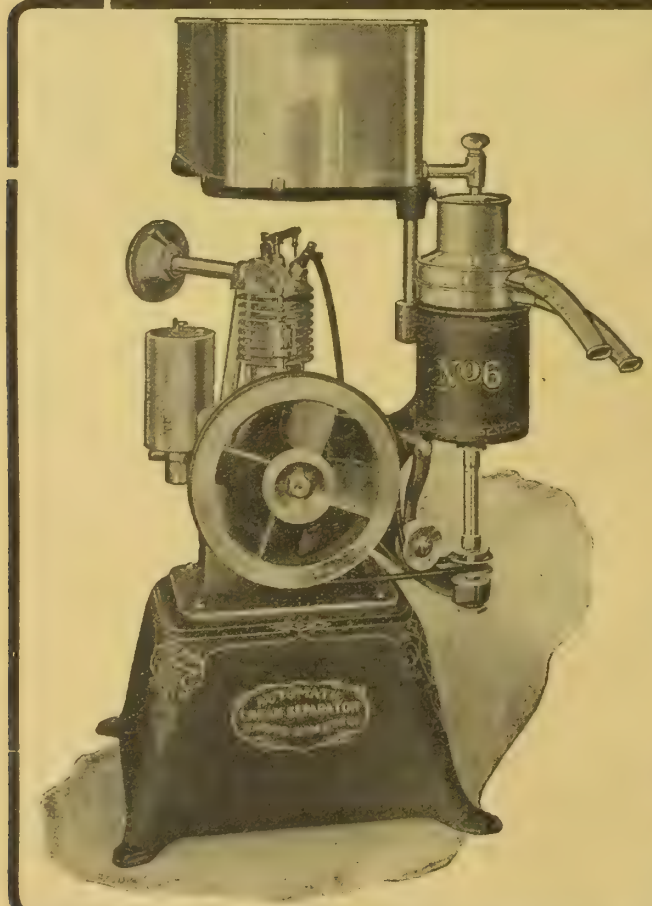
When the cheese is made on a small scale, common cans of the shotgun style will answer for handling the milk. Where several hundred pounds of milk are used, a small milk or cream vat may be used. A strainer with perforated sides and bottom is also needed to drain the curd. * * *

The milk should be treated with a large amount of starter or pure culture of lactic-acid bacteria. On an average, one pound of starter to four pounds of milk will give best results. During warm weather when the milk has already ripened somewhat, and when there naturally is a more rapid development of lactic acid, one part of starter to five of milk will be about right. On the other hand, during cold weather, or when the milk is very sweet, it is best to use at the rate of one part starter to three parts of milk. Thoroughly beat or shake the starter and strain it through one thickness of cheesecloth before adding it to the milk.

As soon as the starter has been added, heat the milk to 80 degrees Fahrenheit, and add at the rate of two and one-half ounces of commercial rennet extract per 1,000 pounds of milk. The rennet extract should be diluted with water to the extent of about eight times its own volume and then thoroughly mixed with the milk. The mixing should not be continued for more than three minutes. This precaution is necessary, as the milk begins to thicken in about five minutes. Cover the milk and allow it to stand quietly for thirty to sixty minutes, according to the amount of starter used. The more starter used, the quicker the milk will curdle.

While the milk will usually be ready to cut in from thirty to sixty minutes, it is best to determine when this point is reached, as for Cheddar cheese, by breaking the curd with the forefinger. If the whey in the break is clear, the curd is ready to cut; if milky, the curdling has not progressed for enough. In general, the curd should be somewhat firmer than for Cheddar cheese before cutting.

Where much cheese is made, the curd is cut with special knives used with Cheddar cheese. The cutting in this case is done as follows: First cut the curd in horizontal layers with the horizontal knife; next cut lengthwise,



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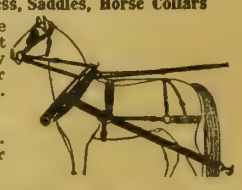

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and then crosswise with a perpendicular knife. This will make cubes about one-half inch on a side. Where small quantities of cheese are made, any kind of a knife may be used to cut curd. The smaller the amount of milk used, the coarser the curd should be cut.

As soon as the curd is cut it is carefully poured into a tin strainer lined with one thickness of cheesecloth. Both the sides and bottom of the strainer should be perforated. It should be about ten inches deep and of such width and length as to permit filling it the full depth. Allow the curd to drain undisturbed for about one hour and then put a cover, preferably a metallic one, on it and add pressure at the rate of one pound for every gallon of milk used. During the next hour gradually increase this pressure until five pounds are used for every gallon of milk. Continue this amount of pressure for eight hours and then reduce to two pounds for every gallon of milk and keep at this pressure twelve hours longer, when the curd is ready to salt.

Salt at the rate of about one ounce of salt to six pounds of cheese. The salt can be evenly distributed during the mashing process.

With a heavy masher, similar to a potato masher, thoroughly mash the curd to a smooth consistency, leaving no unbroken particles or lumps. The smoother the curd, the richer it will appear and the better it will taste.

A variety of packages may be used in which to pack the cheese. The common method of packing is to wrap the cheese first in parchment paper and then in tinfoil. This method of packing is especially suitable where cheese is made on a small scale. Such a package is open to the objection, however, that it does not sufficiently exclude the air to prevent molding.

The best package is one in which the cheese can be kept as nearly airtight as possible. We have found a tin-capped tumbler the most satisfactory. The only objection to the tumbler is the expense when purchased in small quantities. In large quantities, eight-ounce tumblers may be purchased very cheaply.

The tumblers and the parchment caps which are put under the tin caps should be sterilized in boiling water before using. With a large spoon pack the tumbler brimful, place a parchment paper cap on top, and then cover with the tin cap. The parchment cap should project about one-quarter inch over the edge of the tumbler. Cheese packed in this way will keep ten days during warm weather without refrigeration.

In making Neufchatel cheese as herein described, a good starter is indispensable. It will pay well to give the starter careful attention. Use attractive labels on the tumblers. They cost little, but will help sell the cheese at a better price. While the cheese can be kept some time without refrigeration, it is best to keep it in as cool a place as possible, such as a cellar.

Prof. Michels thinks that Neufchatel cheese packed in eight-ounce tumblers should readily sell at ten cents per tumbler net, and at this price will yield a good return to the producer and furnish the consumer a wholesome and digestible food at a very reasonable cost. One hundred pounds of milk containing 4 per cent of fat will yield thirty-four eight-ounce tumblers of cheese. When such milk is re-enforced with cream as suggested above, 100 pounds of it will yield thirty-eight tumblers of cheese.—Farmers Bulletin 435.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

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"The present fourth-class postal rate is but little used in this country simply because it is prohibitively high," says Fremont Rider in the World's Work for April. "To send ten pounds of merchandise from New York to Philadelphia involves not merely the indefensible nuisance of separating it for mail transportation into three packages, but a charge of $1.60. Naturally, instead, the merchandise is sent in one parcel by express for fifty cents. As the work done by the express company, it is needless to note, gives them a very handsome profit indeed, it is evident that by far the larger portion of the government's $1.60 in this case would be sheer profit—if the postoffice were as efficiently conducted as the express companies."

"Of course, were the postoffice rate from New York to Philadelphia a real parcels post rate, that is, for example, 20 cents for ten pounds instead of $1.60, there would be 1000 pounds of merchandise so sent where there is one sent today. People will use a parcels post when it becomes cheap enough to be an economic possibility, and they will use it enormously, as experience elsewhere has abundantly and conclusively proved."

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There is one very effective way of sharpening a knife always at hand. The rough, unglazed bottom of a jar offers a fine substitute for a whetstone. Just hold a jar of any size upside down and pass the cutting edge of a knife back and forth over the bottom a few times, turning first one side, then the other. You will be pleased with the result.—Woman's Home Companion for March.

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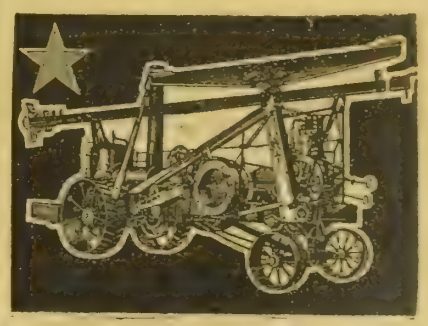

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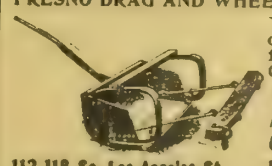

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Circulation 16,320 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

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The thirty-sixth annual gathering of the American Association of Nurserymen will take place at St. Louis, Mo., June 14, 15 and 16. Headquarters will be at the Southern Hotel. The secretary is John Hall, 204 Granite Building, Rochester.

Every boy and girl capable of acquiring an education should be taught some industrial pursuit. An industrial education is useful to the individual for self-support.—President Strange, Farmers National Congress.

Farming has been raised during the past thirty years from being regarded as the roughest of common labor to the dignity of a profession. That has been accomplished through the agency of the agricultural colleges.—Mayor Love, of Lincoln, at Farmers' National Congress.

The boy and girl living in the country and presumably destined to be agrarians by choice or by fate are entitled to an educational training in the schools quite different from that imparted to the boy and girl living in cities and presumably destined to be urbanites.—President E. E. Sparks, Pennsylvania State College, at Farmers National Congress.

It is now possible for schools, if wisely fostered and adequately promoted, to transform the home, farm and civic life of every nook and corner of this broad land outside the congested districts of large cities, and even there this noble movement may be made to lessen the evils of congestion by winning families to the land in the suburbs while the husband and father continues to earn wages in the city factory.

From all over the state come reports of the campaign against the ground squirrel. The great storms of the first of March destroyed many of them, and where the forces of nation, state, county and individual are united as in some sections, there should be complete eradication of the pest, but the trouble is the careless ones will give no attention to the campaign, and enough squirrels will remain to stock the ranches which do clean up.

"Get ready for the 1915 Exposition" is being sounded on all sides. The last to take up the cry are the poultry people. The Santa Clara Valley Poultry Association called a meeting this week for the purpose of forming a state association composed of representatives of the various associations of the state. The call for the meeting stated that the desire is if possible to keep this show out of the hands of politicians and their friends and have it conducted by experienced poultry breeders.

In his speech in the House on the agricultural appropriation bill, William D. Jamieson of Iowa said: "For the first time in our history twelve teachers in my home county this year declined positions in cities to continue teaching in one-room rural schools, and city boys have been boarding in the country to get the education that these country schools give, which the city schools do not give. Such is the fame of these one-room schools in my county that last year the state superintendents of schools of the thirteen southern states spent two days visiting the rural schools of Page county. Nor is this an isolated case. All over the Middle West this noble work is starting, and these results are following." We trust this same spirit may be enthused into California rural districts and induce some of the best teachers of the state to stay in the country districts and help in the education of the best youngsters in the state.

Alfalfa growers of Chino, San Bernardino county, recognizing the need of co-operation, will at least make the effort to secure some of the money which has heretofore been taken unjustly from them by the middlemen. The average amount of commission which the growers have been paying is $1.50 per ton, or a total of $120,000 from growers in the section where the co-operative movement is started. They feel that $120,000 means as much to them as it does to the middlemen, and they will attempt to sell their hay at a much less expense.

ANNOUNCEMENT.

Having disposed of his holdings in the Cultivator Publishing Company, the writer cannot part with his old friends without a brief word in passing. It seems but a few years ago that the Cultivator was fighting a battle for mere existence; today it stands at the head of the list of farm publications on the Pacific Coast. The prosperity of the Cultivator has been largely due to his friends and associates, all of whom will continue with the paper, constituting a guaranty of its continued growth and success, therefore it is with most pleasant memories that the association is severed, and with the wish that the new management may have the utmost meed of success.

H. A. PERKINS.

The retirement of Mr. Perkins, so long identified with Cultivator interests, brings deepest regret to his former associates. Mr. Perkins has been an indefatigable worker, and has given of his strength that the paper might become a greater power. May he enjoy his well-earned rest.

As announced above, those associated with Mr. Perkins for many years will remain at the helm, and still greater effort will be made to increase the popularity of this paper, which has forged ahead so rapidly. "Better than ever, and only a dollar," will continue the slogan. Mr. Frank H. Thomas, for nearly five years advertising manager, becomes president and business manager.

FLORIDA'S NEW LAW.

Florida proposes to have a state horticultural commission. The session of the state legislature about to convene will have under consideration a bill already formulated whereby it is provided that prior to the first of July, 1911, a state commissioner of horticulture shall be appointed to serve a four-year term, with salary of $2,500 per year, to maintain an office at the University of Florida, at Gainesville. He shall have one deputy, and with the consent of the board of county commissioners of any county may authorize a district horticultural inspector, who shall employ such assistance as in the judgment of the commissioner and the county commissioners may be necessary; these district inspectors to receive $1,500 per annum. The duties of the state commissioner shall be to exercise general supervision and control over the horticultural interests of the state, especially to enforce laws relating to horticulture, and he shall disseminate information upon subjects pertaining to horticultural interests, shall hold meetings for instruction of horticulturists, publish and distribute bulletins, and grant licenses to nurserymen and tree dealers. The bill is very complete, being made up of sixty-four sections, some of them very long.

STANDARD VARIETIES OF CHICKENS.

One question which comes to the poultry department of the Cultivator more than any other is "What breed of poultry pays best?" It usually ends there, though sometimes conditions are given showing wherein the inquirer has attempted to secure light. It is a question that is as impossible to answer as some others which are passed up to the query department. As we heard one poultryman express it, "It is more a question of the breed of the poultryman than of the poultry."

CLEAN UP.

Various papers up and down the state are suggesting the advisability of an early beginning in the dressing up of the state in preparation for exposition year. 1915 seems a long way off, but we may well begin preparing for it now. In the matter of street tree planting and ornamentation it takes but a few months of California sunshine and rain to make a remarkable showing, but a few years is better. The Santa Rosa Democrat chronicles a number of cases of this public spirit, as follows:

"Thirty towns in California have begun to 'clean house' in preparation for the Panama-Pacific Exposition and the vast throng of visitors that the exposition will bring. An astonishing amount of municipal improvement is already under way in the northern end of the state. Chico, Redding, Red Bluff, Willows, Woodland, Davis, Lodi, Dixon, Roseville, Placerville and a score of other places have already felt the impetus and are improving their streets, constructing their needed public buildings, improving their school property, acquiring new fire departments, parks, sewers, water works, and whatever is lacking in each individual case."

TERMINAL RATES

The inland towns of Southern California are making a fight for terminal rates. At present they have not only to pay the regular car rate to the town in question, which is the same as to Los Angeles, but, in addition, a "back haul" charge of the local rate from Los Angeles to the town. It is now learned by those who are contesting this point that beer has been granted this terminal rate by the railroads. This impels the Riverside Press to say:

"Riverside does not deal much in beer, but suppose we did, we could have a carload of Anheuser-Busch shipped here from St. Louis on the same rate that would be charged to Los Angeles; but if we want a carload of potatoes from Kansas, we have to pay 20 or 25 cents a hundred extra for the mythical 'back haul' from Los Angeles."

FARMERS INSTITUTES.

J. B. Neff, conductor of farmers institutes for Southern California, announces institutes at Hemet, April 10; Perris, 11; Elsinore, 12; Arlington, 13; Corona, 14; El Cajon, 17; Chula Vista, 18; Escondido, 19; Fallbrook, 21.

Land from which the timber has been removed, near Sisson, Shasta county, is proving remarkably profitable for the growing of apples.

Agricultural News Notes of the Pacific Coast

Northern California

Sutter county's asparagus harvest is in full swing.

Yolo county's area of sugar beets will be larger than last year.

An icing and pre-cooling plant is being built at Oroville, Butte county.

Eucalyptus Grange of Santa Rosa discussed spraying at its last meeting.

Five thousand acres of eucalyptus will be planted near Dixon, Solano county.

The yearly output of California wine grape vineyards aggregates $15,000,000.

The Alameda Sugar Company already has several hundred acres of beets seeded.

Farmers near Live Oak, Sutter county, are draining large tracts of overflowed land.

The Ashley Machine Shops at Yuba City report heavy shipments of orchard implements.

Rice experts of the Department of Agriculture estimate that California has 200,000 acres of rice land.

The recent legislature passed a bill which will give added power to the directors of irrigation districts.

A filing of 150,000 miner's inches of the Feather river has been made in Butte county above Oroville.

Penryn, Placer county, and neighboring sections are taking up the malarial mosquito fight for 1911.

A tract of land belonging to the Natomas Consolidated Company near Oroville, Butte county, is to be subdivided.

Over 9000 peach and walnut trees have been planted within the last few weeks near Willows, Glenn county.

The time for the completion of the high line canal of the Orland project in Glenn county has been extended to April 14th.

The recent rains put the soil of the orange groves of Butte county in excellent condition and spring cultivation is being pushed.

The first carload of asparagus out of the state went forward March 24th. On account of the heavy, cold rains it was later than usual.

The recent state legislature made provision for a $35,000 fund to aid in improving a road to the big tree district of Calaveras county.

Chico reports the almond crop as promising well notwithstanding the heavy storms which it was thought at one time would prove disastrous.

The Sacramento and San Joaquin river reclamation work calls for the expenditure of $400,000 by the state and an equal amount by the nation.

The Yolo County Consolidated Water Company has caused much contention on the part of irrigators because of rates which the users maintain are unjust.

Oroville and Palermo, Butte county, have been shipping some of their later fruit during the past week. The season is practically closed in that county.

County Horticultural Commissioner Galloway of Sonoma county, has discovered some pear thrips at work and is taking steps for control so far as possible.

Central California

Over 400,000 acres of land is under irrigation in Fresno county.

The first raisin grape vines were introduced into California in 1867.

Terra Bella grain growers report every promise of a big crop of high quality.

Lincoln Grange of Saratoga, Santa Clara county, recently held its annual harvest feast.

April 8 is fixed upon as the date of tne Blossom Day Festival at Saratoga, Santa Clara county.

The general report over Central California is that apricots will be much short of last year.

Watsonville and other coast sections will be visited by the demonstration train the first of the week.

Packers of raisins are now putting pamphlets of recipes in each carton of raisins which they sell.

Almonds at Greenfield, Monterey county, are promising brightest of prospects for the next crop.

The managers of the Kerman Creamery will establish a cream receiving station at Dos Palos.

Secretary Miot of the Tulare County Chamber of Commerce reports many settlers improving new lands.

Dried fruit people are encouraged by reports from the East to expect good prices the coming season.

Squirrel fighters in Monterey county propose to kill every squirrel which was not drowned in the recent flood.

The labeling or selling of eggs under guarantee of freshness is made necessary under an act recently signed by the governor.

The Tulare Grange is discussing the question "What amount of capital ought a young man to have before he begins farming?"

The Interstate Commerce Commission has given orders for the refund of overcharged freight on shipments of Pajaro Valley apples.

Horticultural Commissioner Sharp of Kings county reports all vineyards that he has inspected in the county in the very best of condition.

Orchardists who have tried Commissioner Morris' thrips remedy report that so far as they are able to judge yet it is working admirably.

Homer Craig of Cupertino, Santa Clara county, is still working on his plan to have school vacations so arranged that fruit picking crews may be made up of school children.

A company at Salinas which had sold nearly $2,000 worth of grain for future delivery, but on the price going down it was refused, has secured an award of the full amount of the claim.

Mr. Charles H. Rodgers, President of the Pajaro Valley Apple Association, has been appointed member of a committee of the American Pomological Society. The committee has to do with the revision of the present standards of fruit.

At a recent meeting of the Farmers Educational and Co-operative Union at Valley View Schoolhouse, Santa Clara county, Mr. Joseph T. Brooks, Secretary of the San Jose Chamber of Commerce, gave an address on co-operation and good citizenship.

Southern California

Coachella Valley has just completed its deepest well at 1,510 feet.

Sierra Madre, Los Angeles county, reports a rainfall of 30.84 inches.

C. V. Malone, Otay, gathered during last year 20,570 pounds from one acre of lemons.

Vineyardists in Imperial Valley are planning a fierce campaign against the grape leaf hopper.

A mass meeting was held at Arroyo Grande last Saturday to discuss methods of flood protection.

A gypsum deposit has been found in the Palo Verde section, near Blythe City, Riverside county.

Strawberry growers of El Cajon, San Diego county, are planning a growers marketing association.

The semi-annual meeting of the State Humane Society will be held in Riverside April 21 to 23.

Twenty-one cars of live stock were shipped from Brawley, Imperial county, in one day last week.

Several tracts of land at Bloomington, San Bernardino county, are being taken up by new settlers.

The planting of black-eyed beans in the San Fernando Valley will be more extensive than heretofore.

Orange county lima bean growers are anticipating big crops and the planting will be extensive.

One tangerine orange grower in Bostonia, San Diego county, has shipped 1,000 boxes of tangerines from 200 trees.

The Union Power Company has made a filing on 3,000 inches of water of Bear Creek, San Bernardino county.

Some contracts have been signed by Orange county Lima bean growers at from $4.50 to $4.60 per hundred pounds.

The half-way point in orange shipments has been passed, and prices have been fairly satisfactory to the producers.

Orange county has fully decided to build 133 miles of good roads, and will call an election on a million and a half bond issue.

Some orange growers are looking at the 50,000-car crop of oranges and suggesting the necessity of slowing up in the matter of future planting.

Santa Ana, Orange county, claims to be the largest walnut shipping point in the world. Last season the shipments aggregated 5,200,000 pounds.

San Fernando land owners and the Los Angeles water commission are conferring as to distribution of excess water of the Owens river aqueduct.

Escondido is preparing for a meeting to be addressed by Dr. J. Eliot Coit on April 18, and on April 19 for a farmers institute to be conducted by Mr. Neff.

The Anaheim Union Water Company, while drilling a well near its reservoir, opened up a 400-barrel oil well. The result is that stock in the concern has materialy advanced.

Th directors of the San Diego County Fair Association at Escondido will plan for a bigger fair than ever this fall, hoping to receive aid from the appropriation authorized by the recent state legislature.

The Coast

One hundred pairs of pheasants were recently freed near Corvallis, Oregon.

Sixteen cars of Montana cattle were received in one day at the Portland yards.

Yuma papers report sheep ranges in excellent condition and flocks healthy.

Douglas county, Washington, reports snow disappearing and spring work progressing.

Rogue River Valley, Oregon, claims every train brings purchasers for her productive lands.

The first annual Pacific Northwest Show was held at the Union Stock Yards, Portland, last week.

Grain growers near Nez Perce, Idaho, report the fall grain as in the very best of condition.

The ground at Curley, Ferry county, Washington, was covered with snow from December 10 to March 21.

The Woodburn, Oregon, Horse Breeders Association held its third annual horse fair on Friday, March 31st.

There are 173 Granges organized in 26 counties of Oregon; thirteen new Granges were organized during the last year.

The Central Oregon Irrigation Company will open for settlement between five and six thousand acres near Prineville.

Farmers at Okanogan, Washington, have formed the Southside Water Users Association to supply water to 500 acres of land.

Scientists from the state college at Pullman, Washington, are making a special study of diseases affecting trees near Chehalis.

A pile driver is at work on the Colorado above Yuma, Arizona, straightening the bend and reinforcing the levees to prevent flood damage.

Nine thousand acres of government land will be thrown open to entry May 19th on the Columbia river near Kettle Falls, Eastern Washington.

Stock growers at Harrisburg, Linn county, Oregon, report ideal winter conditions have prevailed and stock have come through in excellent condition.

A two-year-old grade Shorthorn bred in Haines, Oregon, won the championship at the Pacific Northwest Live Stock Show over 816 competitors.

The production of ginseng has become so important in Oregon that the last legislature has enacted measures protecting and regulating the industry.

Walla Walla, Washington, reports "never before in the history of the fruit industry has the outlook for a bumper fruit crop been so promising as at present."

A bunch of 500 Rambouillet sheep, 15 Shorthorn cattle and a number of Berkshire hogs have been shipped from Seattle to the Agricultural School at Mukden, Manchuria.

The 1910 pool formed by the fruit growers of Wenatchee, Washington, secured for apple growers $2.80 for extra fancy's and $2.10 for fancy's. The section shipped over 2000 cars.

ALFALFA SEED

Cheap Seed is dear at any price. But why pay high price for the best?
Write for our price and sample, stating quantity wanted.

New Seed Catalog also Incubators and Poultry Supplies.

West Coast Chick Feed

They can't beat it. Nothing better for the little ones.

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Proprietors of the

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111, 113, 115 WINSTON ST. between 4th and 5th near Main. LOS ANGELES

All Metal Incubators and Brooders

SIMPLE—SAFE—DURABLE
The result of 25 years experience, and the most Practical Incubator made.

Cycle Hatchers $6.50, Brooder Hatchers $8.50

FIRELESS BROODERS THE KIND THAT RAISE THE CHICKS

THE PHILO SYSTEM

Philo System Book and Poultry Review (one year) $1.00

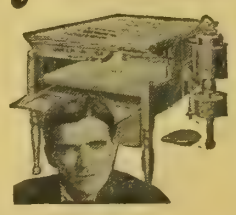
READ WHAT OTHERS SAY:

117 Miles Ave., Oakland, Cal., Nov. 12, 1910
Cycle Hatcher Co., Oakland, Cal.
Gentlemen: A year ago we started with the Philo System, and raised as fine a lot of White Orpington pullets as anyone would wish to see. The two machines we purchased of you last season have given excellent satisfaction. We shall probably need more this year, and shall use the Cycle machines in preference to a larger incubator. Yours truly, S. N. Haines

Send for "Poultry Profits." Mailed on request.

CYCLE HATCHER CO., OAKLAND, CAL.
Warehouse at Los Angeles Cal. Address all correspondence to Oakland.

I'll Start You in Poultry on the Make-Good Plan



—Set you up in a paying business all your own—a business you can control and expand indefinitely—one you can operate on little capital and in small space—one that will give you real independence, pleasure and profit. Mail me a card to-day for my book containing the remarkable terms on which I am selling Queen Incubators and Brooders, freight prepaid. I have started over 61,000 people on the road to success. The Queen goes out on the make-good plan, the most liberal ever offered on a high grade incubator. My 1911 Poultry Guide and Catalog explains terms fully. It's a down-to-date poultry book, practical, concise, helpful—best book of the kind published. Write and let me mail it to you free.

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WICKSTRUM, Queen Incubator Man, Box 53, Lincoln, Neb.

Rancho Mirasol White Leghorns

Eggs for Hatching, January to June. Day Old Chicks, March to June.
PASADENA, CALIFORNIA.

White Leghorns

A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Descriptive booklet of our stock and farm and recipe for mixing best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels.

On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

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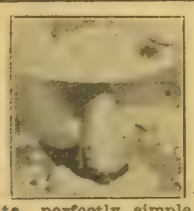

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Eggs for hatching, Utility stock (no culls), $1.50 per 15; special matings.

Send Stamp for Mating List

No visitors on Sunday.

J. J. DEAN, Moneta, Cal.

Practical Poultry Culture

DELAYED POULTRY QUERIES.

Answers to a large number of poultry queries have been unavoidably delayed, but we have matters in hand now and will promise more prompt service to poultry people hereafter.

Cheap Incubator House.

Please give information regarding building of a cheap incubator house. I am in a section where sand, gravel and rock are out of the question, so must build of wood. Funds are somewhat limited, and I wish as economical a plan as can be had. Would like to build, say 16 by 20 feet, but do not wish to economize at the expense of efficiency.—Subscriber, Cudahy Ranch, Los Angeles.

We are not certain as to the section where subscriber is located, but if the soil is heavy enough to make adobe blocks, a perfectly satisfactory incubator cellar could be made of them. They would insure the even temperature necessary and we think would answer admirably. If that is not practicable and there is a hillside near, a hole the size of the building could be dug into the hillside and walled up with brick to surface of the ground, or, say, two or three feet above the surface, then the dirt taken out of the cellar can be thrown back on the wall to make drainage perfect. This will make little framework necessary. If there is no hillside, still we would excavate at least a couple of feet in the ground and then bank the soil up two feet above the ground, throwing the dirt back against wall, which would serve the double purpose of drainage away from the building and maintenance of equal temperature. The amount of framework above this wall would be very slight. In this case it would perhaps be necessary to excavate from the front of the building where the entrance should be by means of door, but above all, care should be used in ventilation plan. While the temperature must be kept as nearly even as possible, the ventilation must be perfect at all times. Good lighting is a convenience, but not necessary. If windows are used they should be double sashed.

Dark Yolked Eggs.

What causes hens to lay eggs with dark yolks? We have been getting eggs with ash-colored yellow yolks, of fine flavor and all right, but the off-color I do not like. Hens are laying large eggs in goodly number and seem to be in best condition excepting that they produce these dark colored yolks. We are feeding wheat, scalded barley and coarse bran, with all the alfilaria, alfalfa and sprouted oats they can eat.—T. M. J., Huntington Park.

This is the first complaint we have heard of eggs being too dark colored, and do not understand the ash-colored proposition. As a rule, the complaint is as to paleness of yolk, which may be corrected by abundance of green food. It is barely possible your hens are too liberally supplied with green feed. Experiment with them or part of the flock; depriving them of green feed for a few days would test this point.

Roup.

Have hen affected with roup; she is almost totally blind. Is there anything which will restore her eyesight?—Subscriber, Perris.

We do not think we would waste any time in treatment of so severe a case. Of course, where a hen is a pet, one might take the trouble to treat, but for breeding stock her usefulness is gone. There is no probability of inheritance of the disease, but at the same time weakened constitutions will predispose the offspring to the same trouble. Mild antiseptic washes may help. For treatment we refer the inquirer to an extended article in poultry department of our issue of July 21st, 1910.

Water for Breeding Ducks.

Is it necessary for Pekin ducks to have access to pond of water through breeding season, or will eggs be fertile without?—E. B., Orange.

It is not absolutely necessary, but more desirable, that is, greater percentage of fertility is secured where water is at hand. While this obtains with breeding ducks it does not with young stock, for it is far better if they do not have access to water until full grown.

Liver Trouble.

Combs of poultry turn black and they stand with drooping heads. Feed Egyptian corn twice daily and Coulson's food every other day and occasionally fresh soaked barley. They have all the grit and oyster shell they need.—Subscriber, Turlock.

It is possible you have overfed and indigestion, or liver trouble has resulted. Feed some green stuff and in such a way as to make the hens exercise to secure it, scatter the grain in deep straw so that they will have a day's job to get the morning's feed. Give each fowl affected a liver pill, same as administered to humans. Baking soda added to the drinking water at the rate of a teaspoonful to a quart is also advisable.

Muscovy Ducks.

Where can I get Muscovy duck eggs or a pair or ducks?—Subscriber, Del Rey, Fresno county.

We only have the names of two breeders of Muscovy ducks, Mrs. Ungerland, Route 2, Box 300, Los Angeles, and Caldwell & Co., Route 3, Los Angeles. We would advise other breeders to place their announcements in the Cultivator.

Capons.

Tell me about capons, probable demand, best time of the year for the operation, usual price, best size, how best fattened and dressed. Is there good outlook for marketing them in this section?—Subscriber, Atwater.

We do not think capons have generally proved profitable in this state. In the East near large markets where demand has grown up for this delicate meat, there has been money made, especially on farms where grain is fairly cheap and they have ranged and gathered their own feed. The profit comes in marketing at large size. If they are marketed before arriving at maturity, there is little profit because of the fact that for several weeks after the operation of caponizing they grow more slowly than other fowls. The best season for caponizing is in the early fall and June hatched chicks are preferred. They should have a weight at that time of from two to three pounds. Large growing breeds are always preferred, Cochins or Brahmas, or crosses on these, though Orpingtons, Rocks and Wyandottes are used. Caponizing is simple and easy to learn. In France the farmers' wives and daughters have done the caponizing for centuries and practically without instruments except a sharp knife. In this country and age, we can buy a case of the best instruments with full in-

structions for use at low cost, and the agricultural stations of some states give free demonstration lessons to anyone within the state. By following these instructions and experimenting for the first time on a dead chicken, anyone that is deft can learn it. The operation is performed with apparently little pain to the subject, and the minute the bird is released it will eat heartily and walk around as if nothing had occurred.

Preserving Eggs.

Can you inform me regarding packing eggs in water glass? Articles regarding it have appeared in the Cultivator but I am unable to find them.—Subscriber, Winchester.

This letter is another good argument for the careful preservation of Cultivators. These papers contain much of permanent value and are worthy of a shelf on which they may be put after reading. The index at the end of each volume, the last number in June and the last number in December, aids in referring to articles wanted at a moment's notice.

Water glass is practically the only preservative now used, excepting where eggs are put in cold storage which, of course, is the very best method of preserving. Water glass is the popular name of silicate of soda which should be kept by every drug store. It may be had in dry form or dissolved; the latter is preferable. It is a thick, jelly-like liquid used in proportion of one pint to nine pints of water, though sometimes used in weaker solution. Use pure water which has been boiled and cooled; pack eggs in jar and pour solution over them. There should be fully two inches of water glass over the eggs. Keep in as cool a place as possible and keep covered to prevent evaporation. Do not wash eggs before packing and be sure they are strictly fresh.

Diarrhoea in Hens.

What is the cause and prevention of diarrhoea amongst laying hens? They appear well and are laying fairly well, but seem to be quite seriously affected. Am feeding skim milk, also keeping bran and oyster shell before them all the time. Feed whole wheat, cabbage and plenty of other green stuff. They have pure water. Will chickens hatched from these hens be similarly affected?—Subscriber, Redlands.

We would take away the bran and reduce the amount of green feed for the time being, boil the milk and feed almost entirely on dry feed instead of so much wheat. It would be well to feed barley or boiled rice and corn to a certain extent. If the above diet fails to cure the trouble give pellet made of five grains chalk, five grains rhubarb, three grains cayenne pepper, and half a grain of opium. Mix with dough if necessary to make into pellet and give one morning and evening. A more simple remedy is six drops of camphorated spirits three times daily in pellet. The disease would not be inherited though if hens are greatly weakened the chicks might not be strong and vigorous, hence more subject to any disease.

It is poor economy to keep unprofitable hens because they have been in the flock several years. Sentiment will not compensate for loss in feeding unprofitable hens. Keep a record of the hens and dispose of the unprofitable birds no matter how faithful they have been.

WINTER'S WHITE INDIAN RUNNERS The World's Greatest Egg Producers—First, California State Fair, 1909. First, display pen; first, breeding pen; first, drake; first, duck and second, duck, at the Los Angeles Show, 1910. Eggs $3.00 per 13, $10.00 per hundred. White and Barred Rocks and White Minorcas. Eggs $2.00 per 15, $8.00 per hundred. C. O. Winters, 5807 Washington Ave., Los Angeles, Cal. Phone Sunset East 1197.

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It is the only Incubator without a "Sealed," Air-tight Egg Chamber. It supplies the life-giving oxygen freely, draws off the carbonic acid gas, and is saving the lives of millions of chicks.

READ the story of the Mandy Lee triumph in our new catalog. Other incubators are already preparing to imitate and profit by our great discovery.

No guessing with a Mandy Lee

You cannot afford to buy an old-theory incubator which may go out of date and be discarded next year. You should know the truth *now* about the great discovery. The book is free. Ask for it.

There IS Something New in Incubators

We have taken the boldest and most important step ever taken in incubator building. See the openings into the egg chamber? They mean the saving of chicks' lives. It is the key to *right* hatching. Ventilation in the Mandy Lee is now perfect. It goes on all the time, neither above nor below, but right *at the eggs*. Every minute of the hatch the life-giving oxygen is freely passing in to the eggs and the carbonic-acid gas is passing out. And correct ventilation is just one of the great Mandy Lee features.

We Don't Guess—We Measure

The Mandy Lee is as far in advance of other incubators in heat and moisture as it is in ventilation. We do not guess at anything. The sensitive regulator controls heat to the fraction of a degree and *we measure moisture* just as accurately with the Mandy Lee Hygrometer (one sent with every incubator). You know what you are doing. *You* measure and control moisture; *you* control the hatch. The Mandy Lee is the all-season, all climate, all condition hatcher, always producing the most and the strongest chicks.

NEW OUTDOOR BROODER
Heated—Storm-proof

Mandy Lee Brooders give direct contact heat to the backs of the chicks. That is *real* mothering, the most important thing in poultry. Hovers are raised and lowered as weather gets warmer or cooler—heated from end to end. Chicks do not pile up and smother. Write to-day for catalog and full information.

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We presume you have raised your chicks on
COULSON'S SPECIAL CHICK FOOD

If you have done this your chicks will no doubt be in fine shape and a valuable asset to you.

You can't afford to let them run down in health now. Feed them something which will keep up their vigorous growth.

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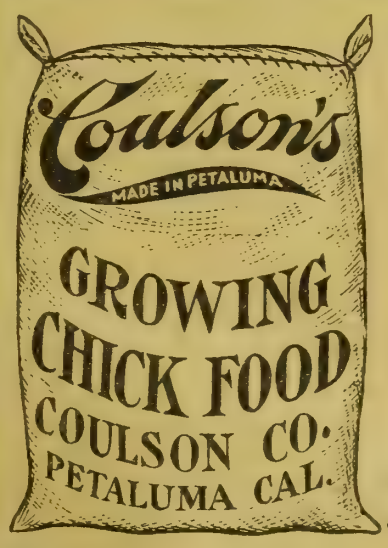

Contains the essential elements which promote rapid and vigorous growth and will bring your chicks to market and egg production, in the quickest time, consistent with health.

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"CHICKENS"

It is interesting and instructive. It deals with the Poultry question from a practical and economical standpoint. **Write for it today. We will send it FREE.**

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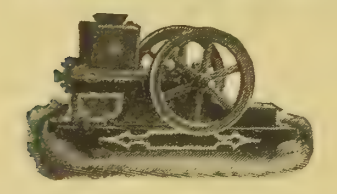

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"November 26th, I cut eighteen ricks per hour. I used about two to two and one-half gallons of distillate for ten hours' work. Distillate is 8½c per gallon in barrel lots. It seems to work just as well on distillate as on gasoline, developing its full power."

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KEEPING POULTRY FREE FROM LICE.

As pointed out in a bulletin of the Maine Experiment Station by Raymond Pearl and Frank M. Surface, "one of the most difficult and trying problems which the poultry keeper has to meet is that of keeping his poultry houses and stock reasonably free from lice, mites and other external parasites."

After testing various proprietary preparations and finding most of them very expensive in proportion to their efficiency, the station adopted the use of preparations based upon formulas proposed by R. C. Lawry, of the New York Cornell Experiment Station, with very satisfactory results.

For the birds themselves experience has shown that the best way to get rid of the lice is by the use of a dusting powder to be worked into the feathers. In using any kind of lice powder on poultry * * * it should always be remembered that a single application of powder is not sufficient. When there are lice present on a bird, there are always unhatched eggs of lice ("nits") present, too. The proper procedure is to follow up a first application of powder with a second at an interval of four days to a week. If the birds are badly infested at the beginning, it may be necessary to make still a third application. To clean the cracks and crevices of the woodwork of houses and nests of lice and vermin, a liquid spray or paint is probably the most desirable form of application.

The lice powder used is prepared by mixing three parts of gasoline with one part of crude carbolic acid, 90-95 per cent strength, or, if the latter cannot be obtained, with one part of cresol, and adding gradually, with stirring, enough plaster of Paris to make when the liquid is uniformly distributed through the mass of plaster a dry, pinkish-brown powder having a fairly strong carbolic odor and a rather less pronounced gasoline odor. As a general rule, it will take about four quarts of plaster to one quart of the liquid.

This powder is to be worked into the feathers of the birds affected with vermin. The bulk of the application should be in the fluff around the vent and on the ventral side of the body and in the fluff under the wings. * *

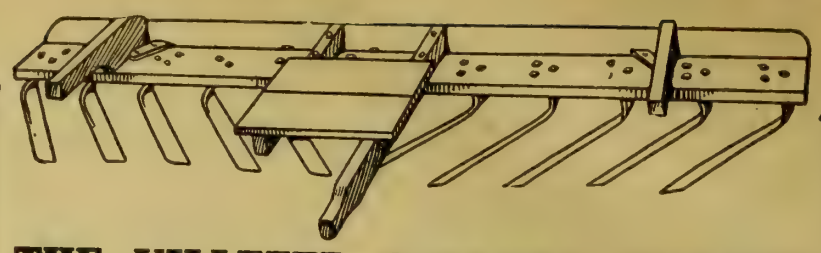
For a spray or paint to be applied to roosting boards, nest boxes, or walls and floor of the hen houses, the following preparation is used: Three parts of kerosene and one part crude carbolic acid, 90-95 per cent strength. This is stirred up when used and may be applied with any of the hand spray pumps or with a brush. If 90-95 per cent crude carbolic acid cannot be obtained, cresol may be substituted for it in this paint.

The routine methods used by the station are as follows:

All hatching and rearing of chickens is done in incubators and brooders. The growing chickens are never allowed to come into any contact whatever with old hens. Therefore, when the pullets are ready to go into the laying houses in the fall they are free from lice. Some time in the late summer, usually in August or early in September, the laying houses are given a thorough cleaning. They are first scraped, scoured, and washed out with water thrown on the walls and floor with as much pressure as possible from a hose. They are then given two thorough sprayings, with an interval of several days intervening, with a solution of cresol. * * * Then the roosting boards, nests, floors, and walls to a height of about five feet are thoroughly sprayed with the lice paint (kerosene oil and crude carbolic acid as described above). Finally, any yearlings, or older birds, whether male or female, which are to be kept over for the next year's work are given two or three successive dustings, at intervals of several days to a week between the applications, with the lice powder described above before they are put into the clean houses.

The cresol solution is prepared as follows: Measure out three and one-fifth quarts of raw linseed oil in a four or five gallon stone crock; then weigh out in a dish one pound six ounces of commercial lye or "Babbit's potash." Dissolve this lye in as little water as will completely dissolve it. Start with one-half pint of water, and if this will not dissolve all the lye, add more water slowly. Let this stand for at least three hours until the lye is completely dissolved and the solution is cold; then add the cold lye solution very slowly to the linseed oil, stirring constantly. Not less than five minutes should be taken for the adding of this solution of lye to the oil. After the lye is added, continue the stirring until the mixture is in the condition and has the texture of a smooth, homogeneous liquid soap. This ought not to take more than a half hour. Then while the soap is in this liquid state, and before it has a chance to harden, add, with constant stirring, eight and one-half quarts of commercial cresol. The cresol will blend perfectly with the soap solution and make a clear, dark-brown fluid. The resulting solution of cresol soap is then ready to use. This cresol soap will mix in any proportion with water and yield a clear solution.

As a result of these methods, the station's poultry plant is at all times of the year practically free of lice.



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Incubators at $10 complete with FIRELESS brooders, delivered to your station free.

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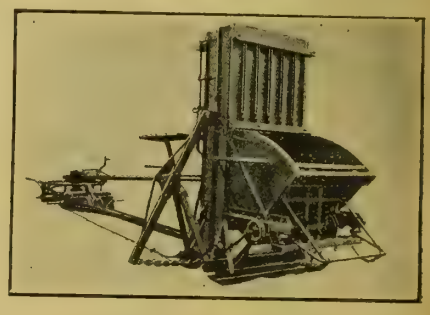

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Irrigation and Forestry

TO PROTECT THE HEADWATERS.

By Guy Elliott Mitchell.

The West lined up almost solidly for the passage of the Weeks bill, known as the Appalachian National Forest Act, possibly, one might believe, as a return courtesy for the Eastern support accorded to the national irrigation bill in 1902. If such support for the forestry measure was solely on this co-operative and friendly basis, the West builded better than it knew. As a matter of fact, the passage of this measure establishes a principle of great importance to California as well as to every region drained by navigable rivers.

This principle recognizes the propriety of purchase by the federal government of any forested (or deforested) watershed, the control of which may be necessary to preserve the flow of any navigable stream, or its tributaries, in any portion of the United States. Both of the California senators voted for the bill, and of them at least it can be said that they fully recognized its possibilities as applying to California. Senator Flint in a private conversation stated that he favored the measure both from a national standpoint and because it established a principle of great importance to Southern California, although this did not as yet go far enough to cover the necessities of that section of the country.

Appalachian Act Limited.

Purchase under the Appalachian act is limited to the forested areas on the headwaters of navigable streams. But the rivers of Southern California on the Pacific slope are not navigable, and yet on the headwaters of these streams there are many areas, some of them entirely surrounded by national forests, which are in private ownership and liable to be denuded and deforested, with great resulting harm to the water supplies. The federal government not having as yet established the policy of buying lands for the purpose of putting them into national forests, has been unable to acquire these lands, and they are likely to remain in private ownership, subject to destructive timber cutting, unless some way can be found for them to be purchased by the government.

The Appalachian national forest bill was a great step forward in that direction, but it does not go far enough. The next and final step, however, mentioned by Senator Flint as necessary for the protection of Southern California, is found in Senator Newlands' "river regulation bill," which makes it possible for the national government to acquire lands which are near or adjacent to national forests, or which are needed for the preservation or regulation of water supplies, without being limited to the watersheds of navigable rivers.

Great Development Possible Under Newlands Measure.

The Newlands bill is a most comprehensive measure, providing for the full development of the water resources of the nation, and this feature of it must commend it particularly to California. The bill appropriates $50,000,000 a year for the period of ten years for the comprehensive development of the water resources of the United States through the existing government bureaus now engaged in water resource work—the army engineers, the Geological Survey, the reclamation service, the forest service, etc. It will be reintroduced by Senator Newlands, and immediately upon the convening of the new congress will be aggressively supported by the National Irrigation Association, which was an active factor in the campaign that resulted in the pasage of the national irrigation law in 1902.

Help North of Tehachapi.

The Appalachian bill has a very wide and far-reaching influence in its application to everything in California north of the Tehachapi mountains and lying on the westerly slope of the Sierra Nevada mountains. The entire interior valley and the watersheds of the Sacramento and San Joaquin rivers and all their tributaries, including Kings river, are on the headwaters of navigable streams, and for that reason the Appalachian bill is aplicable to them. Of course the fund created by that bill would not be large enough to permit of a great deal being done in this section of the country under that particular measure, but it is a tremendous advance in the declaration of an entirely new policy. As Senator Burton said in his speech in opposition to the bill, if the government is to enter upon a policy of preserving forests to protect the waters of the navigable rivers, it should also protect from floods, and that point brings in the whole Sacramento and San Joaquin valleys and all the overflowed lands in those valleys. The Newlands bill provides all the machinery and all the money that is necessary for a complete solution of that problem.

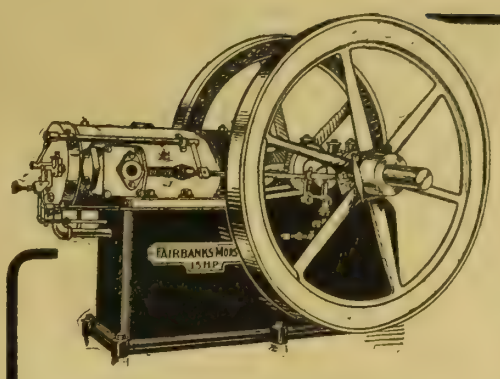
When the Newlands bill is analyzed and understood, it will command the same unanimous support that was given by California to the national irrigation bill.

TWO YEARS OF CONSERVATION.

Over seventy million acres of coal land in the West is still owned by Uncle Sam. The coal content of this land is enormous; it can be figured only in hundreds of billions of tons. Some tracts are of immense value, containing beds of coal of the highest grade, 30, 40, 50, and even 80 feet or more in thickness. The old way was to sell the coal land, regardless of value, at the absurd figure of $10 an acre if it was more than 15 miles from a railroad, or at $20 if within that limit. The present way is to measure the coal in an acre and sell the land at a price determined by its content of coal. As a result coal land has been priced as high as $400 an acre and one tract at even $600 an acre. Since March 4, 1909, the Geological Survey has classified, by 40-acre tracts, 8,527,166 acres of the government coal lands, at a total valuation of $560,815,081. Including the work done under the last administration a total of 13,480,538 acres has now been classifield as coal land, at a valuation of $637,619,418. At the $10 to $20 minimum rate these lands would have a valuation of $218,289,942, so that the work done has resulted in a gain to the government of nearly $420,000,000. It may be noted that the proceeds of coal land sales are all deposited to the credit of the "reclamation fund"—the fund that pays for the construction of the government's vast water storage projects.

Government Appraisal Accepted.

The work involved in the classifica-



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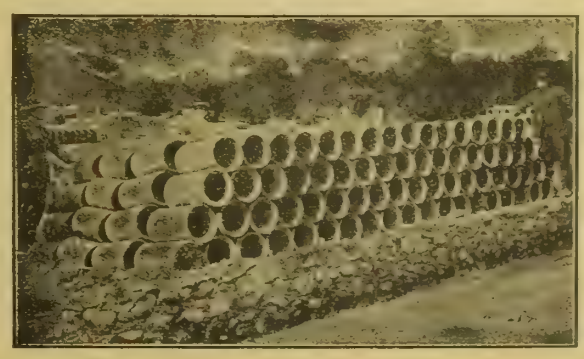

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are the most economical, efficient power known for pumping water and doing other farm work.

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Call on the I H C local dealer, tell him of the work you want to do and let him show you the one for your needs. If you have feed to grind, milk to separate, wood to saw, fanning mill to operate, an engine from this line will meet your needs. Remember—the efficiency of I H C Gasoline Engines has been proved by years of service—they are backed by a company that has a reputation to maintain and could not afford to put out any machine that is not dependable.

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The purpose of this Bureau is to furnish farmers with information on better farming. If you have any worthy question concerning soils, crops, pests, fertilizer, etc., write to the I H C Service Bureau, and learn what our experts and others have found out concerning those subjects.

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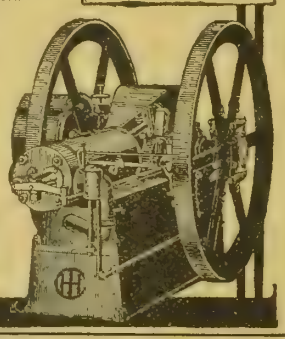

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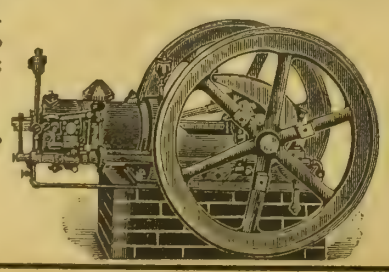

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262-264 South Los Angeles Street,
Los Angeles, Cal.
Phones: A5430, Broadway 5430.
Estimates and Plans Furnished.

tion and valuation of the nation's coal fields is immense and the scheme under which it has been worked out is remarkably accurate and scientific. The best evidence of its accuracy is the ready acceptance of the estimates and valuations by purchasers of coal lands and the fact that the Geological Survey is constantly receiving applications and petitions for the classification of coal lands.

Enormous Tract of Coal Land.

As a result of geologic field examinations this administration has also withdrawn 62,140,548 acres of probable coal land and has restored to agricultural entry 18,777,756 acres of noncoal land, which had been withdrawn from entry pending the Geological Survey's determination of its character. A single Montana withdrawal, made last July, included 20,208,865 acres. The amount of coal contained in this area is almost incredibly great. A single 40-acre tract, for example, contains over two and a half million tons of coal. The present outstanding withdrawals awaiting geologic classification aggregate 80,007,688 acres.

Large Withdrawals of Oil Land.

Another public fuel resource in the conservation of which the administration is taking an active interest is oil. Many of the public-land states are underlain by deposits of petroleum, with which natural gas is frequently associated. Two years ago the Geological Survey reported to the National Conservation Commission that the oil contained in the California deposits alone amounted to eight and a half billion barrels, and this estimate is now declared to be moderate. Careful geologic examination has been made of the western oil fields, and 3,796,572 acres of public oil land have been withdrawn from entry in California, Oregon, Wyoming, Utah, New Mexico, Colorado, and Louisiana. These withdrawals are made in aid of proposed legislation, for the present gold-placer law under which oil or gas land must be acquired is absurdly inadequate and provides no means by which the government can retain an oil supply for the navy, every new ship of which is now equipped with oil-burning furnaces.

Conserving Water Powers.

Withdrawals of waterpower sites on public lands by the Geological Survey in aid of proposed legislation have included thousands of sites. The withdrawals made during the last two years cover 161 streams in 12 states and aggregate 1,403,054 acres.

Discoveries of Phosphate.

Even the classification of agricultural land in the West has devolved upon the Geological Survey, which during the last two years has designated 186,005,858 acres as nonirrigable and thus subject to entry under the enlarged homestead act.

The Geological Survey has contributed most notably to the farming interests in connection with the discovery and classification of phosphate lands. Phosphate is as necessary a plant food as potash. The world's supply of phosphate is small, but fortunately the largest known deposits have been recently discovered in the public land states of this country. As the result of careful geologic examination 2,548,145 acres of phosphate land are now withdrawn from entry awaiting legislation to safeguard them from monopoly, and another area recently discovered to be underlain with this mineral resource will soon be withdrawn. These lands include several areas discovered by survey geologists. The lands withdrawn are in Montana, Utah, Idaho, Wyoming and Florida.

Mineral Land Now Withdrawn.

The areas of public mineral lands of all kinds now withdrawn are given below, in acres:

Coal	80,007,688
Oil and gas	3,796,572
Water power	1,406,054
Phosphate	2,548,145

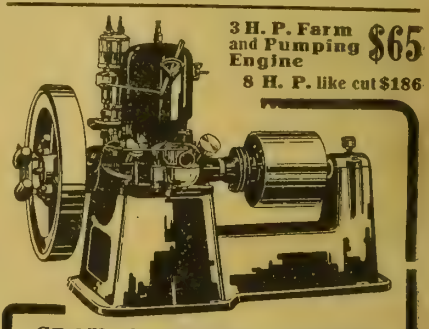
IRRIGATION INVESTIGATIONS.

The U. S. department of agriculture has just issued a progress report of co-operative irrigation investigations in California covering the ten-year period 1900-1910 which is available for free distribution on application to U. S. Irrigation Investigations, Berkeley, Cal., or the Secretary of Agriculture at Washington, D. C.

This report gives a summary of the irrigation work of the department of agriculture since 1900 in co-operation with the state of California, with a list and outline of all irrigation reports issued by the department or now in press.

One of the main portions of the report is a review of the water-right situation in California and of the efforts heretofore made to obtain irrigation legislation for California along the lines of that in force in the other irrigated states. A state commission for the preparation of an irrigation law for California is suggested.

The report is known as Circular 108 of the office of experiment stations and is entitled "Second Progress Report of Co-operative Irrigation Investigations in California."



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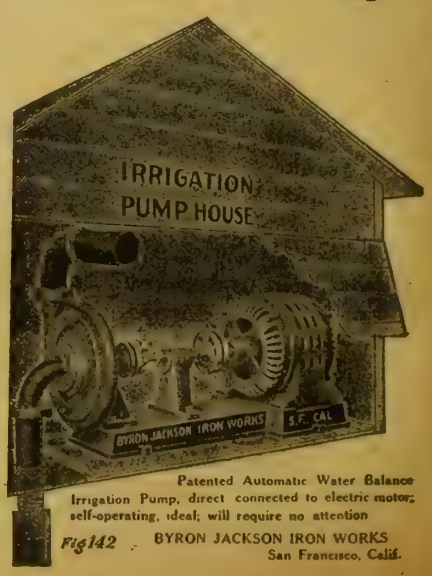

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Fig 142 BYRON JACKSON IRON WORKS
San Francisco, Calif.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Chicken Pox.

I have several chickens eight weeks old with "pimples" as large as small peas all about the eyes and head. They seem to itch, as they rub their heads on other parts of their bodies. Have used lard, turpentine and carbolic acid in mixture. What is the trouble and cure?—Subscriber, Fowler.

This is a straight case of chicken pox. It is very contagious and fatal to young chicks. Grease the "pimples" with carbolic salve and if the mouth or throat is affected, a wash of vinegar and salt is good, a level teaspoonful in a cup of vinegar. Also swab throat with peroxide of hydrogen. A little germozone in drinking water is a preventive. Thoroughly disinfect premises with carbolic acid and water. Brooders should be scalded and sprayed, and if bichloride of mercury is added to the scalding water it is far better. It is a deadly poison. Of course, all feeding troughs and drinking vessels must be thoroughly disinfected. Another remedy is use of strong soap suds in which is mixed a little carbolic acid. After washing heads, anoint sores with vaseline and fresh lard.

Lice.

I have 160 White Leghorns badly infested with lice. What is the best way to get rid of them? Is it advisable to dip hens in solution of kerosene?—C. S. E., Ceres.

The poultry department of this week contains condensation of report of the Maine Experiment Station, part of which has been given in the Cultivator before. It is an excellent treatment and has been highly recommended by those who have tested it. In addition we may say that one of the very best remedies is a good dust bath before poultry at all times. It may be of freshly turned earth, mellow and slightly damp. It is well if out of doors to have under a tree, or it may be inside in a box six or eight inches deep. If hens are badly infested now it is well to dust with good lice powder. Any good poultry supply house will carry several excellent powders, or common road dust may be used, to two quarts of which four fluid ounces of any good lice killer may be added and thoroughly mixed, then add tobacco dust bulk for bulk.

Best Cherry Root.

Which is the better stock for cherries in California orchards, Mazzard or Mahaleb?—Subscriber, San Luis Obispo.

It is the general experience among California cherry growers that Mazzard is the best stock for cherries in this state.—J. W. M.

Right of Way.

A had a piece of land (forty-three acres), which he rented to B for ten years, and a flatiron-shaped piece of ground, 10x15 feet, between A's line at creek and county road belongs to B. B made this crossing in to county road across this flatiron-shaped piece of land, 10x15 feet, himself, while he had it rented, and it has been used as an opening to A's piece of land into the county road, now, nearly thirteen years. C bought this forty-three acres from A nearly three years ago, and has been using same crossing. B let C put in culvert in creek (4x6 feet), and also swing gate at county road. Can B make C pay for this piece of land, 10x15 feet, now, after it being used for an outlet for thirteen years, or can B stop C from crossing this flatiron-shaped piece (10 x15 feet) to get in to county road?—A Subscriber.

As C has only used the outlet for three years, and put in culvert and swinging gate under permission from B, I conclude that C's use of the road is merely permissive on B's part and in the nature of a license, and therefore that C has acquired no rights, nor would he acquire any, even though the statutory period should elapse, so long as he continues to use merely under a license or permission. The years of use by B and those who desired access to B's land, while B was in occupation of the forty-three acres, would not be considered in solving the question, unless, also during that time, C, or the public generally, had used the right-of-way under a claim of right as a public way. Under the facts given, I see no reason why B cannot stop travel on the strip at any time.—E. L. P.

Hop Vines.

How are hop vines started and where can I get some, a few plants which will make good shade?—Subscriber, Terra Bella, Tulare county.

We do not think the climatic conditions of Terra Bella would be ideal for hops. The effort may be worth the trial however. They like rich, sandy loam and should be protected from strong winds. They are always propagated from cuttings of the underground stems called roots, taken from runners of established hills. If they are simply wanted for shade, we believe quicker results could be secured by the use of the common morning glory, or better, the kudzu vine which is one of the most rapid growing vines known.

Stock for Citrus Trees.

Which is the better stock for oranges, sweet or sour, and why?—Subscriber, Santa Ana.

We presume the greater proportion of the citrus trees in California are on sweet stock, but the sour is now more used than formerly and is especially desirable on heavy, moist lands. It has stronger and more extensive root system and is far less subject to gum disease.

Dip for Scabby Potatoes.

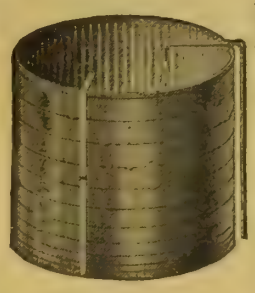
Please give best formula for dip to prevent scab on potatoes.—Subscriber.

See Cultivator of November 3rd for formulas, one of which is for formalin as follows: formalin one ounce, water two gallons. Immerse whole tubers for an hour and a half.

Lespedeza Grass.

Is the lespedeza grass grown in southern states desirable for this state? Am told it will crowd out Bermuda. Is it good for hay? How many crops are obtained?—Subscriber, Modesto.

This is an annual forage plant, widely branched and decumbent, though it may be erect where crowded. Grass is from three inches to two or more feet in height. It is often called Japanese clover and supposed to have been introduced from China or Japan into the southern states where it has been under observation since 1849, growing especially well along the Gulf. It will hold its own against all weeds and it is claimed that it will crowd out Bermuda, but is itself much more easily eradicated under culture than is Ber-



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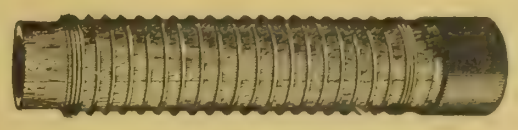

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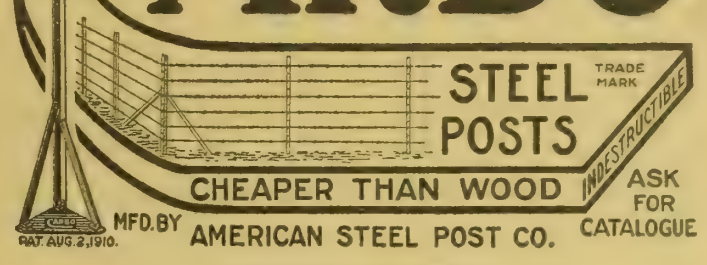

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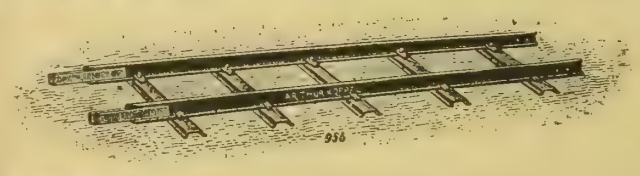

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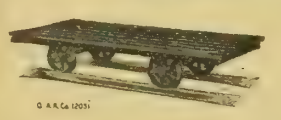

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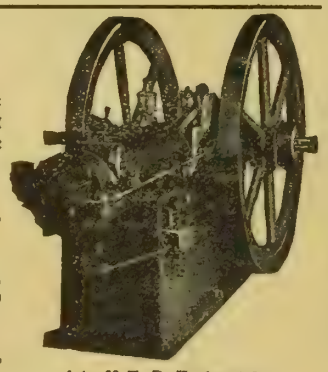

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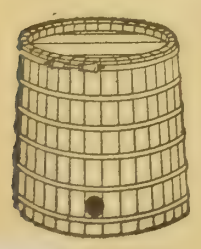

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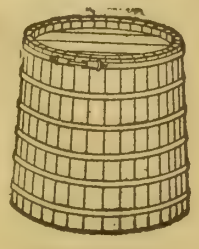

Water Tank

muda. It is not very exacting as to soil, but does best on moist loam, though it will not stand a wet soil. It is not often sown, as it spreads naturally. It is said to afford valuable pasturage for cattle, horses, hogs or sheep though they must learn to like it. It is used extensively on the poorer clay soils of the cotton belt. It will not stand frost and is not grown in the North. It is sometimes harvested for hay and must be cut while green, that is, it should not be overripe. It has produced as high as three tons to the acre. We do not know of its culture in California but from the amount of moisture it requires, assume that alfalfa would be vastly superior.

Hoop Snake.

Please give information regarding hoop snakes. Do they form a hoop when chasing people, and do they sting or bite?—J. W. P., Yuba City.

The hoop snake is perfectly harmless, a native of the southern part of the United States. Its scientific name is Abaster erythogramnus. The name "hoop snake" was given it because of the mistaken impression that it forms itself into a hoop by taking its tail in its mouth and rolling with great velocity. This impression was no doubt gained by its undulation when in rapid motion.

Gum Disease.

We have two inquiries concerning gum disease, and refer for answer to citrus page of next issue where appears the address of Mr. A. F. Call of Corona made before the citrus growers' convention at Pomona some months ago. Mr. Call has fully investigated this trouble and gives in this address treatment for it.

Changing Drakes.

We have Indian Runner ducks which have been penned with Pekin drake. We now have Indian Runner drake. How long before the Pekin strain will have disappeared and the eggs hatch full Indian Runners?—Subscriber, Santa Rosa.

Definite information cannot be given as to length of time; probably two weeks. Some think that the entire clutch of eggs must be laid out; others think it is only a matter of two or three days. We may add, however, that believers in telegony, or permament influence, claim that once a cross has been made there will always be an influence on the offspring. This belief has been strong with breeders of dogs, but Davenport's Principles of Breeding maintains that positive proof of this so-called principle has never been made.

Government Lands.

The Cultivator recently made mention of the fact that 36,000 acres of government land in Stanislaus, Merced and Mariposa counties was to be opened for settlement on April 9 and subject to entry on and after May 19. The officer having jurisdiction over this land is Receiver J. C. Ing, U. S. Land Office, Sacramento.

Standard on Indian Runners.

Can you tell me what the Standard of Perfection requires of Indian Runner drakes?—Old Subscriber, Santa Rosa.

Weight: 4½ pounds. Head: Long, flat, finely formed, fawn and white, the fawn in head darker than in rest of body. A narrow line of white divides the cap from the cheek markings behind the eyes, and a line of white about one-eighth of an inch divides the base of the bill from head markings. Bill: Strong at base, fairly broad and long, extending down from the skull in a straight line, giving appearance of long wedge, yellow when young; greenish yellow when fully developed, with black bean. Eyes: Set high in head, dark brown. Neck: Long and thin, white from head to where breast markings begin, which should be about one and one-half to two inches above base of neck. Wings: Medium length, carried close to body; shoulder and top part same color as breast. Primaries and secondaries white. White of primaries and secondaries should extend up the lower edge of wings to a point a little above the white of lower part of body, forming an inverted V-shaped marking on each side of the body. The fawn on shoulder, top part of wings, when wings are folded, comes to a point on lower part of back, forming a heart shape, like heart pressed flat on the back. Tail: Composed of hard, stiff feathers; sex feathers hard, well curled, bronze green. Back: Long, narrow, even fawn colored throughout. Breast: Full, but not rounded, showing little suggestion of keel. Carried well up. Fawn and white, divided about half way between point of breast bone and legs; upper half fawn, lower white. Body: Long, narrow, racy looking, carried erectly, with no indication of keel, resembling penguin in form. Body and fluff are white except an indistinct line of color which runs from base of tail to thigh. Toes and legs of medium length, set well apart. Toes straight, connected by web, orange red in color.

Veterinary

Answers in this column by Dr. Fred G. Matthews, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Nasal Discharge.

I have a sick horse, which does not eat well and has a running from the head. The discharge has a foul odor. Will other horses on the farm take the disease and can you give a remedy?—Subscriber, San Jose.

From the meager description it is impossible to determine if the horse has catarrh of the cavities of the head or a disease of the entire system. Open the nostrils and examine the partition of the nose for ulcers. Have swellings appeared in the body or legs during the past few weeks? Have there been sores on the legs? If so, this may be a disease which the other horses may contract. If not, have the teeth (the upper grinders) examined for a diseased tooth which may cause a foul discharge from the nose. In any event the horse will require the services of a qualified veterinarian.

Pink Eye?

Friday evening my horse showed uneasiness, eyes pink around the edges, and eyelids swollen. By Sunday the eyes have changed to a white color. He has good oat hay, rolled barley and grass, eats fairly well but slowly. Is this pink eye? Please give cause and remedy.—Subscriber, Oceanside.

The symptoms do not correspond to either pink eye or moon blindness. In the former, milky discoloration is rare and the latter disease is seldom encountered in this climate, and as a rule, one eye only is affected at a time. Dissolve ½ drachm boric acid and 2 grains morphine in 2 ounces of camphor water and apply a little to the eyeball two or three times daily with a feather or soft brush. Supply drinking water in a bucket adding one tablespoonful of epsom salts to each gallon of water.

FRUCTIFICATION OF THE FIG BY BLASTOPHAGA.

(Continued from Page 419.)

sands of plants were grown at the United States Introduction Garden at Chico. It is believed that such plants will be the means of producing some interesting varieties. The breeder does not have to wait long for results, for most of the seedlings bear fruit at the age of two and three years.

A striking instance of the fertilization of common figs occurred last year at Loomis, Placer county, where a fruit grower had grafted a portion of an Adriatic tree with Smyrna scions. The Smyrna branches set quantities of figs, and, wishing to secure a crop, the owner hung caprifigs in them containing blastophaga ready to issue. Some of the wasps entered the Adriatic figs on the ungrafted part of the tree. The writer secured three matured Adriatic figs which showed by their larger size that they had been entered by the wasps. These three figs contained, by actual count, 4,800 heavy, fertile seeds, or an average of 1,600 for each fig—certainly a good crop from a "mule fig" which, according to some writers, will not breed.

In this way fertile seeds can be secured from all kinds of our cultivated figs, and the breeder has complete control of such crosses, and can with considerable confidence expect to perpetuate desirable hereditary characteristics in his seedling trees. It is found, however, from experience that about one-half of such seedlings are staminate trees. The process is exceedingly simple. A twig is selected with a number of figs from three-eighths to three-quarters of an inch in diameter, which is the receptive size in most varieties. Drop a caprifig with blastophaga ready to issue into a paper bag and tie it tightly over the twig, and the insect will do the rest. At the end of two or three weeks remove the paper bag and replace with one of mosquito netting, for protection against birds and to prevent the ripe dried fig from falling to the ground.

Caprifig Seeds.

The mammoni crop of the capri tree is the only one which has been observed to produce seeds, and then only in small numbers. The obvious reason is that it is pollinated by the blastophaga of the preceding profichi crop. The profichi itself yields no seed, because the mamme figs preceding it have no pollen, although the pistils are provided with receptive stigmas.

Solms-Laubach found twenty seeds in forty mammoni figs, and reached the conclusion that not more than one flower in 2,000 was a perfect female flower, all the others being gall flowers, incapable of fertilization. The writer has found as many as seventy-five fertile seeds in one fig, and from a large number of mammoni seeds secured last summer young plants are now being grown at Chico. From careful observations the writer has been forced to the conclusion that all gall flowers are perfect female flowers and susceptible of pollination, and that most of them are pollinated, but if the blastophaga deposits an egg in the ovary, the resulting larva would prevent the formation of the embryo, and if formed would be eaten or otherwise destroyed. The seeds therefore found in the mammoni figs are from those flowers in which the insect failed to oviposit.

There seems to be some connection, not yet well understood, between the seed and the secretion of sugar and coloring matter. The pedicels and floral envelopes of the seeds in the mammoni fig are succulent, sweet, and generally of a pink color, while all parts of the gall flowers containing blastophaga are white and quite dry, the difference in appearance being so great that the seeds can be readily picked out with a pair of forceps from the mass of galls by their juiciness and color.

As further evidence that all the flowers in the mammoni fig are perfect female flowers, some of the persistent styles were taken from fertile seeds and others from galls containing fully developed blastophaga in the same fig, and placed side by side under the microscope, and were found to be identical in cellular structure and in every respect. The writer is therefore satisfied that the stigmas of the caprifigs are equally as susceptible to pollination as are those of the female figs, and, in fact, are so pollinated, but fail to produce more than a few seeds for the reason given.

When the blastophaga enters the caprifig its stamens are in an undeveloped condition, and will not be ready to shed their pollen until about two months later, that is, at the time when the next generation of wasps is ready to issue. It is therefore impossible for a fig to pollinate itself. Here, then, is a striking instance of one of nature's methods of preventing self-fecundation.

Life of the Blastophaga.

The beneficent insect upon which depends absolutely the whole Smyrna fig industry was sent over to the United States from Northern Africa in 1899 by Mr. Walter T. Swingle of the Bureau of Plant Industry of the United States Department of Agriculture. He succeeded where others had often failed by confining his efforts to the winter generation and by the ingenious expedient of wrapping each caprifig in tinfoil to prevent evaporation. Mr. Swingle is entitled to full credit for his successful efforts, notwithstanding the fact that the blastophaga was already here, having been accidentally introduced with fig trees from the south of Europe about 1865, but not known to orchardists until about three years ago, having been confined to an isolated tree ten miles west of Modesto.

In April, in the warm valleys of California, the wasp which hibernated in the larval form during the previous few months reaches maturity. The male leaves the gall first. He moves about the interior of the fig, and, finding a gall containing a female, gnaws a hole through the cortex at the base of the style, and, inserting his long, slim abdominal projection, fertilizes the female while still in the gall. The female enlarges the opening, and sometimes makes another, always at the base of the style, probably because it is the point of least resistance. In from twenty-two to forty-eight hours she comes out, reaching the open air through the cluster of male flowers, the anthers of which at this time have burst and are shedding large quantities of pollen. She is frequently so loaded that she is unable to fly until she divests herself of much of it in the same way that the common house fly cleans itself. After being relieved of part of the load, she flies to the nearest fig, and, if found to her liking, immediately seeks the opening at the apex. At this time the figs are hard and from a quarter to three-quarters of an inch in diameter, and the eye is closed by the overlapping scales. With her powerful mandibles she sometimes is obliged to cut away a portion of one of them to effect an entrance, but usually she is able to push her head in, and after a struggle of sometimes five minutes or more pushes her body down the zigzag way to the interior of the fig, leaving her wings behind.

While one wasp is probably sufficient to fertilize a fig, where they are very abundant, as at the Maslin orchard at Loomis, it is not unusual to find a dozen or fifteen in one small fig, and as many more in a struggling mass trying to get in, the cluster of wings radiating from the eye like the plumes of a feather duster. If the caprifig from which the wasp has issued has been hung in a Smyrna tree, she enters a Smyrna fig, and then finds she has made a mistake, as the flowers are of such shape that she cannot oviposit in them, and after wandering about in a vain effort to dispose of her eggs, in this way doing her useful work of fertilizing the female flowers, in most cases crawls out. When the weather is warm, say 90 to 100 degrees, the insects are very active, and come out of the caprifig with a rush. The writer has seen forty come out in one minute. The issue takes place almost entirely in the forenoon, except a cold, windy morning is succeeded by hot sun in the early afternoon, then a considerable number issue. The movement depends much upon the weather. During cool, windy mornings very few come out, but if the next morning is warm, calm and sunny, a great rush occurs. The wasps continue to issue from a single fig for a week or ten days, and from various trees for two to three weeks. After the females have left the fig, most of the males soon follow, and, being wingless, drop to the ground like the females from the Smyrna figs.

Every Smyrna fig not entered by the blastophaga dries up and falls from the tree. The same is true of the caprifig. In a few days the caprified fig undergoes a remarkable change. It begins to increase remarkably in size, becomes smooth by a lessened prominence of the ribs, and, losing its pea-green color, assumes a decidedly pruinose tinge, this being true also of the caprifig.

There are still obscure problems to be solved in connection with the fructification of the fig, and it would be gratifying if some of our skilled cytologists could be interested. One such problem is to determine why the first crop of certain figs reaches an edible condition without caprification, while the next one never matures without it. One of these varieties is the White San Pedro, and another is the Gentile. The first crop of the latter, however, does not entirely fail without pollination, but the crop is much increased by the application of the blastophaga.

Outlook for the Fig Industry.

The outlook for the Smyrna fig industry in California is extremely promising, due principally to favorable climatic conditions, and it is rapidly spreading to all parts of the great interior valley. The climate is not at all inferior to that of the Smyrna district of Asia Minor, where the bulk of the finest figs of the world are now produced. The Valley of the Meander, the seat of the great Smyrna fig industry, has a much moister climate and in some respects inferior to that of portions of California. The rainfall is three or four times greater than that of the central San Joaquin Valley in this state, where the industry has at present its greatest development. The rain, however, falls mostly from November to April, with occasional showers and dew in summer, making irrigation unnecessary. One drawback in that country is that once in three or four years a frost occurs which is severe enough to destroy the caprifigs, when the growers are obliged to draw supplies from the frost-free islands of the Mediterranean.

The ideal climate for Smyrna fig culture is one in which the winters are mild enough to permit the blastophaga to live through without injury and with freedom from early rainfalls. The Smyrna figs ripen and dry on the tree in September, October and November, and then fall to the ground, only the largest requiring further exposure to the sun. Dry weather at this period is therefore indispensable. As these conditions prevail nowhere else in the United States, except in California and a part of Southern Arizona, these would seem to be the regions in which the industry will have its greatest development.

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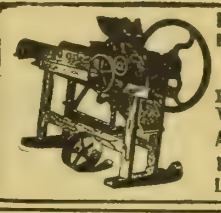

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Why not buy the best? I have about 100,000 one year sour stock, also a large amount of two year stock, both sweet and sour.
T. J. LOCKE
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Sweet Orange Seed
IN ANY QUANTITY
150,000 sweet seed bed stock. Prices reasonable.
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Boars, different ages; Sows, both open and bred. State Fair Prize Winners. Over 100 spring pigs to select from. Sired by large boars and out of prolific sows. Write your wants. Mention this paper.
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Armour's Fertilizers and Gypsum
Phones: Bdwy. 4586, Home A1823
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DWARF MILO MAIZE
A DRY LAND CROP

Where the rainfall is limited or water is expensive there is no more profitable forage and dry feed crop than **Milo Maize.** It belongs to the sorghum family of tropical Asia and Africa, where it is the principal grain grown.

We have secured a stock of a dwarf variety that has been thoroughly tested in Southern California and Arizona, yielding two and one half tons of grain per acre. It grows a stalk 4 to 5 feet high with large, compact, erect heads, and stock especially like the sweet flavor of the stalk.

Write for cultural directions and prices.

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But Just Right

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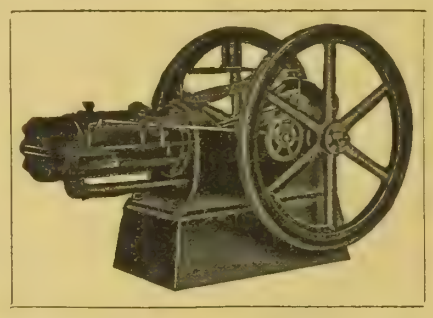

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The only roller with dirt-proof bearings, deep oil chambers and self-oiling Babbitt metal bearings that last a lifetime.

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High carbon hardened steel rollers. Extra heavy angle steel weight boxes.

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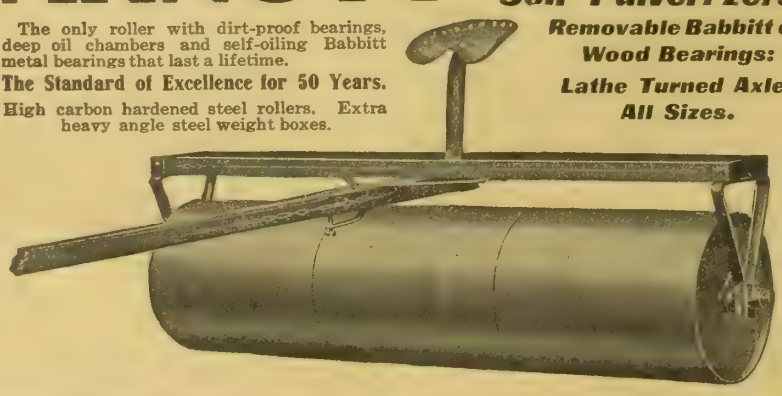

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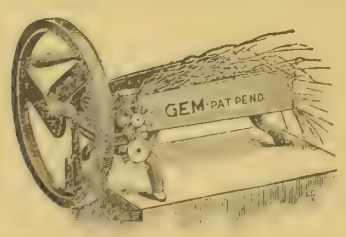

GEM ALFALFA CUTTER, $8.00

Just the thing for the chicken raiser for cutting alfalfa, clover and green feed. Insist on the Gem. Take no substitute. Shipped direct on receipt of price, $8.00.

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SEED CORN

Department of Agriculture Selection No. 160. An early maturing yellow flint corn that has produced 78 bushels shelled per acre. Will produce a fair crop with a minimum of water if planted early. Sold only in the ear. Price $3.00 per 100 pounds, smaller lots five cents per pound.

J. B. Neff
Anaheim, Cal.

Timely Ranch Suggestions

THE OUTLOOK FOR 1911.

By M. R. D. Owings, of the I. H. C. Service Bureau.

The year just closed will be memorable for the enormous value of its agricultural products. Never before in the world's history has the United States produced farm products to the value of $8,926,000,000 in one year, which is the value of the argicultural products of this country for 1910, as reported by the Secretary of Agriculture. This aggregate is nearly double the value of the crops of 1899—an increase in eleven years of nearly $4,500,000,000—and this prosperity of the farmers is practically nation wide, as almost every crop and every district, except some portions of the Northwest, have participated in bounteous harvests. Indeed, this prosperity of the farmers is nearly world wide, and as a result, in part at least, trade expansion in 1910 was larger than in any other years.

But the record of business for 1910 is now closed, and we are concerned more particularly with the new year. We refer in passing to the crop results in 1910 only because of the fact that this prosperity of the farming community furnishes a most substantial reason for the expectation that the new year may be a very prosperous one for the people of the United States.

Much has been said of late concerning the necessity for better cultivation of the soil and of increasing the yield per acre, if we would keep pace in our production with the increase in our population, and thus preserve our position as a food-exporting nation. The agitation in this direction is resulting in the use of more and better implements and machines for the cultivation of the soil, and less wastefulness in harvesting the crops. Many of the state agricultural colleges are sending their professors out among the farmers, giving lectures and demonstrations, directing attention to the importance of selecting good seed, the best methods of tillage, and the proper steps to take to maintain and increase the fertility of the soil, and this work is supplemented with educational booklets and special articles prepared and sent out by the leading manufacturers.

The effect of this is seen in a more general use of the most modern tillage implements — traction engines for deeper plowing, to get beneath the earth that has been compacted by years of plowing a uniform depth, and thus increase the depth of the loose soil and its capacity for holding moisture; corn binders and huskers and shredders for saving the corn crop; gasoline engines for pumping and other uses on the farm, etc. The farmer is realizing in a larger way the value of these machines, and the bumper crops give him the means with which to procure them. The profitable crops also emphasize the necessity for the use of the best farming implements and machines in order that the largest returns possible may be realized from each acre.

We have also heard considerable of late about the "back to the farm" movement from the big cities. Many who have found the struggle too strenuous in the overcrowded centers of population, and desire the freedom and independence of the farmer, are returning to the simple life. All these things make for a larger and better demand for the commodities of trade, and give a substantial foundation for the belief that the demand for farm products in 1911 should be considerably more active than in any previous year.

RAILROAD ENCOURAGES GOOD ROADS.

Unique among the efforts of the Pennsylvania railroad to encourage the good roads movement in the state of Pennsylvania was the operation of a good roads educational train in January. This was the first time any eastern railroad has run a good roads special.

The train was in charge of the Pennsylvania State College co-operating with the roads department of the national government and the state highway department of Pennsylvania. The train, consisting of four cars, was used for lecture purposes in villages and small towns along the lines of the railroad. One car was fitted up with a lantern for the illustration of the lectures, another car for exhibits showing models of several types of roads such as earth, sand-clay, gravel, macadam, and telford. This car also contains series of photographs and drawings for illustrating the different methods of drainage and kinds of construction required for special conditions. Two flat cars contain samples of the most important machinery required for service in road building, also a home-made roller, drag, and sprinkling wagon. The exact cost and methods of construction of the roller and drag will be shown in detail.

The Pennsylvania railroad has for some time been conducting a campaign in the interests of good roads. Literature has been disseminated and lectures have been given in a number of towns. The railroad company hopes to carry the gospel of road building into every section of the state.

The state's experts on good roads say that "the average cost per ton mile of hauling over the ordinary dirt roads is twenty-five cents. It has also been proved that a very large saving can be made in this item at a comparatively small cost for proper drainage and preparation of the roads. As 92 per cent of the roads of the United States are made of dirt, it is evident that an improvement in this direction is well worth consideration. In fact, careful calculations have shown that the country could be saved an actual expenditure of over $100,000,000 per year if the roads were of first-class construction and suitably maintained."

The state department men say that many thousands of dollars are thrown away annually on account of failure to maintain roads which cost large sums to build and which through neglect have rapidly deteriorated to a condition where they must be wholly rebuilt.

THE BLOSSOMS ON THE TREES.

Blossoms crimson, white or blue,
Purple, pink and every hue,
From sunny skies to tintings drowned
In dusky drops of dew,
I praise you all, wherever found,
And love you through and through—
But blossoms on the trees,
With your breath upon the breeze,
There's nothing all the world around
That's half as sweet as you!

—James Whitcomb Riley.

WHY FARMERS NEED AUTOS.

I was asked the other day what I considered the most important accomplishment of the motor car.

Of course, the greatest thing accomplished by the motor car has been the improvement of individual transportation. That is the greatest general need the motor car has accomplished.

But the greatest good which has resulted from the automobile has been to the farmer. The motor car has undoubtedly accomplished wonderful things in the development of cities. It has done great things in taking city people into the country. It has done great things for commerce and cities, but no one has benefited so greatly from it as has the farmer.

I have lived on a farm myself; and I believe that the farmer really needs the motor car more than any other class of autommobile buyers.

In the first place the very nature of the farmer's business compels him to live a more or less isolated existence. He can not pick and choose his society. He must go where the land is most productive, and that is usually somewhat remote from social and business centers, from railroads and from other farmers. In the years gone by unless a farmer lived within a very few miles of his market, "going to town" was quite an event. All of us who have been in the country at all can remember how the lumber wagon used to be filled with butter, eggs, vegetables, a couple of bags of wheat and a bag of shelled corn for the mill and such other things as we had to sell—possibly a calf or a nice fat porker. Mother and father rode in the spring seat up in front. The children sat on boards laid across the wagon box or rode on the sacks of wheat. Then the whole family sat and boiled in the sun and were partially suffocated by the dust kicked up by "Dolly" and old "Bob" during the fortnightly or monthly trip to town.

But the day of that sort of thing has passed. The modern farmer has too large interests to plod along behind "Dolly" and old "Bob," faithful as they were. This is the age of speed. Men and events move rapidly. The agricultural districts of today have replaced the wild places of yesterday. The farmer who keeps abreast of the times watches the market and turns over his crops when he can make the greatest profit. He does not devote large portions of his farm land and a great deal of his time to the cultivation of little things. He specializes and buys the necessaries of life in the cities. He has real need for the automobile which carries him to the city in one-third the time he used to spend. The motor car has enabled him to carry his products to the best market; not merely to the nearest town. The motor car has made it possible for the farmer to have all of the comforts of life of the city while still enjoying all of the advantages of the country.

The automobile has done something more than all this for the farmer, though the benefits are along less practical lines. The automobile has brought the farmer nearer to his neighbors. It has relieved that deadly monotony of ilfe in an isolated district. Farmers who live twenty miles apart are made next door neighbors by the motor car.—Ex.

AS A REMINDER.

His Wife: John, do you remember what took place just three years ago today?

Her Husband: What! Is this our wedding anniversary?

His Wife: N-no. Three years ago today you bought me a new hat.—Harper's Bazar.

Tires 10% Oversize

25% More Mileage—No Extra Cost

If you buy tires for an automobile, let us explain how to cut the cost half—as tens of thousands are doing.

The tires which we tell of—Goodyear No-Rim-Cut tires—are now the sensation of motordom.

Last year our tire sales trebled—jumped to $8,500,000 — because we controlled these tires.

This year 64 leading motor car makers have contracted for them. They outsell our clincher tires six to one.

And these are the reasons:

No Overloading

About 25 per cent of the average tire cost is due to overloading.

The tire size is adapted to the car when stripped. But when you add extras—top, glass front, gas tank, extra tire, etc.—the tires have too much weight. And you overload them otherwise frequently.

The result is a blowout.

Goodyear No-Rim-Cut tires, to take care of these extras, are made 10 per cent oversize. The rim flanges flare outward when you use this tire, so this extra size is possible.

We supply this extra size at no extra cost. That means 10 per cent more air, and air carries the load. It means 10 per cent greater carrying capacity. It means, with the average car, 25 per cent additional mileage per tire.

You get the same result as though you paid for a 10 per cent larger tire.

No Rim-Cutting

Then these patented tires end the damage of rim-cutting. Other tires are ruined when you run them flat. Rim-cutting, on the average, adds one-fourth to one's tire bills.

Note the picture below.

The No-Rim-Cut Tire

This tire is fitted on a Universal rim—the standard rim now adopted by nearly all motor car makers. But the tire fits any rim.

The removable rim flanges are simply set to turn outward, instead of inward, as with the old-type tires.

The tire, when deflated, comes against a rounded edge. You can see why rim-cutting never occurs.

Ordinary Clincher Tire

With ordinary tires these removable rim flanges are set to curve inward, to grasp hold of the hooks in the tire. That's how the tire is held on.

Note how those thin edges dig into the tire. That is what ruins a tire—in a moment—when puncture makes it flat.

How We Avoid It

In the base of our tire we vulcanize 126 braided wires. That makes the tire base unstretchable. It can't be stretched over the rim flange—can't be forced off—until you remove the flange.

When this tire is inflated the braided wires contract. The tire is then held to the rim by a pressure of 134 pounds to the inch.

That's why the hooks are unnecessary. That's why the rim flanges don't need to dig into the tire.

This feature is controlled by our patents. And there is no other feature ever invented which makes a practical tire of this sort.

Tire Book Free

We have sold enough of these tires to equip over 100,000 cars. The demand has become overwhelming. You should know the reasons if you own a car.

They are told and pictured in our Tire book in a clear, convincing way. Let us mail it to you. Write us a postal for it.

You will insist on tires which cut upkeep cost half when you know the facts about them.

GOODYEAR
No-Rim-Cut Tires

THE GOODYEAR TIRE & RUBBER COMPANY, 90th Street, Akron, Ohio

Branches and Agencies in All the Principal Cities *We Make All Sorts of Rubber Tires*

(300)

Did You Ever Stop to Think

That only a very foolish person will try to cut tree limbs with manicuring scissors

—— ALSO ——

That the lightest looking mower is very apt to cut heaviest?

THE NEW STANDARD MOWER

All power in a Mower originates from the grip of the wheels on the ground—the firmer the grip, the greater the cutting power.

The 5-foot New Standard Mower weighs 825 pounds. The entire weight of the cutting bar (while cutting) is transferred through the suspension spring to the main wheels. The bar is neither pulled nor pushed,—it is carried—an exclusive Standard feature.

The power thus secured is transferred to the gearing through the mechanically perfect wheels, found only on the New Standard Mower. The gearing develops high speed without undue strain and passes the power to the knife. The knife works in our famous curved Cutter Bar—straight when lowered—the only frictionless knife channel made.

These are a few reasons why the New Standard Mower is the most powerful cutting mower made. There are other reasons just as interesting.

A folder giving full detailed description of the New Standard Mower and our other Haying Tools will be mailed free on application.

NEWELL MATHEWS COMPANY

Established 1886.

Los Angeles, California.

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

For Sale—Extra fine draft stallion. He combines the world's two greatest draft breeds. Sire is an Imported English Shire, weighing 2100 pounds, one of the best of this great breed on the Pacific Coast. Dam is a very fine, pure bred Percheron. This colt will be 3 years old in May, weighs 1750 pounds now, in ordinary condition. He will weigh 2100 or 2300 pounds at maturity. He has good, heavy bone, splendid conformation, excellent color, style and action, and is a horse that will please the most critical. Price very reasonable. Write for particulars. Geo. A. Smith, Corcoran, Cal.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—Milch Goats. (1) One-half Tog. doe kid, bred to Andreas Hofer, $20.00. (2) Seven-eighths Tog. buck, a beauty, $25.00. (3) Zeta, three-year-old spotted Alpine doe (3 quarts daily), $30.00. (4) Zeta's white buck kid, sired by Andreas Hofer, $20.00. Satisfaction guaranteed. R. M. Cartwright, 1353 Palm St., San Luis Obispo, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

Registered Shorthorn Bulls and Poland China Hogs for sale. Best breeding. P. H. Murphy, Perkins, Cal.

For Sale—Berkshire pigs from registered stock, 4 months old, both sexes. B. de Groot, Aptos, Cal.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L448 Marden Bldg., Washington, D. C.

Farms Wanted—Don't pay commissions. We find you direct buyer. Write, describing property, naming lowest price. We help buyers locate desirable properties free. American Investment Association, 12 Palace, Minneapolis, Minn.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Creamery Manager wanted for modern creamery, in operation one year. Opportunity for investment if desired. Address M, c/o Cultivator.

Bee Men Wanted—One man to run apiary, in hills between Pomona and Fullerton, on shares. Another man to care for apiary by the month, current wages, on ranch, Kern county. Employment all the year. Address Palm Fruit Co., Wasco, Kern Co., Cal.

MACHINERY.

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits complete or separate. Also wagons, buggies, harness, plows, scrapers, header, baler, road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

15 WINDMILL OUTFITS.

8, 10 and 12-foot sizes with tanks and pumps complete, or separate.

Several Gasoline Pumping Plants.

TANKS, TANKS, TANKS.

from 50 gallons to 50,000. Have special prices on 30,000 and 50,000 gallon; 15,000 on 20-ft. stand, 5,000 and tank house.

COMPLETE BRICK YARD.

including all modern machinery for 50,000 daily capacity, including one 100 H. P. boiler, brand new, also one 60 H. P. boiler, and 50 H. P. engine, 50,000 new brick $3000 plant, complete or separate. This material must be closed out immediately at sacrifice prices. Why buy new material when we save you half and guarantee all material. Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main, Los Angeles.

For Sale—40 H.P. Stover gas engine, used less than month. Also new 5-in., 2 stage vertical, centrifugal Byron-Jackson pump, with frame, shafting and fixtures complete. This outfit can be had at a bargain. Will sell separately if desired. All in fine condition. Baille & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Exchange—5-passenger automobile; original cost $1850. Engine and all bearings guaranteed first class. Value $500. Is fully equipped. Has wind shield, two sets lamps, one very large set Carbide lamps, two sets horns, mirror, top. Accessories alone worth $150. We must have $200 cash, balance of $300 will take team horses, mules, farm machinery, equity in lot or what have you? Was left with us by lady to dispose of. Demmitt Windmill & Tank Company, 120 North Main St., Los Angeles.

For Sale—16 H. P. Foos Gasoline Engine, just overhauled and made like new. Will sell on time and guarantee for a year. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

This Ad cost $1.20

Eggs from Select Trapnest Stock—No culls. Black Minorcas, Northrup strain; White Wyandottes, great winter layers; Barred and White Rocks; Buff Orpingtons; Rhode Island Reds; all $2.50 per 36 eggs, $6.00 per 100; White Minorcas, beauties, fine layers of the largest white eggs, $3.00 per 36, $7.00 per 100. White and Brown Leghorns, heavy laying strains, $2.25 per 36, $4.50 per 100. Pullets and cockerels for sale. Enclose stamp for reply. W. D. Rose, R. D. 6, Santa Ana, Cal.

R. D. No. 6, Santa Ana, Cal.,
February 13th, 1911.

The California Cultivator,
115 No. Broadway, Los Angeles, Cal.

Gentlemen: It may be of interest to you to know that the small liner which I recently inserted for one issue in your paper (as per clipping above attached) has brought to me returns to the amount of $386.50. More than one-half of this came to me from the central and northern part of the State. I have been compelled to return to correspondents $48.00 because of the impossibility of filling some of their orders at the exact time desired. You can see from the above that this has been a profitable advertising proposition for me.

Very truly yours,
W. D. ROSE.

And sold stock and eggs to the the amount of $386.50

FARM LANDS FOR SALE.

For Sale—50 to 200 acres, $27.00 per acre, irrigated land; 1-3 cash, balance easy terms. My ranch of two hundred acres can be had on above terms. I will guarantee your expenses in writing if you go and see this property and do not find it to be all level land, good rich soil (free from alkali and hardpan). Water right goes with land and all ditches to the land are complete and paid for. This property is located in the Yaqui Valley, Sonora, Mexico. All adjoining property owned by Americans. Hotels, stores, warehouses run by Americans. Two hours' drive to the ocean. Good markets, two full crops yearly. You can earn over $50 per acre net profit yearly on this land and can grow anything you know how to plant. Address Box "O," Cultivator.

For Sale—$3,500—80 acres, fenced, 5 acres Eucalyptus trees. All under cultivation. School ¼ mile, 4¾ miles from Santa Maria.

$2,800—40 acres, fenced, all under cultivation. School twenty rods, 4½ miles from Santa Maria.

$2,000—32 acres, fenced. Small house, barn, windmill, tank, soft water. School and town of Orcutt 1 mile.

$3,500—40 acres, fenced. House 4 rooms and kitchen, windmill, tank, soft water, barn, chicken houses; ¾ mile from Orcutt.

Terms given by owner of all above property. H. D. Toy, Box 222, Santa Maria, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

Perris Valley—160 acres at Box Springs, four miles from Riverside; Santa Fe road through land. Good citrus fruit land, now in grain, and fine subdivision proposition. Reduced from $100 per acre to $50 for quick sale. Non-resident owner. Snap. Devendorf-Caldwell Co., 630 Central Bldg., Los Angeles.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

For Sale—Orange land in small tracts in Exeter district. Large tract of level, fenced, pasture land. Plenty water. Part cash, terms. Apply Fred M. Hart, Exeter, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Tulare County Alfalfa Land—8000 acres in any size tracts, artesian water. Opening sale from $30 to $60. Easy terms. To the first man who will immediately improve will allow him his own time to pay for his land. Thomson & Rupp, 322 West 6th St., Los Angeles.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

If you want an orange grove or ranch of any description it will be to your advantage to see me. I have some of the best buys in Southern California. John W. Shepardson, 215 Katz Building, San Bernardino, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Poultryman with experience on this coast, capable of managing a large plant and producing satisfactory results in both egg production and the rearing of chicks, desires position. Address Poultryman, 211½ 2nd St., Portland, Ore.

Light Brahmas, Bulah Hill strain, champions of the West. Grand in shape and color; winners of blue wherever shown. Eggs $2.00 to $7.00 for setting; 75 per cent fertility guaranteed. Exhibition and breeding stock for sale. Correspondence solicited. J. E. Chandler, 220 N. Ave. 23, Los Angeles, Cal.

Kellerstrass White Orpington Eggs, $2.00 per 15; $12 per 100. R. L. Warren, National City, Cal. R. F. D. 1.

Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene, Waukena, Tulare Co., Cal.

Eggs from our famous winter laying strains of trap-nested bred to lay Rose and Single Comb Rhode Island Reds. $1.50 per 15, $6.00 per 100. A. L. Harmon, Glen View Poultry Yards, Pasadena, Cal.

For Sale—Pure White Leghorn and Black Minorca hens, one year old, in fine laying condition, $1.20 each. B. de Groot, Aptos, Cal.

Thoroughbred White Rock, Rhode Island Red, Buff Orpington eggs, $1.50 per 15, $6.00 per 100. White Leghorn eggs, $1.00. Thoroughbred Bronze Turkey eggs, 20c each. Orders taken for baby chicks. Mrs. W. L. Duvall, Franklin Ave., Pomona, Cal.

Buff Orpington Eggs for hatching from prize-winning stock, $1.50 a setting. Also White Leghorns (Howard) and Pekin duck eggs, $1.00. Miss Fletcher, Banning, Cal.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

S. C. Brown Leghorn Baby Bhicks, April 20th, $7.50 per 50 or $15 per 100. Mrs. C. H. Vary, Pomona, Cal.

Ancona Eggs for Hatching—Extra good stock. Eggs, $2.50 and $2.00 per setting of 15. Also White Mammoth Pekin Duck eggs $1.00 for eleven. C. S. Norton, Corning, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME

At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Baby Chicks—White and Barred Rocks, White Leghorns and Black Minorcas. Eggs from my own hens, and incubated right. They will live and grow. J. W. Lyon, R. D. 1, Gardena, Cal.

POULTRY

Lasher's Hatchery, 15 Kent St. Petaluma, Cal.—Why my chicks live and grow in the hands of my customers, they are all hatched from free range stock, bred right, mated right, fed right. I have the most up-to-date hatchery building in the country, built of brick, with dead-air space in wall, giving me a uniform heat that means strong, healthy chicks; 16 years in the hatching business, 10 years at present stand. It is no experiment or guesswork with me. Prices per 100, White Leghorn, $7.25 and $8.50. Leghorn-Minorca cross, $7.25. Black Minorca, $10.00. Terms, cash with order.

White Orpington and White Wyandotte eggs for hatching. My winnings at Los Angeles 1911 were 1st cock, 1st hen, 1st and 2nd cockerel and 1st pullet on White Wyandottes. White Orpingtons, 1st, 3rd, 4th and 5th pullets, and 2nd and 4th hens. I breed my winners and am up to date in mating for results. I have no other business. Eggs sell at $3.00 and $5.00 per 15. No more stock until May 15th, when I will sell part of my breeders. Order direct from this ad and your order will receive my most careful attention. A. W. Huskins, 713 Waterloo St., Los Angeles, Cal.

Jubilee Orpingtons—Just received from Wm. H. Cook, England, a pen of Jubilee Orpingtons. Will have only a limited number of settings for sale. These are the best that England can produce. F. S. Washburn, Direct Importer, 240 Anita Street, San Jose, Cal.

Overcrowded; will sacrifice a few splendid White Rock roosters, 20 months old, fine breeders, $5.00 apiece while they last; also 6 hens, 20 months old, for $10.00. Write Dr. T. J. DeVaughn, 30 N. First St., Alhambra, Cal.

White Wyandotte Eggs for Sale—From good strong, large, vigorous stock. My birds are pure white and typical Wyandotte shape. Price per setting of 15, $2.00; per 100, $9.00. All eggs carefully packed for shipment. M. B. Patton, 1124 Brent Ave., So. Pasadena, Cal.

For Sale—One 120-egg Cyphers incubator, new; one 30-candle power gas machine, used only a short time. Same can be had at less than 1-3 of original cost. Address Fred J. Moll, Sr., Eagle Rock, Cal.

Eggs from pure bred Buff, Black, White Cochin Bantams, $1.25 dozen. Rocks, Reds, $1.00 setting (15); Houdans, Cornish Games, $2.00 setting. Pigeons in variety. 114 prizes, 6 cups in 1910. B. Kuechel, Orange, Cal.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

Anconas of Quality—S. C. White Minorcas, Leghorns, R. I. Reds, baby chicks also. Eggs for hatching. Incubator lots or settings. Satisfaction guaranteed. Triumph Incubator Co., C., Corning, Cal.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Eggs for hatching, $1.00 per 15; $5.00 per 100. Day old chicks, $15.00 per 100. Barred Plymouth Rocks, R. I. Reds and Buff Orpingtons. Stamped envelope or cash with order. L. W. Neilsen, R. D. 2, Box A-1, Petaluma, Cal.

Barred Rocks exclusively. Eggs from best matings $1.50 and $3.00 for 15, incubator lots $3.00 to $6.00 per 100. Prices right. G. L. Hawley, Madera, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

R. I. Reds—Phenomenal strain. See display ad, this issue, poultry department. The Luedkes, Anaheim, Cal., R. D. 1.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

White Plymouth Rock and Rhode Island Reds, thoroughbred eggs, $5.00 per 100, $1.00 for 15. Palm Fruit Co., Wasco, Cal.

For Sale—Thoroughbred S. C. Black Minorca cocks and cockerels from special matings. R. Toon, 1337 West 24th St., Los Angeles.

Pit Games, seven leading strains. Dead game stock and eggs. R. H. Crane, Jr., Santa Rosa, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V Peterson. Guerneville. Cal

Day-Old Chicks and Eggs Only—Barred Rock and R. I. Reds, good laying strains. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Schellville Hatchery—Thoroughbred White Leghorns, Black Minorcas, Brown Leghorns, Barred Plymouth Rock chicks hatched from heavy layers. Strong chicks and safe delivery guaranteed. Sonoma, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox, Box 302, San Luis Obispo, Cal.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

POULTRY

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Pure bred from two-year-old hens, good layers. I am now open to receive orders for February and March delivery at 11c. S. Stone, Moneta, Cal.

Trios from my 226 egg strain of White Leghorns; also eggs and day-old chickens from same stock. Ocean View Yards, San Ysidro, Cal.

NURSERY STOCK.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

For Sale—Palms (Phoenix Canariensis) large, fine plants two to three feet. Price very reasonable. Now is the time to set out. Will sell you one or one thousand. W. L. Wiley, Glendora, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Berbara, Cal.

For Sale—Orange seedbed stock, sweet. Write for prices. Frank Morris, Covina, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

White Indian Runner and Buff Orpington Ducks. Stock and eggs. Belgian, Angora New Zealand and Flemish Giant Rabbits. Belgian Hare Guide, illustrated; price 50c. List free. Caldwell Bros., Los Angeles, Cal.

For Sale—Aylesbury ducks and eggs. Apply Ocean View Yards, San Ysidro, Cal.

TREES.

Special prices on Tilton apricot, apples, Salway peaches, Satsuma plums, lemons, Navel and Valencia oranges, seedling walnuts. Grafted walnuts on own and black root. Anything in nursery line. Get my prices. A. R. Marshall's Nurseries, Cor. 3rd and Bush Sts., Santa Ana, Cal. Box 64.

500 Washingtonia Robusta Palms in 5-gal. cans for sale at a bargain; also Washington Navel and Eureka Lemon trees for sale. We still have a quantity of Eucalyptus Rostrata and Tereticornis which we are offering at a sacrifice. Write at once for our prices. Covina Nurseries, Covina, Cal.

For Sale—Italian Cypress, 4 feet, 75c; 5 to 6 feet, $1.00; 6 to 8 feet, $1.25. Redwood trees, 3 to 4 feet, gallon cans, 75c; 5 feet, $1.00. Bottle Brush, fine shrub, 4 feet, 50c. Ballou's Nursery, Pasadena, Cal.

Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seed bed stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eureka Lemon Trees for sale. B. A. Ropp and W. H. Fowler. R. D. 2, Ventura, Cal.

MISCELLANEOUS

Panama Canal. My book reproduces Panama and Canal, 100 pages; 20 illustrations including map and profile. Sent postpaid for 25c. C. C. Muldner, Jr., 2861 Laclede, Maplewood, Mo.

For Sale—Ringed-neck Pheasants, Mongolian, $5 a pair; also pheasant eggs now for April delivery, $3 for 15. Mrs. Geo. W. Jenkins, Route 1, Box 40, Sonoma, Cal.

For Sale—Pure Bred New Zealand Rabbits, young does and bucks for breeders. Prices and stock right. Write to Chas. W. Mixter, Banning, Cal.

For Sale—Pure White Fan-Tail Pigeons, $1.50 per pair. F. o. b. express office. Bert L. Nunnaley, Yuma, Ariz., R. D.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Agricultural Implements—Vehicles.

Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

HORTICULTURAL PRINTING.

Catalogues for the seed and nursery trade, the live stock and poultry industries, are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 123 S. Los Angeles St., Los Angeles.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks —White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S WHITE FOWL FARM, Moorpark, Cal

A Boon to Cabbage Growers—A New and Sure Remedy for the destructive Green Cabbage Worms, which will save the loss of millions of dollars, will be sent Free to all who send 10 cents for a trial package of New "Early Snowball" Cabbage, the finest early variety yet. Tillinghast, the Seedsman, Scranton, Pa.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Poults 50c. Bronze Turkey eggs $2.00 and $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J. Rhode Island Red and White Leghorn eggs and baby chicks.

$2.00 for 12 Mammoth Bronze Turkey eggs, $16.00 per 100. We can fill any order any day. Order now. Pioneer Hatchery Co., 108-118 E. 8th St., Los Angeles, Cal.

For Sale—Thoroughbred Mammoth Bronze Turkey hens of large size and fine markings. Also eggs for hatching. Mrs. Nellie Hart, Holtville, Cal.

Mammoth White Holland Turkey eggs, $3.00 per dozen. R. L. Warren, National City, Cal., R. D. 1.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

Business

NEW PROCESS OF FRUIT DRYING.

What is probably the greatest discovery in fruit preservation that has been made for a century has just come to be placed into practical use. The law upon which this new process is founded is not new, but has been known for many years. It is the simple use of lateral heat as distinguished from vertical heat.

Lieut. Swett, the inventor, has spent many years of his life working upon the patent which he realized was attainable. Daily observation and a study of ancient methods of preservation convinced him that there was a law which was all powerful for the good of humanity and which could be brought to proper use by the right kind of apparatus.

It is distinctly opposite in its working and the results which have been attained along the lines of its work demonstrate that the old methods must give way to the practical utility of a very apparent, but little noticed physical law.

The process may be used in drying fruit, berries, vegetables, fish and meat. When placed in water they return to their original state, without the loss of a particle of their freshness, flavor or taste.

The tremendous benefit which the new process will be to the producer and the consumer cannot be stated in too large terms. It is a boon to the grower, a money saver to the consumer and a wealth producer to every user. It consists of a furnace in which use is made of the lateral heat units. With a furnace of this type the commercial dryer can give to his patrons a product which, when cooked, in every way resembles the fresh product. None of the delicious or health-giving qualities are lost. You can have your favorite fruit or vegetable at any time of year, regardless of the fact that at that particular time of year the market does not contain it in its natural condition.

It will mean that in the future just order a pound or two of the "Likfresh" product, prepare it as you would the same article in its natural condition, and you will have a freshly cooked food that will surprise the most skeptical. From the present state of development this invention bids fair to revolutionize the growing and drying industries of the United States, if not of the world.

The furnace may be seen in operation at Berkeley, near the Shattuck Hotel. Lieut. Swett is in attendance to give full particulars concerning his wonderful invention. See announcement on page 423 of this issue.

MONEY SAVERS.

Hawley, King & Co. have just received another consignment of the "Flour City" Gas Tractors. They have recently sold nine of these valuable adjuncts of farm work, and their customers are all well satisfied with them; they know that the engine is as near perfect as any engine on the market. The Hawley, King Co. want prospective customers to call and see them operate. They're money savers.

FROM SHELL TO MARKET.

The Coulson Poultry & Stock Food Co., of Petaluma, Cal., have just published a new book on poultry entitled, "Chickens; from Shell to Market."

This little book is tastefully gotten up, and though meant mainly for beginners, will be found of interest to all. It is free on application. We advise our readers not to be backward about applying for these booklets. A post card and a minute's time will do it.

The Farmers Ditch Irrigating Company of Santa Paula, Ventura county, held its annual meeting last Monday.

General Household Notes

THE REAL MAN WITH THE HOE.

Mr. Edward Berwick of Pacific Grove, takes exception to Markham's "Man With the Hoe," which appeared in a recent Cultivator, and sends the following which is his view of the real man with the hoe. It was written originally in 1899. We are glad to send it on again with a hope that it may prove an inspiration to some "braw boy" to develop his backbone or the stuff in him from which "sturdy presidents grow."

We're tired of the drool and the drivel,
  Lamentation, and mourning and woe,
Supercilious society's snivel
  Daily fired at the man with the hoe!

Bipeds such as the painter has pictured,
  And vast ink-shed has forced us to know,
May wear liv'ry of Gotham's "four hundred"
  Full as oft as they're found with the hoe.

Crowns have circled slant brows of such creatures;
  There are natures as bestial and low,
Demoniacs debasing God's features,
  In ranks that heap scorn on the hoe.

Such a man! such a hoe! stirs your pity
  Hoe and man are so surely "No Go!"
But you'll find just such men in your city
  Tho' they never set hand on a hoe.

The real man with the hoe isn't hunting
  Sham sentiment, maudlin and slow,
He's the man with true gun and bright bunting
  Who goes when his country bids "go!"

Boy in blue, he has ever been ready,
  When Columbia has needed a man,
To stand in staunch ranks, firm and steady,
  Or fire-tip fierce charge with the van.

This world's one relentless rude scrimmage
  Mad mortals a-muck for "the dough;"
But, when God planned a man in His Image
  He set him to work with the hoe.

Mother Earth can dispense with some classes,
  Brush-wielders, ink-slingers may go;
But she can't spare that friend of the masses,
  She must have the man with the hoe.

He's the "braw boy" our back-bone is built of,
  From his stock sturdy presidents grow;
Labor's King poets proudly may lilt of;
  Hurrah! for the man with the hoe!

EDWARD BERWICK.

Pacific Grove.

A PINK OF A HUSBAND.

"For a truth, Aunt Vina, Sylvia has a pink of a husband. I was there two weeks and never heard him speak a cross word, and he was as pleasant as could be to me," declared Lepha Morse to her Aunt Vina.

"It's a fact; he is a pink indeed," chimed in Lauretta. "I was there a week, and Susie was there three weeks, and he was so good to us; asked us to stay longer, and to come again. Actually, he made me eat three pieces of pie at one meal. Ha! ha!"

"And how about Sylvia?" asked Aunt Vina. "Is she a good housekeeper, wife and mother?"

"Oh, she is just working herself to death," declared Susie. "She works all the time, and never smiles nor talks much."

"Sylvia is not a bit like she used to be; she was so sociable and jolly; now she is sad looking, and frowns," said Lepha. "I tell you that she is not worthy of so good a husband as Ivan Everets, and little Elmer is such a fine child."

"And," concluded Lauretta, "Sylvia never as much as said 'Come again,' when we left there."

Aunt Vina closed her square mouth firmly and made no comments. Later she stated that she was going to see Sylvia.

"She won't thank you for your visit," said Lauretta.

"I'll go anyway," declared Aunt Vina, and she went.

Sylvia's parents had died when she was quite young, and her mother's spinster sister, Aunt Vina, had cared for her until she was fifteen years of age, then she went to the city to attend school, living at her uncle's, Myron Morse, a man not rich in this world's goods. His three daughters, as soon as their education was completed, became wage earners. Lepha was a teacher, Lauretta a saleslady in one of the leading stores, and Susie was a milliner. The girls found it quite a treat to spend their vacations at Sylvia's in the country, where berries and cream were plentiful, and vegetables fresh from the garden, with a sweet baby for a plaything, and Ivan to joke with, Sylvia herself casting the only shadow on their good times.

Aunt Vina, as she prepared for her journey, soliloquized thus: "There is a skeleton in the closet, and it will be the death of my Sylvia. I'll root it out if possible. I promised Sylvia's dying mother that I would protect her and I will, if it costs me my own happiness. Taking shares in a silver mine has made me independent, and if money can win Sylvia back to her sunshiny self, it shall not be spared."

When Aunt Vina arrived at the country station she hired a team to take her to Mr. Everets', instead of waiting for Ivan to meet her, as the others had done. When she arrived at their home, Sylvia met her at the door, and throwing her arms about her laughed and cried together. Aunt Vina eyed her keenly, feeling positive that some secret trouble was ruining Sylvia's life. At mealtime her husband came in from the field, and smiled pleasantly as he shook Aunt Vina's hand. He was very sociable when indoors, and in every way endeavored to render her visit enjoyable.

Aunt Vina noticed the change in Sylvia's looks and demeanor as soon as her husband came in, hence concluded it was he who held the key to the skeleton closet. The second night after Aunt Vina came, feeling thristy, she descended the stairs in her stocking feet, without a light, to the pantry. While in the hall she heard muffled voices and was tempted to stop and listen, and this is what she heard:

"I say, Sil, does that long-nosed, squint-eyed old maid think of staying all summer? If she don't get out of this soon I'll blow her up with dynamite. This is the fourth of your kin that has come here this summer to visit, and last summer half of your classmates were here, and I'll tell you right here that I won't stand it any

FREE FOR THREE FULL MONTHS' TRIAL IN YOUR OWN HOME WITH A LIFE GUARANTEE ONLY $5.00 PER MONTH YOU TAKE NO CHANCE

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Genuine Quarter-Sawed Oak Cabinet

UNLESS IT PROVES SATISFACTORY, WE PAY THE FREIGHT BOTH WAYS—YOU ARE NOT OUT ONE CENT.

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OUR HARTLAND SIX-DRAWER, DROP-HEAD, AUTOMATIC LIFT, BALL-BEARING SEWING MACHINE

Complete with All Attachments, $27.85

Is the newest, highest type of mechanical construction, equal in all respects to widely advertised machines sold exclusively through agents at $45 to $65.

TO PROVE That our HARTLAND Six-Drawer, Drop-Head, Automatic-Lift, Ball-Bearing SEWING MACHINE is positively the best machine made regardless of name, make or price, we will ship it subject to examination at your freight office upon receipt of a deposit of $5.00, the balance to be paid after you have satisfied yourself that it is not surpassed in construction, workmanship or finish, and equal in every respect to machines selling at from $45 to $65.

ONLY $27.85 Is our price, delivered free all charges paid to your railroad station. Our unconditional guarantee and 90-day trial offer protect you absolutely. We assume all risks and responsibilities.

NO RISK We want you to try out this wonderful sewing machine in your own home. It is sold with the understanding and agreement that if it does not prove satisfactory in every way, it can be returned any time within three months from date of purchase, and the full amount including transportation charges both ways will be promptly refunded.

90 DAYS FREE It is cheaper for you to send cash in full, and save return express charges on money, cheaper for us because when cash accompanies the order we eliminate bookkeeping expense. You can use the machine for ninety days in your own home, during which time you may test it on any and all materials. Understand, you are not obliged to keep it unless thoroughly satisfied, but may return it and get your money back.

OUR GENERAL CATALOG IS A REVELATION. It is an immense volume, handsomely illustrated. It quotes the lowest wholesale factory prices on everything you use eat or wear. NO MATTER WHAT CATALOG YOU MAY HAVE SEEN in the past and no matter what one you may have in your home at the present time, do not spend a cent for anything until you have received this wonderful book. IT'S FREE. WRITE TO-DAY.

REFERENCES: First National Bank; Marine Trust and Savings Bank, San Francisco.

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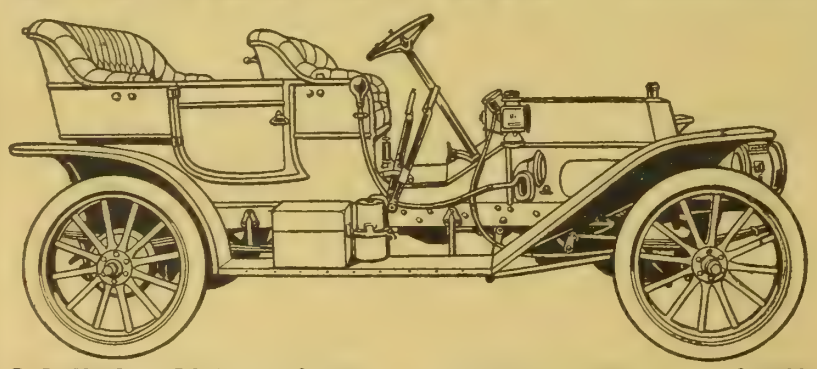

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Giant Himalaya, Loganberry, Superlative and Yellow Antwerp Raspberries.

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Sweet Potato Plants Sweet Potato Plants $2.50 per thousand. Write for special prices in quantities.

Phone Sunset 204 Phone Home 263 **W. W. BURFORD, 740 Glendale Ave., Glendale, Cal.**

longer. Here we are pinching and scrimping to get enough together to buy that eighty. It is to be sold at sheriff's sale next month, but with so many deadbeats to feed I can't raise the money. You have got to get rid of that ugly bit of humanity or I'll make it hot for you, do you hear?"

"Why don't you quit using them so well when they are here?" asked Sylvia. "You are so good to them they call you 'a pink of a husband,' and despise me because I dare not be civil to them for fear you will abuse me."

"Fool woman that you are!" said Ivan, "I have to use them well. How would it look if I didn't?"

Aunt Vina, hearing poor Sylvia sobbing, retraced her steps, forgetting her thirst, now that she had a peep into the closet and seen the skeleton. Aunt Vina did not appear at the breakfast table, but soon after Ivan had gone out to work she came down, and it made her heart ache to see Slyvia's red eyes and wan smile. Ivan had started for the field, then thinking of something in the cellar that he would need, went back and entered the other way. The door into the kitchen was ajar, and now it was his turn. Aunt Vina was saying:

"Now, Sylvia dear, I am going back to the city today. I can go on the stage, as my baggage is light."

"Homesick so soon, Aunty?" asked Sylvia, in a cheerful voice that even Ivan noticed, and he felt a little cut that he had been so hard on Sylvia, for he really loved his wife and child, but the love of money was making him a brute to Sylvia.

"Yes, I am going. I heard you had grown pale and sad, and I knew there was a skeleton in the closet, and, too, I knew it would kill you in time unless something was done to annihilate it."

"Why, Aunty, what do you mean?" asked Sylvia in a trembling voice.

"This much, Sylvia, I knew you had some secret trouble weighing you down," said Aunt Vina, "and if that trouble was let remain it would be only a question of time ere you were laid in your grave, the same as your mother was. She was a sensitive thing like you, and her husband's secret meanness killed her before the accident killed him. She told me all on her deathbed. Now, as I promised her that I would shield you, I will do all in my power to remove the cause, or remove you. Last night I accidentally overheard your conversation."

"Oh, Aunty!" and Sylvia's voice was a sob.

Ivan's heart gave a jump, and continued to thump so loudly he could scarcely hear what was said next.

"I'm a ruined man, now," he thought. "I can never look the Morses, or any of her city friends in the eye again." He valued the good opinion of his neighbors and city acquaintances, and none but his sensitive wife knew how mean he could be.

"Come, go home with me, and leave that hypocrite," said Aunt Vina. "I have sufficient for us all. Why remain here, my poor child, and be gradually killed by that 'pink of a husband,' for die you will, or go to the insane asylum?"

"Oh, Aunty, I cannot leave little Elmer," wailed Sylvia.

"Take him with you," said Aunt Vina.

"Ivan would not let me," said Sylvia.

"You need not ask him." Then Aunt Vina said something in a lower tone, that Ivan could not hear.

"No, no, Aunty, but I thank you all the same," said Sylvia. "I love Ivan, and though he slay me, I cannot leave him. It is his way; he cannot help it."

Ivan waited to hear no more; fearing he would be detected, he did not stop to look for the oil can. As he worked, his mind was burdened with complex thoughts. That eighty he much wished for, yet what if he gained it and lost his wife. He would not care for it if Sylvia were dead. He would give up buying it, and hire someone to, at least, do the wash each week. And, too, there were many tnings that Sylvia needed in the house, but dare not ask for. Then he felt mean to think how he had talked to Sylvia about the Morses, who though poor themselves, had given her a four-years education; and Aunt Vina had been a mother to her since infancy, and to think she should hear such words from his lips. No, he could not even hope that she would forgive him. She must have means or she could not support herself, and Sylvia and Elmer, as she offered to, if Sylvia would leave him. "And she won't leave me if I slay her. Such love the angels in heaven might wonder at. Ah, Sylvia, hereafter I shall endeavor to be worthy of you, so help me God!"

Before the dinner hour arrived he called at the widow Blin's cottage and asked if she could come and do the wash for them each week, as Sylvia was not looking strong.

"I shall be glad of the work," said Mrs. Blin, "and indeed, I do think you ought to be careful of Sylvia if you want to keep her."

The widow's words rang in his ears as he returned homeward. He found dinner waiting, Aunt Vina gone, his wife tidily dressed, and baby cooing in the crib. He felt thankful Sylvia did not know of his eavesdropping, and he intended that she never should, but he would be a better man.

It was autumn. The coveted eighty had been sold, but as yet no one knew who the buyer was. It had been bid in by a lawyer from the city, for someone else. It had gone much higher than he had anticipated, and cash was paid down for it. Though Ivan had lost the eighty, he had won the respect as well as the love of his wife, for he had kept the resolutions he had made after eavesdropping in the cellar.

One day Sylvia said to him, with a happy smile: "Come, Ivan, let us look at our new possessions. That eighty the lawyer purchased for me at Aunt Vina's bidding. The house is all furnished, and I have got a little in the bank in my name to purchase stock, a carriage, and what else I may choose. Aunts come handy sometimes."

"Where is your aunt?" he ventured to inquire.

"She has purchased a home for herself in California," said Sylvia. "She is very wealthy, and has an interest in a silver mine. She will never miss the amount she has given us, she writes."

Ivan bent his tall form and kissed his wife. Tears were in his eyes; he would not trust his voice to speak, and, in fact, silence at the time was golden.

Never again did Sylvia hear aught that was mean regarding her relatives and friends from his lips, and instead of reproaching her for inviting them, he urges her to do so.

Aunt Vina had also helped the Morses, so the girls no longer work as hard as heretofore, yet their summer vacation in the country is highly prized. They noticed the change in

Sylvia; instead of a pale, sad woman, she is now bright and happy. "Money works wonders," is their conclusions, as they never knew the facts, but credit much to her "pink of a husband."—Practical Farmer.

FISH RECIPES.

The dishes given below are all substantial and nutritious, making good substitutes for meat.

Fish and Macaroni.

Break pipe macaroni into short lengths, boil it in salted water for about twenty minutes or until tender. Drain and mix with an equal quantity of flaked fish—any kind of boiled white fish can be used. Place in a saucepan two tablespoonfuls of butter, pepper and salt, and a little lemon juice; then add the beaten yolks of two eggs. When quite smooth, stir in one cupful of rich cream or drawn butter and stir until heated thoroughly. Place the macaroni and fish in this. When heated, pour into a baking dish, keeping it heaped high in the center; cover it with bread-crumbs and brown in the oven.

Codfish with Cheese.

Soak over night in cold water a piece of codfish. In the morning pick to pieces, freeing it from skin and bones. Bring a teacupful of milk to the boiling point, thicken with two generous tablespoonfuls of cornstarch rubbed into a tablespoonful of butter. When the sauce is thick, add the codfish and allow it to become thoroughly heated, but not to boil. Pour into a greased baking-dish, cover the top thickly with grated cheese and brown in the oven. Serve hot.

German Fish Pie.

Peel, wash and slice two pounds of potatoes; soak four or five herrings in warm water and break up into flakes; arrange the sliced potatoes and herrings in a baking-dish, sprinkle with salt, pepper, and add a little melted butter or cream. Cover with a paste made after any good pastry receipt. Bake the pie for two hours and serve hot with pickles.

Smothered Fish.

Take a good-sized fresh fish and, after washing and scraping, place in a double boiler and cover with half a cupful of butter and a cupful of very rich cream; season with salt and pepper. Place the cover of the boiler on and boil for three-quarters of an hour without removing the lid. This is delicious.

Curried Fish.

Remove the skin and bones from one pound of fish. Place a tablespoonful of butter in a frying-pan and add an onion chopped fine; fry until brown, then add the fish flaked. Cook for a few minutes, stirring constantly. Serve this in a border of rice that has been cooked until tender, seasoned with butter, salt and one-fourth teaspoonful of curry powder.—Country Gentleman.

TOMATOES.

With Macaroni.

Cook half a package of macaroni in boiling salted water until tender. While this is cooking, stew a quart of tomatoes with two level tablespoonfuls of butter, a tablespoonful of vinegar and a dash of cayenne. Strain the tomato through a coarse sieve. When the macaroni is done, place a layer in the bottom of a buttered baking dish, add salt and pepper to taste, then a layer of tomato, again the macaroni, and finish with a layer of tomatoes. Sprinkle with buttered crumbs and a little grated cheese, and brown in the oven.

Scald, peel and cook four large, ripe tomatoes, season with salt and pepper, and add a tablespoonful of butter. Pour one quart of boiling milk slowly over half a cupful each of boiled rice and rolled cracker crumbs. Mix until smooth. Dissolve a fourth teaspoonful of baking soda in a little cold milk, and add it to the cooked tomatoes. Just before serving stir in the hot, thickened milk. This makes a most delicious soup. The flavor may be varied by adding a tablespoonful of minced onion and enough celery salt to suit the taste.

Fried.

Cut six large tomatoes in thick slices. Dip in beaten egg and bread crumbs and fry with three very thinly-sliced onions in two tablespoonfuls of butter.

Baked.

Tomatoes are at their best when stuffed and baked, and the variety of stuffings which may be delightfully combined with them is legion. Minced onions, stewed corn, bread stuffing made as for poultry, chopped meats, oysters, fish, rice, macaroni, squash, beans and others too numerous to mention may be used in this way.

Scalloped Fish.

One of the simplest ways of using any fine fish for a second appearance is in the form of scalloped fish. Canned salmon or lake trout may be used in the same way. Remove all bones and skin, leaving the fish in neat flakes. Make a white sauce in the usual way, using equal proportions of milk and water. Season highly with salt and white pepper. When perfectly smooth, moisten the fish with it, and arrange in a baking dish, first buttered and sprinkled with fine bread crumbs. Crumbs may be used in alternate layers, if a large dish is required. Cover with the crumbs, dot with butter, and brown quickly in a hot oven.

CLEANING LACES.

White waists badly stained with p rspiration can be cleaned by putting them in a strong solution of castile or any pure soap, then placing in the direct sunlight until the yellow is withdrawn. To make the solution, shave one bar of soap and dissolve this in one to three quarts of hot water. The dirt is removed from the lace not by rubbing, but by swashing up and down in a new soap solution, and it is then thoroughly rinsed in two or three clear, warm waters. The lace is next stiffened in weak gum arabic water—one or two kernels to one pint of water. The gum arabic is added to warm water and placed over hot water until dissolved. It is well never to wring lace, but rather to squeeze the water from it. To dry the lace it is pinned on a woolen blanket or pad which has been securely fastened to a table. Each point is firmly pinned, and the lace is left until perfectly dry. Much may be done toward giving the effect of new lace if each point is not only carefully pinned out, but, when dry, picked out with the fingers.

Silk laces are cleaned by brushing or rolling in corn meal or magnesia. The dirt adheres to the flour or powder, leaving the lace clean. When treated in this way, laces need more frequent cleaning, but appear more like new lace. Yellowed, white silk lace may be steeped in a hot bath of milk and borax and bleached in the sun.—Maude A. Propst, Colorado Agricultural College.

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 5, 1911.

Butter.

With receipts of butter around 80,000 pounds, the market is weakened, and prices are lower than last week.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	24
Firsts	23
Ladles	22
Country	18

Cheese.

Oregon Daisy	16½
Northern	14@16
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Eggs are unchanged and call for good stock for storage is holding the market steady.

Paying price f. o. b. Los Angeles is:

Local ranch candled	22
Case count buying price	18
Northern	16@20
Eastern	20

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	19
Broilers	27
Fryers	23
Roasters	19
Turkeys	23@25
Ducks	20
Geese	17
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7¾
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.25@2.40
Salinas	2.60@2.65
Oregon	2.50
Northern Early Rose	2.25
Lompoc	2.75
Idaho	2.00@2.25
White Rose, local	2.25
Colorados	2.50
Sweets, yellow, cental	6.00
Sweets, white	4.50@5.00
New potatoes, lugs	2.00

Onions.

Wholesale quotations:

Oregons	3.00
Northern	3.00
Australian browns	3.50
Nevadas	3.00@3.25
Utah	3.00
Garlic	8

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.00
Asparagus, lb	4½@9
Beets, sack	90
Brussels sprouts, lb	12
Bell peppers, lb	35
Green chilis	25
Cucumbers, doz	1.00@3.00
Cabbage, sack	85@90
Celery, crate	3.50
Cauliflower, crate	2.00
Carrots, sack	1.25
Egg plant, lb	10
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, per doz	40
Lettuce, crate	1.00@1.50
Oyster plant, doz	40
Peas, lb	6@8
Parsley, doz bunches	30@40
Parsnips, doz bunches	50@60
Radishes, doz bunches	20@25
Rhubarb, Crim. Winter, box	75@90
Rhubarb, Strawberry	1.10@1.35
Spinach, doz	20@25
Squash, Hubbard	3½
Tomatoes, Mexican	1.25@1.35
Turnips, sack	1.25

Citrus Fruits.

Navels	1.75@2.00
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.50
Tangerines	1.50@1.65

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	1.60@2.00
Spitzenbergs	2.50@3.00
Pearmains	1.75@2.00
Newtown Pippins	1.50@2.00
Bananas	4½
Loquats, lb	3@5
Pineapples	10
Pears, lb	5@6
Winter Nelis	2.50@2.75
Strawberries	30

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	10½@13½
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.75
Black eyes	6.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.50

San Francisco Market

SAN FRANCISCO, April 4, 1911.

Butter.

Butter declined early in the week to 3 cents under last week's quotations, then fluctuated between 22 and 22½ cents. Market not strong, and receipts large.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	22
California prime firsts	21½
California firsts	21
Seconds	20

Cheese.

California flats, new	10@13
Cal. Y. America, fancy, new	13@14½
Oregon fancy	12½

Eggs and Poultry.

Eggs are in very heavy receipt, and the price declined early in the week and is now 1½ cents under last quotations.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	17½
Firsts	17
Seconds	16

Hens, doz	5.00@12.00
Fryers, doz	6.00@7.00
Ducks	6.00@10.00
Broilers	3.50@5.00
Roosters, doz	5.00@10.00
Turkeys	18@20
Geese	2.50@3.50
Pigeons	1.50@2.50
Squabs	2.50@3.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6½
Cows and heifers	4@5½
Calves, lb	5½@7
Hogs	5@8
Yearling lambs	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	1.70@1.95
Salinas Burbanks, cwt	2.40@2.50
Oregon Burbanks, cwt	2.00@2.15
Lompoc	2.40@2.50
Sweets, cental	6.00
New potatoes, lb	04

Onions.

Onions	2.25@2.35

Vegetables.

Wholesale quotations:

Asparagus, bx.	50@1.25
Beans, string	40
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	75@1.25
Celery, crate	1.50@2.50
Beans, string	20@25
Chili peppers, lb	30@40
Egg plant, lb	10
Lettuce, crate	75@2.00
Peas, Southern, lb	8@10
Peas, Bay	10@12½
Rhubarb, Southern	50@65
Rhubarb, Bay	75@1.00
Summer squash	1.50@1.75
Tomatoes, Mexican	1.25@1.50
Turnips	60@75
Garlic, lb	4@5

Citrus Fruits.

Navels, new	1.50@2.40
Grapefruit	75@2.50
Lemons	1.25@3.00
Limes, Mexican	6.00@6.50
Tangerines, halves	75@2.00

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.25@1.50
Spitzenberg	1.50@2.75
Bananas, Hawaiian	1.25@1.50
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 11½@13c; Apricots, 10½@12¾c; do, Moorparks, 14c; Peaches, 6@7½c, with a premium o ⅛@¼c on Muirs; Prunes, bulk basis, 9¼@9¾c; Figs, 1911, 4@5¼ for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6@6¼c; Choice, No. 16, 5⅝@5¾c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 4¾@5c; do, 3-crown, 4½@4¾c; do, 2-crown, 4@4½c. Dried Grapes, 2¾@3c. Seedless — Muscatels, 3¾@4c; Sultanas, 4¾@5c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	13
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.25@6.35
Pink	5.45@5.60
Black eyes	6.10@6.25
Small white	3.40@3.45
Large white	3.40@3.45
Kidneys	6.25
Garbanzos	2.90@3.00
Bayou	4.70@4.80
Horse beans	2.60@2.70
Red Mexicans	5.35@5.50
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	20@22
Hops, 1911 contracts	14@16
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week were 3,970 tons, quite an increase over those of last week, which were 2,825 tons.

A good part of these receipts came in by water, and were of the poorer varieties and moved off slowly. The majority of that which arrived by rail was of a very good quality, and there has been little difficulty in placing the rail shipments; in fact, we even note a little firmness in the market on rail shipments of good quality. This, no doubt, is caused by the phenomenal advance in barley and oats during the past week, and we would not be surprised if hay did a little better shortly.

We note that several lots of hay have changed hands in the country during the week at advanced prices. At the same time we also note a great tendency among the farmers to dispose of their holdings, some of which have been carried for two years, before the new crop is available.

Export demand has been a trifle better, and we note shipment of one cargo of 500 tons to Mexico. Alfalfa and straw remain as heretofore.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Barley, fancy	1.46¼@1.47½
Barley, good to choice	1.42½@1.45
Barley, poor to fair	1.40@1.40¾
Oats, white	1.50@1.60
Rye, new crop	1.40@1.42½
Alfalfa seed	18@20
Mustard, brown	4½

Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	25.00@26.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	30.00@31.50
Rolled oats, ton	27.50@29.00
Middlings	33.50@37.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	25.00@26.00

Citrus Fruit Market

LOS ANGELES, April 5, 1911.

With shipments of oranges 1,500 or more cars every week, the market has been watched with some concern, and no little satisfaction is manifested because of its excellent condition. Every offering of sound fruit is being quickly taken and at satisfactory prices. Extra choice are now commanding from $2.35 to $2.50 in most of the eastern markets. The large percentage of decay is still embarrassing, but iced fruit that has been given greatest care in picking and packing is arriving in fair condition. Because of the showers which have prevailed in some of the foothill sections the shipments this week will be somewhat under those of last week.

The situation with Mediterranean lemons is such that Californias are in still greater demand, and every offering is quickly picked up at advanced prices.

Shipments.

Shipments of oranges to date since November 1, 1910, 18,315 cars; lemons, 2,124; total, 20,439. To same date last season: Oranges, 11,743 cars; lemons, 1,786; total, 13,529.

LOS ANGELES, Friday, March 31.—Six cars navels sold.

NAVELS—	Avge.
Sugarloaf, Fy, Or, High Grove, not shipped	1.42
High Grove, Fy, High Grove, not shipped	1.17
Aster, Or, Rialto, not shipped	1.30
Hub, Sd, Rialto, not shipped	1.05
California, Ch, Riverside, to be packed for size Saturday	1.12
Monrovia Heights, Or, not shipped	1.17
Robin, Sd, not shipped	.92
Conqueror, Or, Covina, not inspect.	1.32
Monrovia Heights, Or, not shipped	1.15
Robin, Sd, not shipped	.90

LOS ANGELES, Monday, April 3.—Five cars sold; one car wrecked en route and withdrawn from sale.

NAVELS—	Avge.
Red Raven Xf Riverside, not shipped	1.45
Sweetest Yet Fy Riverside, 92 boxes, Ch 287 boxes, bloods, 17 boxes	1.32½
California Ch Riverside, not shipped	1.20
Conqueror Xc Covina, shipped April 1	1.30
Freedom Sd Covina, shipped Ap 1	1.05
Conqueror Xc Covina, not shipped	1.30
Freedom Sd Covina, not shipped	1.05

NEW YORK, Monday, April 3.—Forty-four cars navels, 2 cars bloods, 1 Havana seedlings and 1 car Homosassas sold. Market higher. Weather fair.

NAVELS—	Avge.
Knight Or Ely Gilmore Iced	2.50
Bishop Iced Ely Gilmore	2.30
Lone Palm Gowan & Willard	1.65
Beach Sd Gowan & Willard	1.40
Gold Buckle RH E High IMP Ice	3.10
Lochinvar IMP Iced RH E	2.75
Gold Buckle Iced RH E High	2.85
Lochinvar Iced RH E High	2.45
Golden Cross OK Ex	2.95
Red X OK Ex	2.60
Paul Neyron IMP SA Ex	2.65
Pinnacle OK Ex	2.80
Majesty OK Ex	2.50
Kenilworth Iced AH Riv	2.65
Peasant Iced AH Riv	2.25
Tally-Ho Iced SB Ex	2.30
Robusta Ah Ex	2.40
Hobo AH Ex	2.05
Lotus OK Ex	2.60
Monogram OK Ex	2.35
Diamond S OK Ex	2.05
Iris Iced DM Ex	2.70
Violet Iced Ex	2.40
Gold Buckle Iced RH E High	2.85
Lochinvar Iced RH E High	2.50
Glendora Hgts Fy Iced ACG Ex	2.70
Glendora Hgts Ch Iced ACG Ex	2.25
Pinnacle OK Ex	2.65
Quail OK Ex	2.35
Regina Iced Growers F Co	2.50
Independent Iced Growers F Co	2.95
Beauties Iced	2.50
Old Mission Ch Iced Chapman	2.45
Golden Eagle Iced Sd Chapman	2.15
Euclid Or Growers F Co	3.00
Uplanders Growers F Co	2.55
Independent Iced Growers F Co	2.45
Beauties Iced	2.15
Regina Iced Growers F Co	2.60
Regent Sd Iced Growers F Co	2.30
Ideal High Prot FA	2.55
Delicious High Prot FA	2.30
Stock Label Prot FA	2.05
Orchard IMP Or National O	3.10
Standard IMP Sd National O	2.65
Corona National O	2.40
Orchard IMP Or National O	3.10
Standard IMP Sd National O	2.65
BLOODS—	Avge.
Tally-Ho Iced SB Ex	2.30
Rossmoyne Iced ST	2.00
La Mesa Iced Riv Ex	2.25
Squirrel AH Ex	2.10
Prairie Chicken	1.85
SEEDLINGS—	Avge.
Niagara	2.25
Havana Seedlings	1.75
HOMASSASAS—	Avge.
Sunbeam	2.05

TANGERINES, HALVES — Paul Neyron, 1.30; Quail 1.55; Lotus, 2.45; Glendora Hgts Iced, 1.20; Quail, 1.45; Squirrel, 1.15; Palm Tree, 75c; Blue Globe, 1.20; Mahala Iced, 1.60; Regina Iced, 1.20; Euclid, 1.35; Orchard, 1.80@1.90; Bear, 1.25; Quail, 1.25. GRAPEFRUIT, HALVES — Robusta, 1.10.

BOSTON, Monday, April 3.—Thirty-three cars sold. Clear and cool. Market is doing better on oranges, unchanged on lemons.

NAVELS—	Avge.
Violet DM Duarte	1.65
Rey ST Fernando	2.30
Golden Bar SB High	2.10
Pinnacle OK Ex	2.60
Paul Neyron SA Ex	2.50
Robusta AH Pach	2.30
Sierra Vista AH Riv	3.00
Peasant AH Riv	1.80
Princess QC Corona	2.25
Pinnacle OK Ex	2.15
Gold Buckle RH E High	2.85
Alpha Xf R Henderson	2.70
Euclid Or Growers F Co	2.50
Elephant Or Elephant Orchards	2.35
Elk R Henderson	2.25
Chess Queen Fy Ely Gilmore	2.20
Uplander Growers F Co	2.15
Delicious High Prot FA	2.10
Stork ST Ex	1.85
Tunnel ST Fernando	2.05
Jack Rabbit SB High	1.50
Majesty OK Ex	2.20
Alta Cresta AH Pach	3.00
Hobo AH Pach	1.55
Kenilworth AH Riv	2.35
Laurel QC Corona	2.60
Herald Xc W American F	1.60
Rialto Brownie Fy Rialto	1.60
California Beauty	1.50
Golden Scepter Or Rialto O IMP	1.60

LEMONS — Punch ST Colegrove, 3.10; Club, 2.80. BLOODS—Hibiscus, 1.50; Stock Label, 1.50; Robusta, 2.05; Mallard, 2.15; Delicious, 1.85. Halves—Lake, 1.70; Lake, 90c; Hibiscus, Stock Label, 85c; Robusta, 1.00; Kenilworth, 95c. TANGERINES, HALVES—Priscilla, 85c; Bear, 1.20; Quail, 1.15; Paul Neyron, 80c; Quail, $1.00; Bear, 90c.

PITTSBURG, Monday, April 3.—Twenty-one cars sold. Steady, oranges and lemons. Cool.

NAVELS—	Avge.
Orchard, Or, National O Co	2.60
Camellia, Xf, Red, M O Dis	2.30
Halfmoon, Xf, Red, G O A	2.00
Searchlight, S S Orange	2.10
Quail, O K Ex	1.75
Moose, O K Ex	2.50
Golden, Riv Ex Riv	2.30
Jasmine, D M Duarte	2.20
Owl, O K Ex	1.80
Peasant, A H Riv	2.25
Majesty, O K Ex	2.25
Moose, O K Ex	2.65
Parrot, S A Ex	2.40
Prong Horn, O K Ex	2.45
Majesty, OK Ex	2.20
Mt Baldy, Riv Ex, Riv	2.20

LEMONS—Lotengo, Sparr F Co., 2.40; Circus, 2.30; Del Oro, 1.95. BLOODS—Halves—Halfmoon 1.40.

ST. LOUIS, Monday, April 3.—Cloudy. Market weak on account of the condition of the fruit. Ten cars navels and one of lemons sold.

NAVELS—	Avge.
Hunter, A C G, Glendora	1.80
Cowboy, S S Tustin	1.55
Newsboy, R H Red	2.30
S S brand, S S Orange	1.85
Belt, R H E High	2.35
Lochinvar, R H E High	2.65
Florencia, Xc, Randolph F	2.20
National, Xc, Randolph F Co	1.95
Bridal Wreath, Tustin P Co	2.70
Martha Washington, S S Tus	1.95
Ben Hur, R H Red	2.70
Searchlight, S S Orange	2.05
Lochinvar, R H E High	2.55

LEMONS—Canon, A C G, Lamanda Park, 2.55; Our Beauty 2.55.

PHILADELPHIA, Monday, April 3.—Ten cars navels, 3 bloods, 2 seedlings, 1 mixed, 1 lemon sold. Also 15 cars Floridas. Oranges, 1.40 to 3.30; average 2.40. Grapefruit, 1.05 to 3.35; average, 2.25. Market unchanged on good stock.

NAVELS—	Avge.
Red Globe, Riv Ex, Riv	1.50
La Hermosa	2.05
Laverne Heights	1.80

LEMONS—Coyote, O K Ex, 2.35; Blue Jay 2.10; Floral, S B Ex, 1.70; Gem, 1.25; Belt, R H, E High, 2.15. Tangerines, halves—Tiger, 1.20; Stork, 1.20; Stag, 1.10; Stag, 1.25. Bloods—Pointer, 2.40; Vista Bonita, 2.70; Lake Hemet, 2.35; Rossmoyne Grove, 2.35; Salt Lake, 2.35. Halves—So Beauties, 1.40; Bear, 1.30; Lark, 1.15; Dan Patch, 1.15; Stork, 1.20. Budded—Vista Bonita, 2.60. Seedlings — First American, 2.25; Vista de Robles, 2.10. Grapefruit—Dan Patch, seedling, 1.05.

CLEVELAND, Monday, April 3.—Seven cars navels and 3 mixed cars sold. Market higher. Clear and pleasant.

NAVELS—	Avge.
Royal, Q C Corona	2.05
Liberty, E F G Escondido	2.40
So Mountain, M C Santa Paula	2.10
Billiken, Riv Pach	2.25
Violet, D M Monrovia	2.20
Lochinvar, R H E High	2.50
Jasmine, D M Monrovia	2.20
Belt, R H E High	2.25
Gold Buckle, R H E High	3.05
Belt, R H E High	2.30
Elep 2nds, Elep Orch	1.95

BLOODS — Jasmine, Malta, 2.15; Liberty, 2.25. Valencias—Carmencita, 2.20.

CHICAGO, Monday, April 3.—Lemon prices are steady. The trade is quiet and offerings are fully ample. Boxes—California fancy 300s, 3.35@3.50; 360s, 3.25@3.50; off sizes, 3.00; extra choice, 25c per box discount; choice, 50c a box less.

ORANGES—Californias are in liberal supply and easy. A good many are in soft condition and have to be repacked at considerable loss. Boxes—California navels, sound or made sound, extra fancy, all sizes, 2.85; fancy, do, 2.60@2.75; extra choice, do, 2.25@2.50; choice, do, 2.00@2.25.

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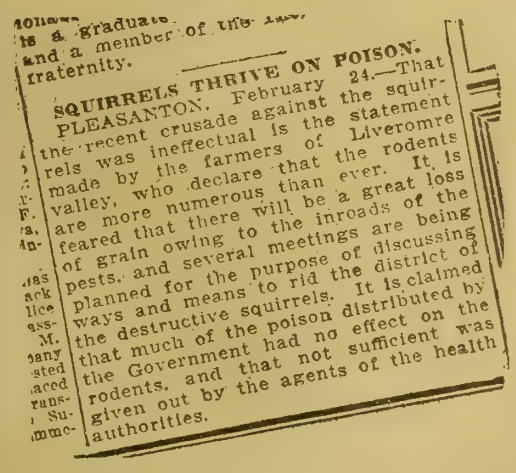

...and a member of the ... fraternity.

SQUIRRELS THRIVE ON POISON.

PLEASANTON, February 24.—That the recent crusade against the squirrels was ineffectual is the statement made by the farmers of Liveromre valley, who declare that the rodents are more numerous than ever. It is feared that there will be a great loss of grain owing to the inroads of the pests, and several meetings are being planned for the purpose of discussing ways and means to rid the district of the destructive squirrels. It is claimed that much of the poison distributed by the Government had no effect on the rodents, and that not sufficient was given out by the agents of the health authorities.

Clipping from S. F. Chronicle, Feb. 25, 1910

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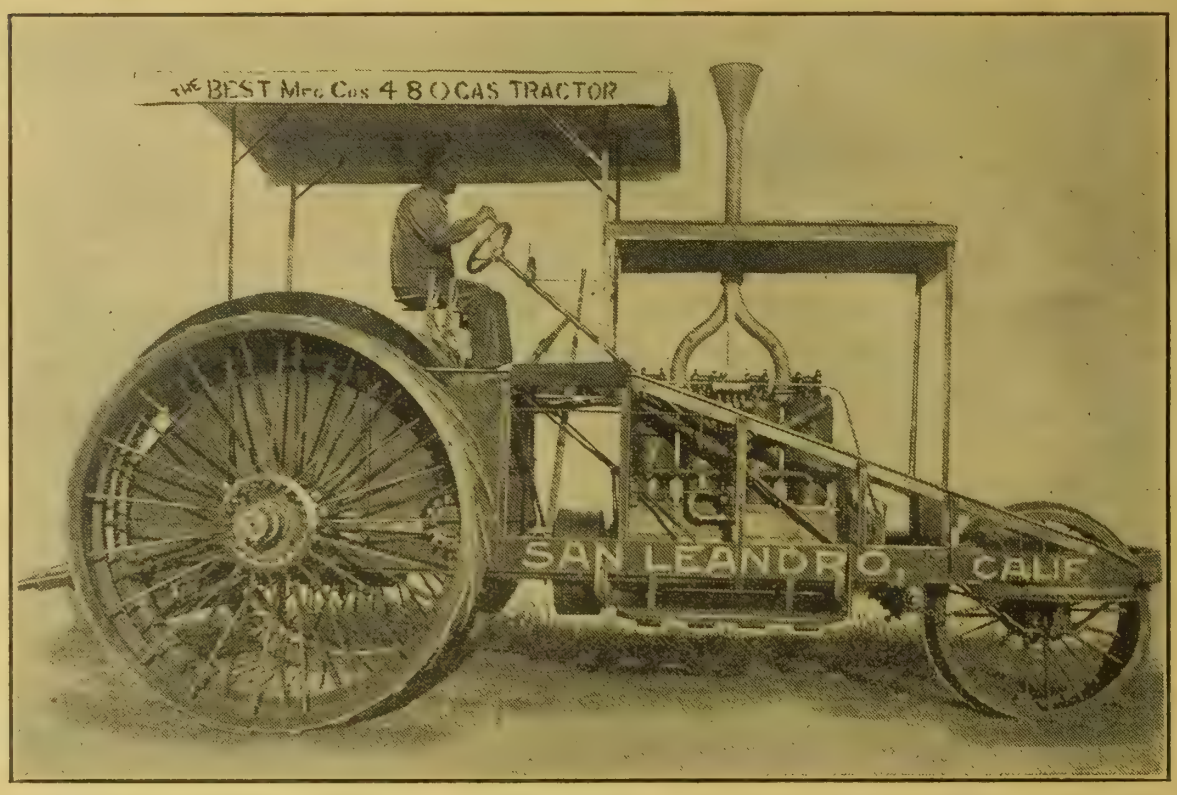

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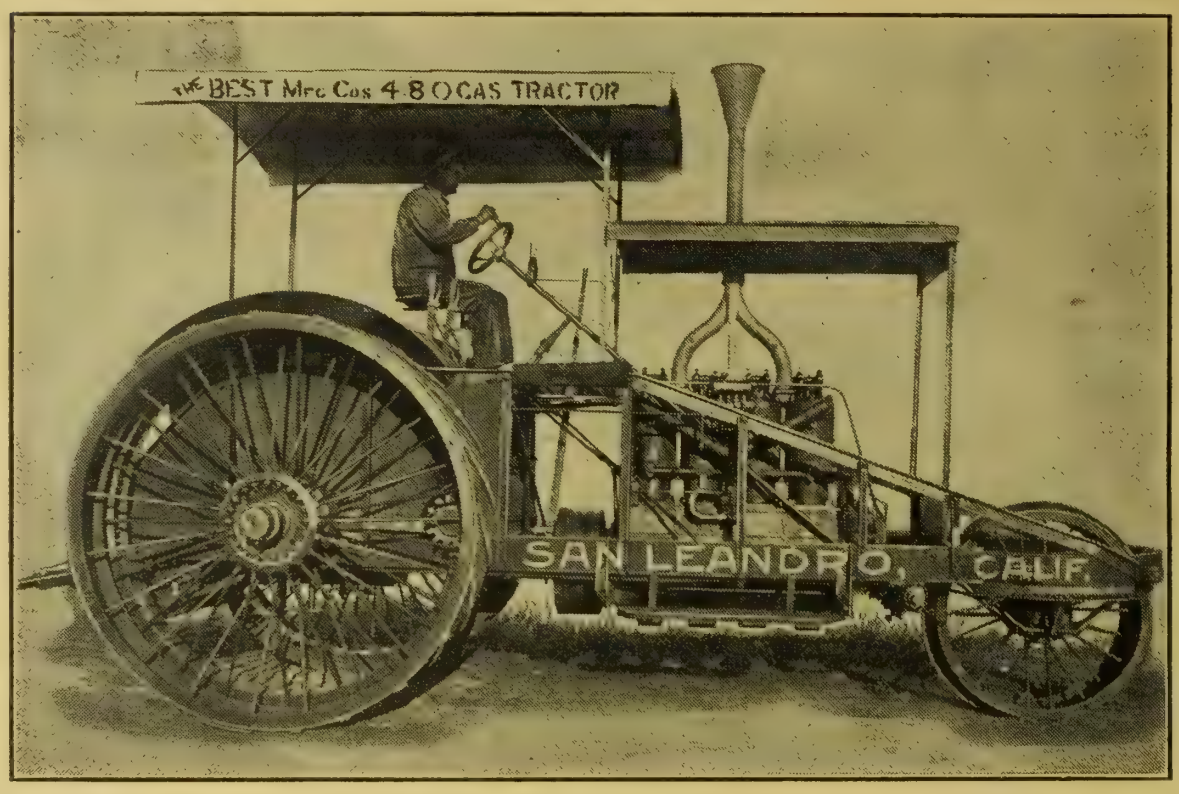

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California Cultivator

Vol. XXXVI. No. 15. LOS ANGELES: THURSDAY, APRIL 13, 1911 One Dollar the Year

The Treatment of Citrus Gum Disease

An Address by A. F. Call, Corona, at the Pomona Citrus Convention.

It is with a great deal of diffidence that I speak on any subject of horticulture or the care of trees, because I know that conditions are so different in the different localities, and the treatment required for different groves and different locations and at different ages is so diverse that it requires a man of very long experience and larger ability than mine to give any general advice. But this matter of gum disease is one that interested me very particularly, as I had about 1,600 trees affected four years ago, and so I gave it some study by going to Florida and into the different portions of California to make a study of it, and spent about a year in experimenting.

In my investigations of the gum disease I found at least two distinct troubles, and I want to make it clear as to which I am speaking of. I found a disease of the lemon tree and which affected some orange trees, the characteristics of which were a gathering of the sap under the bark, making blisters and pockets of sap, which, by evaporation, I suppose, was afterwards reduced to gum and broke its way through the bark and flowed down the tree, usually at a distance of about four inches to a foot above the ground. I also found that another form of the gum was the breaking out in small globules or bits of gum, from orange trees in particular, affecting the trunk and the limbs of the tree, causing a roughening of the bark and a rolling up of the bark, that is commonly called scaly bark of the orange tree.

I want to speak first of the lemon gum, as we will call it, although it does affect orange trees as well, because I am more familiar with that and the trouble is more obvious and the difficulty is more easily overcome. I found that this gum was most prevalent where the drainage was imperfect and where sediment had been permitted to pile up around the trees, such as a little depression in the orchard that had not been filled before the tree was set, so that after irrigation, in forming the grade that the water naturally forms, the earth had been piled around the trees a little too high, or where the trees had been set a little too deep. Most of the trouble came from the foot of the grove, where there was a depression and somebody had let the waste water from irrigation accumulate some sediment. I tried first to demonstrate to my own satisfaction that this disease was not contagious, not bacterial, and I think I demonstrated that completely by inoculation. I took the worst gum I could find, from the rottenest trees, and opened the bark of a great many live trees, inserted the gum under the bark, tied it down, and I was unable to produce any gum in those trees. I then endeavored to produce the gum, and I found I could produce it in a very short time in a great many different ways. I found that I could produce it by putting some strong manure or fertilizer around the trunk of the tree; or I could do it by putting on an excessive amount of water; and I could very easily do it by taking a little wooden hammer and hammering a little spot on the trunk. The gum would form in two weeks. You did not need to break the bark; just hammer it so it would deteriorate. I then concluded that gum was caused by a cultural condition, and that the cause of it was a deadening of the member, destroying its sap-carrying power, which stopped the down-flowing sap, forming pockets of clear sap; and I will say in that condition we took gum and had it analyzed by chemists, and it was pronounced simply sap and nothing else. These pockets of sap, unable to pursue their way down the tree, were compelled to remain there until the water evaporated and left this gum, and that stayed there until it rotted its way out. If that is permitted to continue, of course it will go around the tree and girdle the tree and kill it. In experimenting with the remedies, I found that these trees could be very easily cured; and I want to say here, I don't want to take credit to myself for this, wholly, because a great many of us were working together. My foreman and Mr. Jamison and Mr. Hampton and Mr. Griffin and different ones have contributed in large measure to this, so I should say "we" found this out. We found that what we needed to do was to let out that sap or gum as soon as we could, and the way we did it was by making little furrows down the tree, not too many and not running together, perhaps not nearer than an inch and a half apart, maybe two inches apart on a tree largely affected. It is important to go as high as the limbs, so a gum will exude before it forms a pocket or becomes destructive to the tree. Then we found that by oiling the bark we could hasten its recovery, and we wanted to use an oil that was softening. The worst thing to use is crude oil or crude oil and carbolic acid together; that destroys the bark. What we want to use is a soft animal oil, lard or neat's-foot oil, and we all found that neat's-foot oil was the best, so we applied that liberally, two or three applications two weeks apart. And then, to protect the bark from baking, we whitewashed the trunk of the tree, because we frequently were compelled to let the sun in. The proposition is this, that you have got to have enough bark to carry the sap, and this gum pocket usually comes from a very healthy tree, carrying much sap. The injury has come from various causes, mainly from the piling of sediment around the trunk of the tree, or by water, or by redwood stakes that have been pulled up, that the tree has grown around, or by stones that have been gathered in by the roots and absorbed by the tree. There are various ways in which this can be caused, but anything that affects the tree in that portion of the bark extending from the crown roots up above the bud. That bark was intended by nature to be exposed to the sun and air, and when it is not so exposed it deteriorates. The surface of the root is hard; it is impervious to the acids of the soil, but when you take that portion of the bark that nature intended to have exposed to the sun and air that is covered with that earth, you have nothing there that will protect the bark from the acids of the soil; it immediately gets brown and deteriorates. Then you have the condition of a big top which puts forth and uses a great amount of sap, returns a great deal of sap to the soil and a narrow channel in which to return it, because it has been partially injured by the gum; you have not enough bark left to carry the sap to the ground, and so it is

(Continued on Page 458.)

Horticultural Quarantine Work in the South

An Address by Frederick Maskew, Deputy State Commissioner Before the State Fruit Growers Convention.

Last fall I was sent to San Diego as the agent of the state commissioner of horticulture upon a special detail, and early in November I received instructions to look thoroughly into the amount of horticultural imports that were coming into the port of San Diego, also into the methods of quarantine employed in handling such material, and to report fully upon the same. As a foundation for this work I interviewed the agents and managers of the steamboat lines, the U. S. customs officers and the wharf and railroad superintendents; explaining to them the scope and functions of the horticultural quarantine law, that it was not in any way a restraint of trade but protection for the orchards of California, that it was not the plants or fruit we were striving to keep out, but the insects and diseases that accompanied the most of them. I believe that all of these parties fully understand the situation, and they have cheerfully co-operated in every way. As a result of this preliminary work, I found that there are three lines of steamers trading regularly between Mexico and San Diego; in addition to this there is a fleet of small vessels trading between Mexico and Lower California and San Diego that have no fixed itinerary; also many yachts come in at different times from foreign ports and a line of steamers from Oregon. You know anything from outside of the state of Caliornia is foreign to the work of the state horticultural commission. With this as a basis I went to work, and in all that follows, I want to say that I was very ably and cheerfully assisted by Mr. Stuart, the horticultural commissioner of San Diego county, and also by the custom house officers at that port.

There are on an average 19 vessels plying directly between Mexican ports and San Diego each month. Now let us for a moment look into the detail of this work. Take for instance one of the American Hawaiian liners. On reaching the docks they are first inspected by the immigration officers and customs officers, the latter placing a man at the gangway to see that no one leaves the vessel without a permit. It is then the turn of the horticultural officers, and there being no passengers or baggage, the first thing is to get the manifest and see what composes the cargo. If there are any horticultural imports in the cargo, it is a simple matter to get control of it, because having the good will of the dock officials, they will segregate and hold it until it has been inspected and properly treated. It is through the crews of these vessels that the danger of introducing insect pests is found. By experience I have found that it expedites matters a great deal to be on good terms with the purser and chief steward. Most of the fruit or plants brought by members of the crew is usually kept in the cool room, and all of this with the assistance of the purser and steward can be readily gotten at and inspected. Oranges, mangoes and guavas are contraband and are destroyed whenever found, other material is inspected and if found clean and free from pests is passed, that is a red label is attached which permits the owner to take it ashore at such times as he sees fit. We have found that even this procedure followed by an inspection of the ship is seldom complete, and that the only safe way is to watch the gangways and search every one leaving the vessels.

I will next speak of the Mexican Navigation Company's steamers. We always expect horticultural contraband in this instance, and always find that our expectations are realized. These vessels bring many Mexican steerage passengers, whose baggage consists largely of packing boxes they have secured from home stores. An inspection of these reveal a national trait, a characteristic of the people, the habit of Pelon. Packed in with articles of domestic use are to be found oranges, lemons, limes, mangoes, guavas, cactus fruit, dried fruit, sugar cane, cuttings of plants and trees, cocoanuts, seeds and many forms of dried herbs. All the laws of Christendom will never stop this practice. It is not a commercial, not a business venture, but the custom of a people; of a nation, a national characteristic, "Un pelon por mi amigo," a gift for my friend. No one has helped us more in this particular matter than the managing director of this line, who speaks the language of these people freely, and I know that he will

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People who intend to plant lemon or grafted walnut trees this season will have to secure them from some source early as they are now very scarce.

A. R. RIDEOUT

Magnolia Nursery Whittier, California

agree with me when I say that our only hope of prevention is in the rigid inspection of each individual case.

In dealing with the vessels plying between Ensenada and San Diego, the material handled is practically all personal baggage, the inspection of this is very thorough and the opportunity to detect any items of horticultural interest an open one. In dealing with this class of the work, there are many actions taken that to the casual observer might appear trivial. But it is well always to remember that with perhaps the single exception of purple scale, most of our orchard troubles have gained an entrance upon some object of small commercial value.

As an illustration from which you can draw your own conclusions as to the necessity and value of the work, I will relate a single instance: On November 22nd, Mr. Stuart and myself, through the courteous assistance of a customs officer caught the chief cook of the Steamer Isthmian coming ashore with a basket of fruit called Achras sapota. This fruit looks like a persimmon with a russet skin. As usual he declared he did not intend to sell these, but was taking them as a gift to one of his friends. We went over these carefully for any evidences of scale or insect pest and finding none, cut one open. There was a maggot at work busily consuming the fruit immediately around the pit. Several specimens were found free of maggots, but one had eight or ten. These I confined in a breeding jar and destroyed the remainder of the fruit. From that material I bred, and have, the adult flies, typical fruit flies. They are not the adult of the orange maggot, Tyrpeta ludens, but very closely akin.

The horticultural imports at San Diego are increasing daily, and there is, I understand, another line of steamers to be put on about the first of April, with a view to working up trade in fruit with Mexico. In my opinion, based upon the experience of four months, the volume of work at the present time is sufficient to warrant the regular employment of a horticultural officer. There are occasions or periods in which he will have some time to pursue other work along co-ordinate lines, but he should be so situated as to make the quarantine work the paramount issue. A quarantine officer must be prepared to be on the dock at 6:30 a. m., 365 days in the year. Modern transportation recognizes no Sundays or holidays, once a vessel is released from the health quarantine and comes up the bay it is the lookout of the horticultural inspector to be on hand when she makes the dock. A quarantine is not perfect if one item gets through in five years.

There is just one other matter to which I wish to call your attention. I want to say to the fruit growers of California that they are under deep obligation to the U. S. customs officers of the California coast line. Cheerfully, willingly, in and out of season, without, in this particular work, any remuneration or even recognition, they always co-operate in the work of horticultural quarantine. In the aggregate they have rendered services of great value to, and are among the best friends of the fruit industry of California.

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THE MUTUAL INFLUENCE OF STOCK AND SCION.

By Dr. J. Eliot Coit, of the State Pathological Laboratory, Whittier.

Recent discussion of the influence of stock on scion in the columns of the Cultivator seems to indicate sufficient general interest in the subject to warrant a brief review of the literature and a summing up of known facts in regard to the subject.

The amount of the influence between stock and scion varies greatly and it is usually necessary to determine by experiment just what this influence will be for any given combination of stock and scion. The stock may dwarf the scion and upon this fact is based the practice of producing dwarf fruit trees by grafting the pear on the quince and the apple on the Paradise stock. Such dwarfing in many cases increases proportionate fruitfulness. Some stocks cause the fruit of the scion to ripen earlier than would otherwise be the case. The stock may change the condition of the scion from vegetative growth to fruitfulness. A twig from a seedling apple which ordinarily might not fruit for many years, may be made to fruit at once by grafting it in the top of an old bearing tree. In like manner many oranges will come into bearing sooner when worked on Citrus trifoliata stocks. Some stocks may increase the size of the fruit as in the case of some varieties of the pear worked on the quince. Stocks may also influence the flavor of fruit, for apples often derive a bitter flavor when worked on wild crab roots. On the other hand, the quality of the flavor of the fruit may not be affected, for sweet oranges worked on Citrus trifoliata and C. bigaradia do not partake of the bitterness of the stocks.

Variegated stocks may in some cases, such as Passiflora, Jasiminum and Abutilon, cause variegation in the scion and vice versa, but this is thought to be due to a virus which is able to pass through the point of union. In the case of the red-leaved hazel grafted on the copper-beech it was found that leaves arising from the stock also contained some red cell sap. Variegation in the orange has been found to act similarly (see letter of Lyman Phelps in the Cultivator for March 30, 1911.)

On the other hand, many evergreen species may be grafted upon deciduous stocks without appreciably influencing their evergreen character. Such cases are Prunus laurocerosus on Prunus padus, Quercus ilex on Quercus sessiliflora, Cedar of Lebanon on European Larch, loquat on quince, and sweet oranges on Citrus trifoliata.

All of the influences above mentioned are due more to variations in nutrition than to any other factor. It is well known that the roots of different species of plants draw upon the soil for mineral foods in different proportions and it is difficult to conceive of how sap of different chemical composition could fail to influence the scion, although much of such influence may result in physiological changes which may not be manifested by any outward sign.

The union of stock and scion is perhaps more of a mechanical process than a biological one. The cells constituting the contiguous surfaces of stock and scion do not unite by fusing their contents after the manner of the reproductive cells in the blossoms. The mechanical union is brought about by the formation of callus cells (similar to those formed at the base of a cutting or around wounds) which dovetail together, thus filling up the interstices. From such nascent interlocking cells the conductive vessels are formed. Every cell at the point of union maintains its individuality, being in every case either a stock cell or a scion cell with no mixing whatever.

The question has recently been raised as to whether a section of lemon wood being interposed as a part of the trunk between the root and bearing top of an orange tree, could exert a deleterious influence on the flavor of the orange. If such an influence should exist it must come about by some change in the condition of composition of the orange sap as it passes through the lemon wood. Now we know that the crude sap from the roots passes up through comparatively large ducts in the outer wood to the leaves where it is completely worked over and prepared for use in the growing fruit. The lemon wood in this case acts merely as a conductor of liquids from orange roots to orange leaves and it is almost inconceivable that the chemical composition of the sap should be altered in its passage through the comparatively large tubular vessels in the lemon wood. There is, however, a great deal of actual evidence in the older orchards which bears out this conclusion.

For a time after the graft is made the sap must pass through ducts which may be somewhat sinuous in their passage through the calloused union. This results in a restriction of the food supply which varies with the different plants and which often results in dwarf and percocious plants. As time progresses, however, new layers of sap-wood and heart-wood are laid down, the tissues originally involved in the graft are grown over and become heart-wood and new, continuous conducting vessels are formed. It should be remembered that the thin layer under the bark known as the cambium is the only part of a tree which is alive, the outer bark and heart-wood being quite dead and unable to unite with anything. Both the old stock and scion are enveloped by continuous layers of new cambium laid down each year, the line of demarcation between stock cells and scion cells being usually at right angles to the axis of the shoot.

It often happens that stock and scion do not increase in diameter at the same rate, resulting in a constriction at the point of union. This does not necessarily mean that such unions are weak. In fact, it has been shown by various tests that graft unions between plants, which take readily, may be and usually are the strongest points and are rarely subject to breakage.

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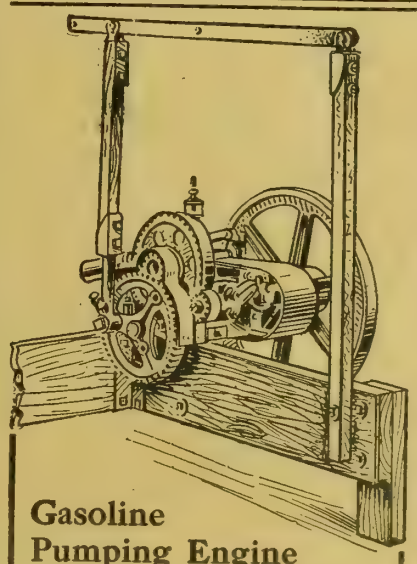

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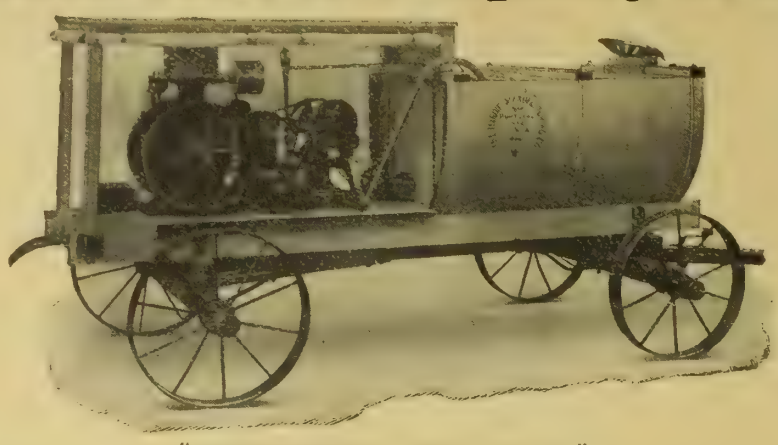

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LEAF CURLING OR PURPLE APHIS.

From Bulletin of County Entomologist W. H. Volck, Watsonville.

The leaf-curling aphis is usually the first plant louse to appear in the spring. It attacks all varieties of apples, and can be recognized by the pronounced effect on the shoot that it infests. The leaves curl in towards the under surface where the colonies of aphis are located. This curled foliage has a sickly, yellow green color and a more or less rumpled surface. The distortion and twisting is also apparent in the shoot which bears the leaves.

When a fruit spur is attacked the apples also suffer seriously, and in most cases are rendered worthless. The poison injected by the aphids causes an abnormal number of fruits to set, but the "aphis apples" do not grow normally. They often get no larger than a walnut, are much deformed and do not develop the normal flavor or character of pulp.

The reactions produced by the aphis are undoubtedly due to the injection of a toxic substance in much the same manner as a mosquito injects poison at the same time that it is sucking blood from an animal. The poison injected by the aphis travels along the shoot and starts leaves to curling which have not yet become infested. This provision of nature works to the advantage of the aphis as a shelter is provided for the insect in advance of its coming.

Life History.

The full life history of this insect is still in doubt. In the spring it is in the unisexual form. All the individuals are females and bear living young (do not lay eggs). Some of these females develop wings and so are able to fly to other branches or trees and start new colonies.

This process does not continue through the season for in the month of June all the individuals suddenly develop wings and fly from the trees. They do not establish new colonies, but appear to wander aimlessly about and the great majority of them die. What becomes of the few that are necessary to perpetuate the species is not definitely known. It is supposed that they migrate to some other food plant.

An eastern entomologist states that a few sexual females return to the apple trees in the fall and lay a small number of eggs.

The leaf curling aphis, like other plant lice, sucks the sap and does not eat the surface of the leaves. It also produces a considerable amount of honey dew, but the black smut fungus does not appear to thrive on it so the trees seldom become black as a result of the work of this species.

Extent of the Damage.

Often this aphis attacks only a few twigs on a tree in a single season. Under such conditions the damage is trifling and can be overlooked. Under other conditions the infestation may be general, resulting in a great loss to the apple grower. This aphis is capable of destroying the entire crop and has done so in several local orchards for the past three years.

The behavior of this pest cannot be predicted in advance. Much if not all depends on the nature of the early spring season, an we have not yet determin-d just what the factors are which favor the increase of this plant louse.

Remedies.

Owing to the fact that the leaf curling aphis colonies are almost always protected under the curled up foliage effective spraying is very difficult. The only method that has proved successful is to begin early, while the trees are yet in bloom. At this time the aphis is just starting to increase, and not many leaves will be curled up tight, so that thorough spraying of the under surface of the foliage will reach most of the insects.

In addition to this spraying a very careful watch must be kept and the application repeated whenever there is any sign of increase. In some cases it may require three or four sprayings to prevent undue injury.

Formula.

One pound "Black Leaf 40" (nicotine sulphate containing 40 per cent nicotine) about 1-10 gallon; 10 pounds whale oil soap; or 1 gallon cresol soap; 200 gallons water.

When whale-oil soap is used it must be melted in boiling water. Add the melted soap to the water in the spray tank and start the agitator, then add the "Black Leaf 40" and continue agitation until thoroughly mixed.

Cresol soap is a liquid and requires no heating. Add it directly to the water in the spray tank, agitate and add the "Black Leaf 40" as before. In our experiments the cresol soap has proved superior to whale oil as the cresol forms a compound with nicotine which appears to be more poisonous than the free nicotine.

Soap of any kind improves nicotine sprays because the penetrating and wetting power is increased by the addition.

Smaller quantities of this spray can be made by using proportional weights of the materials, thus ¼ pound of "Black Leaf 40" and 1 quart of cresol soap makes 50 gallons of spray.

Method of Application.

The trees must be thoroughly drenched with this spray to do good work. It will require at least double the amount commonly applied for the codling moth. The nicotine spray kills by contact with the bodies of the aphids and the insects will escape unless they are thoroughly soaked.

Combined Sprays and Precautions.

Nicotine sprays, when used alone, have caused no injury to the foliage or fruit, but when combined with the Bordeaux mixture serious injury has resulted, due to the liberation of soluble copper. For this reason nicotine should not be combined with the Bordeaux mixture. These sprays should be applied separately, and if close together, the nicotine should be put on first.

If it is desired to use a fungicide along with a nicotine spray it had best be iron sulphide, usual strength, arsenate of lead may also be added. With these combinations, however, the soap recommended with the straight nicotine had best be omitted.

The Lime-Sulphur Solution as a Preventive.

As a result of the accidental observation of the effect of strong lime-sulphur solution, Mr. G. F. Gallagher of Agnew, Cal., found that apple trees which received the application were

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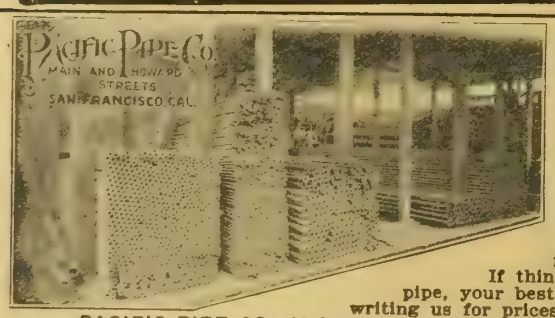

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practically immune to the aphis while adjoining, unsprayed trees were very badly attacked. Mr. Gallagher first observed this difference two years ago. Last year he did some spraying with special regard for the aphis and the results were similar. The observations of Mr. Gallagher are confirmed by Mr. Earl L. Morris, horticultural commissioner for Santa Clara county.

The lime-sulphur solution was about one-half stronger than that usually used for the San Jose scale, and the application was made after the buds had begun to swell. It is probable that ordinary strengths of lime-sulphur would have the same effect, but in lesser degree. A notable fact, in this connection, is that the orchards in the Pajaro valley which have suffered most from the leaf curling aphis are those that have not been winter sprayed.

In our sprayed orchards, however, there has always been some damage from the aphis. Aphis was also reported on the trees sprayed by Mr. Gallagher but the pest did not increase enough to do any damage.

This apparent control is probably not due to the killing of winter eggs, as the aphis on near by trees could quickly reinfest those sprayed. The effect is apparently due to the establishment of a sort of immunity in the tree, a curious result when it is remembered that sulphur applied during the spring and summer increases the tendency to become infested with aphids.

To duplicate Mr. Gallagher's work the commercial solution should be applied 1 to 6, and the home-made formula should contain 90 pounds of sulphur and 45 pounds of lime to 200 gallons. The spray is applied when the buds are swelling or the latter part of March. After the opening of the buds and at the time the first blossoms are appearing the concentration must be reduced to ordinary winter strength or less. It is probable that ordinary winter spraying done at this time should give reasonably good results as an aphis preventive.

WHAT COLORS THE APPLE?

The question was recently asked me, What is it in the soil that gives color to apples? It is not what is in the soil, but what is overhead, that affects the color. But I want right here to give another proof that anybody can understand and can make use of at the right time in the year. Let us suppose that it is picking time for winter apples. Let us go into an apple orchard, no matter where, and pick out a loaded tree, no matter what variety. Let us choose a Winesap. If the tree is large, there may be thirty boxes of apples on it. Are they all the same color? Anyone can answer that question, unless he has lived all his life in a city and is as ignorant of common things as the litle girl who lives in Seattle, who told me herself that she was ten years old before she knew where milk was procured—she thought it grew in tin cans!

Some of these apples will be red all over, some few will be red on one side, and some will be quite pale in color. Now, where do you find the solid red apples? On the outside of the tree. Where do we find the half red and the pale apples? On the inside of the tree top, where the apples are more or less shaded. It cannot be the soil that causes these various colors, for they are all on the same tree and derive their nourishment from the same soil. What do the apples on the outside of this top get, that the other apples do not get? Nothing but sunshine. Then what gives that solid red color to part of the apples on this tree? Nothing but sunshine. Then what is it that gives a better color to some apples? Nothing but sunshine. Where do we have the most sunshine? Where the skies for most part of the time are cloudless.—The Ranch.

WINTER INJURY TO FRUIT TREES BY SUN SCALD.

There is always more or less injury done to fruit trees by sun scald during the winter. It must be remembered, however, that every little blister or roughened bit of bark found on the tree is not due to sun scald, as is so often attributed. Sun scald for the most part is found on the southwest side of the tree, and seldom runs up into the scaffold limbs.

Sun scald is more easily detected in the spring than during the winter, as at that time the outside bark turns to a brownish black color, and this discoloration extends through to the sap wood.

At this time of year it is well to make a careful survey of the orchard, and if any discoloration is to be found, it would be well to prevent any further injury by either applying a good coat of whitewash or wrapping with some light-colored building paper, or, where rabbits are likely to do damage, it would be well to use wood veneering, or common fly wire netting. A very good formula for a whitewash is as follows:

Quicklime	30 lbs.
Tallow	4 lbs.
Salt	5 lbs.

Water—enough to make mixture flow well.

It is well to have the tallow melted and the salt dissolved before placing in the stone lime while it is slacking. This mixture makes a tenacious whitewash and one that is not easily washed off by rains or removed by other means. If wire netting is to be used, the strips should be cut wide enough to extend around the tree and to have about half an inch to turn back. This will help to hold the netting in place, as it can be overlapped and hooked into the opposite side. The height of the netting depends upon the distance the scaffold limbs are from the ground. As a rule, eighteen to twenty-four inches is sufficient height for the netting.—R. S. Herrick, Colorado Agricultural College.

TOLL OF THE TALL TIMBER.

The Agricultural College of the state of Washington, through its farm demonstration department, has been conducting tests on the logged-off lands which have attracted great attention. The system used is called the char-pit method of burning stumps. At the meeting of the Southwestern Development League at Vancouver recently, Professor H. W. Sparks, supervisor of the demonstration farm of the Washington Agricultural college, conducted some very successful tests.

Where stumps are twelve or fifteen inches through it has been found more economical to pull them out with a horse and capstan, or with a donkey-engine. Where stumps, however, are too large for removal in this manner, the char-pit method has demonstrated its ability to clear the land of stumps at small expense. The method is very simple. The bark is removed from the stumps for a height of about two feet above the ground. Dry kindling wood, bark and litter are placed entirely around the stump. Earth is shoveled to a depth of from three to six inches over the wood and bark surrounding the trunk. An opening about a foot wide is left and the fire is started by means of pitch pine. When it is well started, the opening is covered, leaving a small crevice for draft. It takes from six days to two weeks for a stump to burn out completely by this method. The fire follows the roots to the very end, and if care is taken to keep the fire always covered with earth, there is little chance for failure. —Fred Lockley, in Pacific Monthly.

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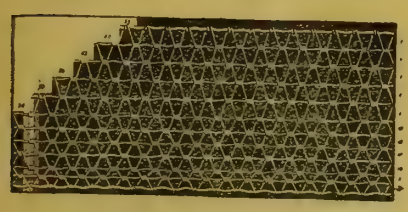

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STREET TREE PLANTING.

Mr. James H. Reed, tree warden of Riverside, recently made an address before the City Club of Los Angeles in which he appealed for more uniformity and more attention to roadside tree planting. Mr. Reed is an enthusiastic tree lover and in addition he figures out a good hard cash asset to any county from the planting. A part of Mr. Reed's address follows:

"We cannot mend the past but we may profit by its experience, and I insist that no time should be lost in entering intelligently and vigorously on the work of beautifying our residence streets in a general way. This means a radical change in methods. It is as absurd to depend on adjoining property owners to beautify our streets as it would be to depend on their wisdom and efficiency to build roadbeds and sidewalks.

"When a man builds a fine residence on large grounds or a small bungalow on a city lot, he at once sets about beautifying the premises. It is just as desirable that a city, as a unit, when it has built good roadways, should at once begin to beautify them. A street, however well made its roadbeds and sidewalks may be, without suitable ornamentation is as uninviting as a fine mansion set in large bare grounds, or a cottage with a bare dirt frontage.

Would Enhance Values.

"Riding with one of our conservative merchants the other day I called his attention to a row of trees along two continuous blocks and asked him for what amount of cash in hand the city could afford to have these trees dug out restoring it to the condition of three years ago. 'Not for $1000,' was the prompt reply. These trees have cost our city, including planting and care, less than $50. Since we began our systematic work in Riverside we have planted what is equivalent to more than 500 such blocks.

"I consider $10 to $20 each a very low estimated value for every suitable tree on a public street property placed and cared for when it is two years old as a purely revenue-producing asset to any residence city. After all the purely esthetic value of street beautification, to an intelligent community, is really much greater than the economic.

"I have said that the only way to have this work done satisfactorily is for the city to do it. Ordinarily this cannot be brought about directly. A public sentiment must be behind it. Intelligent individuals must start the matter through some sort of local organization to demonstrate the efficiency of systematic effort.

"We interested our chamber of commerce first. The work of its tree-planting committee soon induced the city authorities to take it up. It had developed a public sentiment that heartily sustained the new department. Improvement societies, women's clubs, tree-planting associations, will accomplish much in the way of this preliminary work. But such organizations are necessarily more or less short lived, since their efficiency usually depends on the enthusiasm of a few leading spirits, necessarily of limited duration. Hence the main purpose of such efforts should be to lead the way to municipal control.

"My last word is, I believe, that from either the commercial or esthetic standpoint, there is no feature of betterment of your city more worthy of your sincere attention than the proper, permanent and general beautification of your residence streets.

"On residence streets whose traffic is local and light the roadbed frequently occupies quite too large a proportion of the street. From the material point it is absurd to build a roadbed from 32 to 36 feet in width when 22 to 26 feet would serve better, to say nothing of the greater cost of maintenance, as well as the initial expense. From the esthetic point of view the folly is greater. We want n more of the glaring macadamized surface than traffic needs, while every foot added to properly improved parking spaces materially adds to the beauty of the streets."

SICK ACACIAS.

What is the reason that my acacias, cultriformis and Baileyana trees look yellow and seem to be sick unto death? They are planted in the lawn, which is well fed and watered to keep it in a luxuriant condition at all times?

Too much water. This family of trees are of the drouth resisting class, and when once established do well in this climate without water during our rainless summers. A good syringing once a month to keep the foliage clean and free from dust and cobwebs is all the water they require, if the soil is deep and the surface kept fine or heavily mulched.—Pacific Garden.

SEA LAVENDER.

One of the prettiest little flowers used for mixing with cut flowers is a dainty spray, one of the lavenders. More technically, it is statice latifolia, a perennial with broad and long leaves in low growing rosette from which grow strong branches completely covered with dainty pale blue flowers. It is a native of Russia, and has been given extensive cultivation in the United States. It should be given deep soil in a sunny spot and left undisturbed.

THE EARLY GARDEN.

There is not a better way to begin to plan one's garden than to do it on paper. Make a scale drawing of your premises—that is, a diagram of the shape of the lot, letting each inch represent so many linear feet, in accordance with the actual dimensions of the plot. Next, draw in the roadways, if there are any, the paths, and the walks, marking the location of shrubbery and trees. With this sketch before you, proceed to lay out the ground plan of your garden-to-be. Remember that the flower garden should have a position where plenty of sun will reach it both morning and afternoon; thus seek a southern exposure if possible. While a southeastern slope is an ideal location for a vegetable garden, vegetables will thrive in many places where flowers would not do so well. The soil will, to a great extent, dictate the garden's location with many, although the summer and fall months can be given over to developing and enriching the soil by fertilizers, where it is less rich than it may be in some less suitably located position. Do not make the mistake of planning a larger garden than you can take care of, for nothing is a more dismal sight than that of an over-ambitious garden that it has been impossible to live up to.—Gardner Teall, in Harper's Bazar.

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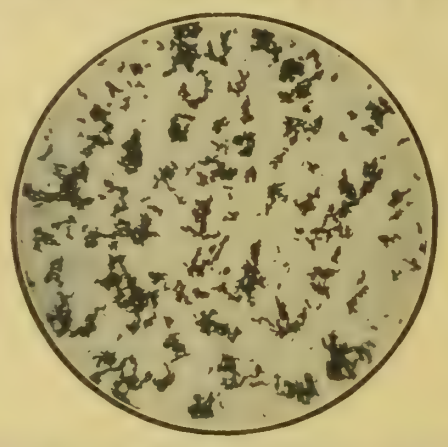

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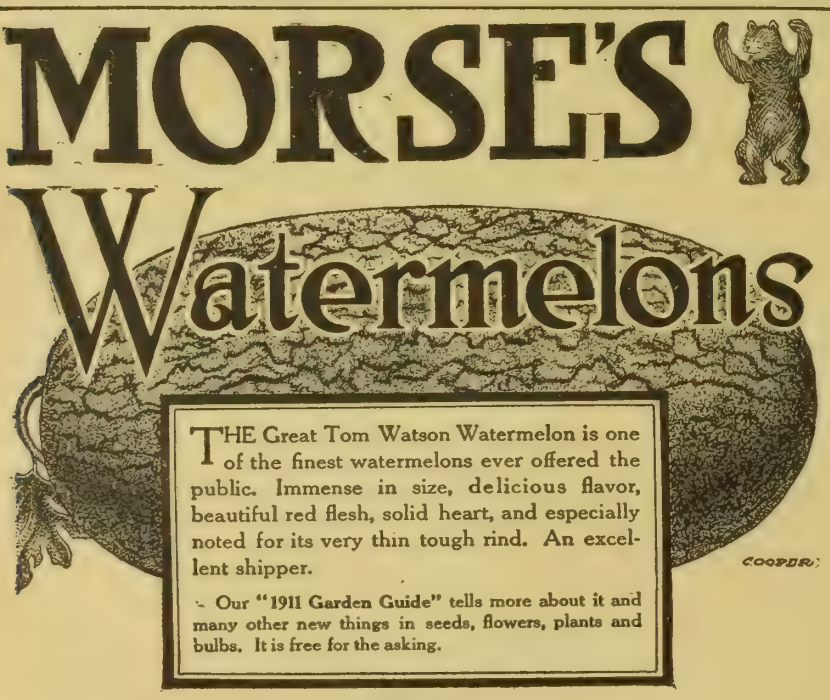

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TREATMENT OF GUM DISEASE.

(Continued from Page 451.)

necessary to cut off a part of the top. For instance, if you had a half-inch pipe and you are trying to carry a big amount of water through a two-inch pipe above and you could not carry it down and it was overflowing, you would either have to enlarge your outlet or shut off your source. You cannot enlarge your outlet all at once, so the only way to overcome that gum is to cut off part of your top. Right there is a fact which I don't know how to explain, and that is, if you cut your top off even all around it won't do any good, but you have got to cut your limb clear back to the trunk. Mr. Griffin has cured their entire grove by this method, and he will agree with me in saying that you have got to cut your limb back to the trunk. We found that absolutely important and vital, because that stops the flow of sap down through the destroyed part of the tree and gives it a chance to heal up. In a lemon tree, cut the big limb that is right over the gum spot; in a year or two it will heal over and you will never feel the loss. A lemon tree is different from an orange tree in this.

Right here I want to say that I am not a scientific observer and I have no scientific education, but I have found from observation that the sap-carrying cells of a lemon tree run right up and down. You find trouble with a lemon tree and you will find it right straight down, but in an orange tree you may find it any old place, that is, apparently. I say that with some diffidence because I don't know that to be a fact, but I say apparently so, because I find the difficulty in an orange tree on the opposite side from where the trouble appeared on top.

The next thing to do is to remove the cause, and the best way to remove the cause is to establish drainage. You cannot cure it unless you establish drainage. The next thing to do is to clear the earth away so that you can expose the crown roots so that the air can get at them, and see that the water does not settle around your tree or the sediment does not form around your tree, and if you do that, in time you will save your trees. I demonstrated to Professor Ralph Smith that you could save a tree that had only an inch of bark left. Now, there are about four inches of bark almost going around the tree, and the tree is bearing heavily. It can be done when you have got down to a very narrow proposition, and I think I can say with perfect safety that this will absolutely cure the gum disease on lemon trees, because Mr. Jamison has done the same, and Mr. Leffingwell. I have never heard of a failure where these directions were faithfully carried out. There might be a case where you could not get drainage that you could not get the results, but where you get drainage you can save your lemon trees.

Now, with regard to scaly bark on the orange tree I am not so clear, and I would not want to say with any great certainty as to the cause or the cure. I can only give you my experience. I had 400 of those trees in my grove, mostly among the older trees, and I investigated the roots of each one of them. I put a careful man at it and had him go down to the roots, and in every case but two I found what we thought was the cause. It was usually a stone buried in the tree or covered in by hard sediment that had formed around the tree from silt that had got hard, or by a redwood stake, or by a crossing of the roots that stopped the circulation, and in a few cases bad crossing of the limbs had caused it. We removed what we supposed to be the cause. Where we found a stone buried in the roots of the tree we hammered it out, or took up a stake, or took out cross limbs. We pursued the same remedy we did with the lemon trees; that is, we dug away, exposed the roots, oiled with neat's-foot oil, furrowed the front of the tree. Where we found a yellow color we cut it out, and I have lost four trees out of 400; the rest got well; the scaly bark entirely disappeared. So I feel that I can say that I have an opinion that it is local trouble with the tree, and that it is more frequent in a piece of sodden ground than in a piece of ground where the soil is loose. I have given this experience to several, and some have reported to me that their trees had recovered. I have had reports from but few on this branch of the trouble.

IGNEOUS ROCKS.

On the geologic map, rocks are distinguished as igneous, or of plutonic origin, as sedimentary, and as metamorphic, metamorphic rocks having undergone a chemical or physical metamorphism.

Igneous rocks are those that have cooled and consolidated from a state of fusion. Molten material or magma from the bowels of the earth has from time to time been forced upward in fissures or channels of various shapes and sizes through rocks of all ages to or nearly to the surface. Rocks formed by the consolidation of molten material, within these channels—that is, below the surface—are called intrusive. Where inclosed by rock, molten material cools slowly, with the result that intrusive rocks are generally of crystalline texture. Where the channels reach the surface the molten material poured out through them is called lava, and lavas often build up volcanic mountains. Igneous rocks that have solidified at the surface are called extrusive or effusive. Lavas generally cool more rapidly than intrusive rocks, and as a rule contain, especially in their superficial parts, more or less volcanic glass, produced by rapid chilling. The outer parts of lava flows also are usually porous, owing to the expansion of the gases originally present in the magma. Explosive action, due to these gases, often accompanies volcanic eruptions, causing ejections of dust, ash, lapilli, and larger fragments. These materials, when consolidated, constitute breccias, agglomerates and tuffs.

320-ACRE HOMESTEADS.

The classification or designation of lands enterable under the 320-acre or enlarged-homestead law devolves upon the United States Geological Survey. Areas are recommended by that office as being subject to entry under that law provided they are found to be not susceptible of irrigation from any readily available water supply. Since the passage of the enlarged-homestead act in February, 1909, the Survey has recommended for designation 189,127,778 acres as thus subject to homestead entry in 320-acre tracts. During February, 153,412 acres were so classified, as nonirrigable. The designations having been made by the secretary of the interior, the lands are then made subject to enlarged entry by the general land office.

Strawberries are slow in ripening and growers estimate the season will be at least a month late.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

WHAT TO DO WITH TUBERCULOUS COWS.

A recent Iowa law suit—one of those law suits that does no good to anybody and does harm to everybody concerned—has again raised the question, in a very pointed way, as to what is the best thing to do with dairy cows that have been tested with tuberculin and decided to be more or less tuberculous. One of the state institutions had a dairy herd which, on being tested, was found to be, practically half of it, tuberculous. There was a good deal of dispute in this law suit, not as to what should have been done with them, but as to whether the right thing was done or not.

There are three things that can be done with such cows. They can be kept in the herd, fed and milked as usual, the milk used in the family or sent to market for other people to use, until the whole herd is infected, which in time will die, and the carcasses be fed to the hogs. This is what is often done, and is one of the worst ways, first, because if these cows are kept long enough, having become tuberculous, they will die of tuberculosis. In the second place, if hogs are allowed to follow them, the hogs will become tuberculous; and inasmuch as you can not tell whether or not a hog is tuberculous until it is killed, the packers will figure out about the average per cent of loss in hogs and charge it up to the farmers generally who sell hogs on that market. This is one way, and a bad one.

Another way is to sell them privately to the neighbors, or hold a sale and sell them publicly to neighbors who are not acquainted with the fact that they are tuberculous, and thus start the disease in other herds, not merely herds of cattle, but of hogs, and in the flocks of chickens as well. This way is just a little worse than the first, because the man is trying to save money for himself at the expense of the community—a very, very mean thing to do, and something which only a mean man will do. By a "mean" man, we mean one who is destitute of real principle.

Another way is to separate these cows from the rest of the herd, let them raise their calves for a year or two, and then before the disease shows any outward symptoms fatten them for the market and send them to be slaughtered. This will gradually wipe out the disease in the herd, if the calves when weaned are put in with the sound herd, after being tested with tuberculin. It will not work if the calves are allowed to be in the stable with the dams.

This would be a perfectly honest way of dealing with it, if the farmers sell these cattle "subject," that is, subject to inspection in a market where there is a government inspector. For it must always be remembered that the fact that a cow is tuberculous does not always render the carcass unfit for food. If the affected parts are limited to the offal, the meat of the cow is quite as good as the meat of a healthy cow. If it has attacked the edible portions, however, what people usually eat, then, unless it is very thoroughly cooked, there is some danger of spreading the disease among human beings.

The way that was taken in the case referred to was to send the cattle in a bunch to the market, at which there was government inspection. There was not the slightest danger, therefore, of these animals doing harm to any one. A better way would have been to advise the buyer, if this was not done, that the cattle were tuberculous, and sell them "subject." The buyer, however, would naturally suspect these cattle were tuberculous. Why should dairy cows, some of them in full milk, and all or nearly all of them in milk, be sent to a slaughter house unless they were tuberculous? What should have been done was not merely to advise the buyer, but to advise the state veterinarian of the fact that they were to be slaughtered, have him personally witness the slaughter, and then report as to the percentage that were found to be tuberculous in the offal alone, and in what proportion the meat was affected. This would have given valuable testimony as to the correctness of the tuberculin test; and would also have done much to educate the people to the fact that a very small percentage of the cattle affected with tuberculosis are unfit for food.—Wallaces' Farmer.

SILAGE FOR SHEEP AND HORSES.

Some years ago it was a common thing to hear people say that corn silage was of little value. In fact some would even assert that it was not equal to our other rough feeds. Now we find that the advent of the silo has continued, its value is fully realized by feeders in general. Dairymen understand its part as an essential in economical milk production. The majority of progressive dairymen here in Wisconsin have silos. And as it has proven itself a benefit to one class of live stock it is natural that men should reach out and seek to apply it to others. The internal mechanism of the cow is not widely different from that of a sheep or horse. A feed that a cow can assimilate at a profit should be valuable as a feed for other classes of live stock.

It does not pay to maintain a silo for cattle alone if silage can be adapted to the use of our other farm animals. It has been the subject of much thought, not only to use silage as a succulent feed but a chief ration for sheep and horses. The results of experiments in the feeding of silage to these animals are probably not as widely known as they should be. If they were it is my belief that farmers would derive added benefit from their silos.

There are always reasons why failure is pronounced on new discoveries, and we find this particularly applicable with silage. The first silos were built oblong giving great surface but little depth. This caused mouldy silage and silage which had become spoiled with contact with the air. This sort of feed proved a failure in most cases and the silo was not a success. But when the deep air-tight silo was brought into use the prospect be-

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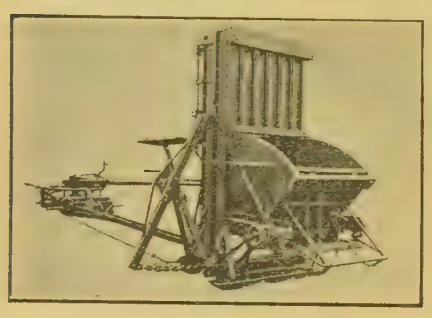

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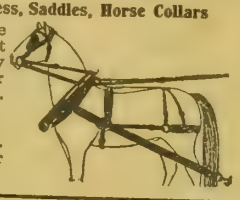

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came much brighter. I believe that the greatest fault in silage making at the present time is the putting up of too much corn, the use of corn which produces great tonnage but does not get mature enough. This causes too much acidity which is detrimental for feeding purposes. Investigation would show that this sort of corn has been used in nearly every instance where failure has been pronounced. I might give a brief outline of our experience with corn silage the past twelve years in feeding sheep and horses.

The first year we filled the silo with whole corn, which was planted thick in the rows and harvested when just beginning to glaze. The leaves and stalks were filled with sap, being grown on rich, loamy soil. Although it gave us a very heavy yield, the results were not the best. We started feeding it cautiously to all of our sheep but when over one and one-half pounds were fed it had a laxative tendency and in some cases the younger growing lambs would appear sickly, showing papery colored skins and generally an unthrifty appearance. I might state that we fed clear hay and a ration of oats and corn in connection with the silage.

The following year a more mature crop was harvested, and as a result the apparent bad results of the previous year were eliminated, and a two-pound ration was fed, showing good gains and thrift in the entire flock.

Since the first two seasons our corn has been run through the cutter, not because we thought it made better feed but we could handle the crop at feeding time much easier with practically no more expense. We are now feeding sheep of all ages silage made from corn which has ripened enough for husking with the leaves partially dried. Pregnant ewes and young stock receive two pounds per head daily, and ewes, suckling lambs from two and one-half to three pounds with the best resuls. I believe we could profitably feed all of this well matured silage to our sheep that they would consume with excellent results. Where silage has been pronounced a failure as sheep feed, nine cases in ten it has been caused by filling the silo with immature corn.

The experiment stations have been doing excellent work in carrying on experiments with the feeding of corn silage in connection with other feeds to sheep. Among the most valuable are those carried on at Illinois, Indiana, Michigan and Iowa in most cases demonstrating that good silage was the most economical mutton producing feed when fed in connection with other feeds.

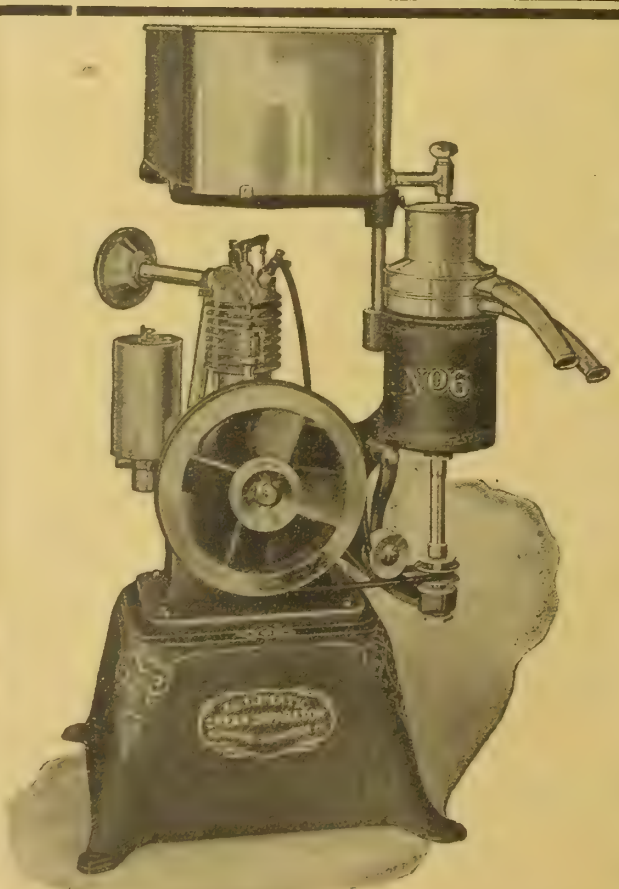
The Illinois station is now conducting a second experiment with corn silage for fattening lambs along the same lines as one completed two years ago at Illinois, five lots of 16 wether lambs each were selected, and silage fed in different quantities to each lot. Another lot was fed entirely on clover hay and corn. In every case the lambs having silage in their ration made greater and more economical gains than those fed on corn and clover, and in every case also the lambs fed the greatest amount of silage made the best gains.

These efforts are particularly valuable, because they have been long periods, demonstrating fully that there are no ill effects on the system of the lamb and mature sheep, which we find claimed many times, by people who are not feeding silage mature.

The Indiana Station, Lafayette, Ind., recently stated that silage was an excellent feed for sheep, being fattened for slaughter and also for pregnant ewes and ewes after lambing. This statement corroborates the experience of many practical sheep breeders.

Our experience in feeding silage to horses has been similar to that with sheep. The poor results from feeding sour, immature silage were apparent. Since the first year or two we have been feeding a liberal quantity to our work horses, brood mares and growing colts with good results. We have never fed heavily to growing colts or brood mares. However, some of our most progressive farmers have been feeding as high as 30 pounds per day to mares suckling colts. And others have fed silage and oats as an entire ration.

It has been fully proven that mouldy silage is dangerous. Pearson of Pennsylvania in investigating an outbreak where five horses had died, found mouldy silage had been fed. Wing also reports the deaths of eight horses feeding on mouldy silage. We see that, in view of such troubles, silage should be fed to horses only where sound intelligence is used. Our conclusion is that silage is one of the most economical and useful feeds for sheep and horses. When the corn is well matured and properly siloed, silage may be fed in almost unlimited quantities. — Wisconsin Agriculturist.



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A land rush took place in Yakima county, Washington, the last of March when claim shanties already constructed were driven to the lands, some of which were claimed to be worth $300 per acre.

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GLANDERS.

By C. L. Barnes, Colorado Agricultural College.

Glanders is a contagious disease, caused by a specific germ. It affects horses and mules. Sometimes the goat, cat and dog contract the disease. Cattle and chickens are immune. The disease attacks the mucous membrane of the nose, but may extend to the trachea and lungs. When the lymphatic glands of the surface of the body are affected, the disease is known as farcy.

The disease may be transmitted to man by inoculation through wounds or on mucous membranes.

There are many ways in which animals may become infected, such as common drinking troughs, feed boxes, mangers, hitch racks, harness, and any equipment used around an infected stable.

Symptoms of Glanders.

Glanders may occur in the acute or chronic form, or it may attack the surface of the body in the form of farcy. The acute form of glanders begins with a chill, high fever, the mucous membrane of the nose is at first hot and dry, a watery discharge soon appears which later becomes bloody.

Nodules and ulcers form on the mucous membrane of the nose and discharge pus. Early in the attack of the disease the lymphatic glands of the lower part become enlarged, forming nodules and without any great amount of heat or tenderness and little disposition to form pus. If these glands have been swollen for some time there is a tendency for them to become attached to the jaw. In the case of acute glanders the termination is death, which takes place in from three to fourteen days.

In the chronic form of glanders this discharge from the nostrils is sticky and of a yellowish-gray or green colored pus mixed with some blood coming from ulcers on the inside of the nose. These ulcers are generally star-shaped and may extend so deeply into the septum as to cause perforation.

The swelling of the lymphatic glands along the lower jaw is even less sensitive than in acute glanders. These glands are hard, varying in size from a pea or bean to that of a small bird's egg, and have no tendency to break down into pus.

When glanders affects the skin, the nodules form along the line of the lymphatics. They have a tendency to soften and discharge pus, after which they heal rapidly.

Prevention of Glanders.

From the fact that treatment is not advisable, all glandered horses should be destroyed; all buildings occupied by glandered horses should be disinfected, as also should harness and stable equipment.

In order that one may be sure that horses are not affected with glanders all suspicious animals should be tested by a competent veterinarian.

DRAFT HORSES IMPORTED.

Complete figures have recently been compiled by the Percheron Society of America regarding the importation of draft horses through port of New York for the eight months extending from July, 1910, until March 6, 1911.

Practically all the horses imported into the United States are imported through the port of New York, the only exception being in the case of a few Clydesdales, which are imported through Canada.

Th› Percherons imported in that period were 1923 or over 65 per cent of all draft horses admitted. Belgians come second with 726 animals, Shires 215 with Punch horses and French draft making up the balance of 2900.

Horses known as French Draft are of the Boulonnais, Nivernais, Ardennais or Breton strains, as these or any of their crosses are known in France and in this country as French Draft and are distinct from the Percherons.

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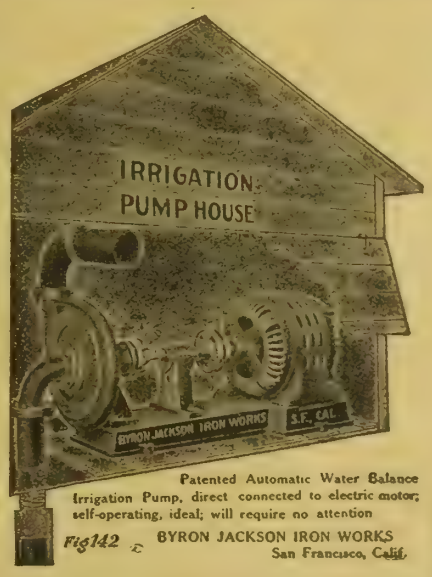

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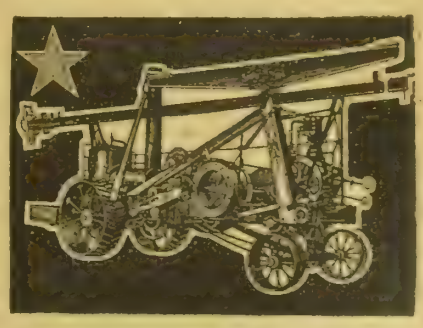

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THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,269 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

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FOODS AND THEIR ADULTERATION.

California fruit growers are sometimes not pleased at the mention of Dr. Harvey W. Wiley's name. He is Chief Chemist of the United States Department of Agriculture, and was responsible for the sulphured fruit ruling of a few years ago which caused such great loss to the fruit industry of this state. But if the fruit growers thought Dr. Wiley's ruling wrong, we believe they always gave him credit for perfect honesty in his belief. In his work in the Department he has done many things worthy of greatest praise. We refer to him at this time, however, to call attention to a revision of his book, "Foods and Their Adulteration," the second edition of this book, containing 100 pages of new material. It is truly a remarkable presentation of the origin, manufacture and composition of food products. Special attention is given to infants' and invalids' foods, and detection of adulterations. There are many colored plates and other illustrations. The book is sold at $4, and the publishers are P. Blakiston's Son & Co., 1012 Walnut street, Philadelphia.

The book is divided into eleven parts, with apendix giving food standards; also there is an excellent index. Part One treats of meats and meat products, Part Two of poultry, eggs and game birds; others of fish foods, milk and milk products, oleomargarine, cereal foods, vegetable condiments and fruits, vegetable oils and foods, nuts, fungi as foods, sugars, syrups, confectionery, honey, etc. A most interesting account is given of methods of manufacturing the most edible of oils, that made from the olive. This is given an extended description, as are also methods of adulteration. In the United States the principal adulterant of olive oil is cotton seed oil, which, as the book says, "is an ideal material with which to adulterate olive oil. This adulteration extends often to complete substitution, though represented as olive oil by both dealer and label." We will quote more at length from this book in later Cultivators. It is a valued addition to our library.

"LEAVE US ALONE."

We note a communication in the Florida Grower from an orange producer at Pomona, Florida, referring to the proposed horticultural law in that state which aims to create better fruit growing conditions by the appointment of a state horticultural commissioner and the control so far as possible of the spread of scale and other pests. The correspondent states that while such a law may do well in California, "conditions are altogether different here. Insect pests and diseases are scattered all over the citrus belt of this state, and to try to exterminate them by such methods as are provided in that act would be like trying to 'sweep the tide back with a broom.' We are paying too much tax now for the benefits we enjoy and I hope the lawmakers of this state will impose no more for such fool purposes. There are but few grove owners who are not trying to correct the evils which exist and in time I have no doubt will succeed as far as it is possible to do so without such a law to give fat picking to a few men who would use it more for their own benefits than for the grower."

If California fruit growers were of the make-up which delights in prosperity at others' expense, they could wish no quicker way of attaining it than that the writer of the above quotation should have his way in Florida. It is simply the old cry of wishing to be left alone no matter how much it may injure others in the same calling.

"THE NEW NAVEL ORANGE."

Attention was attracted by the use of newspapers all over the state to a fake article which started from no one knows where regarding a newly created navel orange coming from the conservatory of the Department at Washington, and being sent to experimenters in this state for its first trial. Merest mention was made of this in the Cultivator of a couple of weeks ago. The report from which the item was taken had some of the earmarks of yellow literature. We now have an article from the Department as follows:

"The attention of the Department of Agriculture has been called to a dispatch published in various California papers on the 9th and 10th instants stating that the Department had originated a new type of navel orange and that several thousand young trees were ready for distribution this month throughout California.

"These statements as published are misleading and are apparently based on a misapprehension of the facts. The Department has no new navel oranges nor new citrus fruits of any kind for distribution in California at present. Experiments in the breeding of new navel oranges and other citrus fruits have been under way for several years, but these experiments are still in the preliminary stage. None of the new sorts will be distributed until thoroughly tested under the auspices of the Department and found to be of promise. None of them has as yet fruited, therefore it is not known whether any will be of commercial value."

CALICO EGGS.

A correspondent in the Ukiah Times complains about the calico egg producers, especially because there are some in that section. But he adds a ray of hope in the fact that these producers of low-grade eggs have to accept a calico price. Storekeepers more and more are drawing the line between Number Ones and Number Twos. Number Ones in the San Francisco market are pure white, and each egg must come up to one-twelfth of twenty-two ounces. In the Los Angeles market whiteness is not so essential as regularity of color. Number Two eggs are of regular color, and must come up to eighteen ounces per dozen. Number Three eggs may be of any old color, and weigh under eighteen ounces to the dozen—and are hard to sell at any price. These Number Threes are thrown into cheap lots and sold off by the cheap corner groceries. We venture it costs as much to produce Number Threes as it does Number Ones, but the Number Threes fix the price of the whole lot which the farmers carry in. It is unwise to admit to the market such eggs, but few can understand it.

Los Angeles county bee keepers are concerned over the proposed shipment into that county of colonies of bees from the San Joaquin valley, thought to be infected with foul brood. County Bee Inspector De Sellem is working on the case and intends to keep the infected colonies out of the county if possible. This disease has not yet appeared south of the Tehachapi and the southern bee keepers, though they fear its introduction ultimately, mean to use every possible measure to prevent it.

TEAM WORK.

Referring to the necessity for team work, the Spokesman Review of Spokane lays down as a working rule three essentials: First, a working plan; second, a leader; third, workers pulling together; and adds that the lack of any one of the three means failure. A whole sermon might be preached on this point, no more forceful than this short statement. Perhaps the most difficult of the three essentials to work out is the last. The plan may be determined, the leader chosen, but to get all the workers to unite is a problem. We are all so self-centered that to give way in cooperation and "let others handle our business" goes against the grain; but unless you can do it, don't try co-operation.

HOPE FOR THE FUTURE.

The time is past when ignorance can succeed in any vocation and especially is this true of the great profession of farming. Intelligent farming means profitable farming. When this end is attained then the cry "back to the farm" will have been answered, for when the farmers are really and truly prosperous they will naturally surround themselves with all of the comforts of the present age; country home life will then be the happiest, most attractive and independent on the face of the earth.

Assembly Bill No. 965, introduced by Assemblyman Cogswell and passed by both houses, was signed by the Governor on March 24. This is an amendment to the act empowering boards of supervisors to appoint county horticultural commissioners. The amendment provides that the supervisors, if petitioned by twenty-five or more persons, possessors of orchards, greenhouses or nurseries, shall appoint a commissioner to supervise destruction of insects, diseases and pests, enforce county ordinances and state laws relating thereto. As by the former law, the state board of examiners is empowered to examine applicants for fitness for the office. The term is to be four years. The person appointed must be qualified for his duties, and must be chosen from a list of eligible persons recommended by the examining board and within thirty days from receipt of said list. The former law placed the power of appointing the examining board in the hands of the Governor; the amendment changes this, and states that the board of examiners shall consist of the dean of the Agricultural College of the University of California, the state horticultural commissioners and the superintendent of the state insectary. This board shall consult the resident horticulturists in determining the responsibility and moral qualifications of candidates. The salary of inspectors appointed by the county horticultural commissioners shall be $3.50 per day, deputies $5, the commissioner to receive $6. The commissioner and his deputies are allowed traveling expenses, but the inspectors are not.

The Holstein-Friesian Association of America offered to add 15 per cent to the cash prizes awarded by the California State Fair in sections where Holstein-Friesian cattle may compete, all animals expecting to win this additional prize to be registered.

The Riverside Enterprise suggests that there is no book on citrus culture which is worthy of that great industry. There is a prime need for someone qualified to take up this great work and give to the industry, which brings to the state more than $30,000,000 a year, a complete treatise.

Agricultural News Notes of the Pacific Coast

Northern California

Butte county is planning a thousand acre dairy farm.

A horseradish farm is being established at Yuba City, Sutter county.

A new fruit packing house is to be erected at Newcastle, Placer county.

A Stockton factory is sending traction engines to the Argentine Republic.

Four hundred thousand hop plants are being planted at Nord, Butte county.

Asparagus canneries are preparing for an opening run within the next few days.

A brooder house at Santa Rosa with 1800 young chicks went up in smoke last week.

Anderson, Shasta county, observed last Saturday as general clean-up day of its streets.

Live Oak, Sutter county, is taking steps to secure the establishing of an alfalfa meal mill.

The Sutter County Farmer reports orchards and vineyards in exceptionally fine condition.

Vacaville reports promise for a good crop of apricots, cherries, peaches and plums.

Vacaville, Solano county, reports apricot crop lighter and cherries being injured by thrips.

The asparagus canning factory at Rio Vista, Solano county, will start within the next few days.

A Los Angeles gardener has purchased land near Yuba City and will grow horseradish extensively.

Some vineyardists of Mendocino county have received offers of $15 a ton for a period of ten years for wine grapes.

Residents of Alvarado, Alameda county, are petitioning the board of supervisors for protection against storm water.

The California Almond Exchange will deal directly with Eastern brokers for the handling of the coming season's crop.

Irrigators near Woodland, Yolo county, held a meeting and discussed matter of rates for water during the coming season.

Heads of fruit distributing houses at Sacramento report that a general canvass of the fruit situation of the Sacramento Valley indicates a large crop of all kinds of fruits.

Ferndale, Humboldt county, has a poultry ranch which is now occupied by 1100 laying hens and has proven remarkably profitable. Eight incubators are in constant operation.

The Hughes Chicken Colony has purchased a tract of the Schell Ranch at Schellville, Sonoma county, and has placed an order with the Schellville Hatchery for 12,000 chicks.

Horticultural Commissioner Stabler of Sutter county advises immediate sulphuring of almond trees and a second sulphuring 1st to the 10th of May to aid in the control of red spider.

The Plant Introduction Garden at Chico, Butte county, is supplied with several tons of rice seed of 45 different types which will be distributed to those who will give it careful attention in the Sacramento Valley.

Central California

Woodville, Tulare county, reports grain and alfalfa growing like magic.

The last legislature appropriated $150,000 for a normal school at Fresno.

The Stanislaus County Bee Keepers Association met in Modesto last Tuesday.

A Visalia dairyman has been fined $75 for keeping his dairy in a filthy condition.

It is proposed to create a magnificent boulevard from San Jose to San Francisco.

A meeting was held at Lindsay last week to discuss campaign against orange thrips.

A $60,000 factory for fruit preserving is to be constructed at Lodi, San Joaquin county.

The peach and apricot crop of the San Joaquin valley will be much lighter than last year.

About 325 rabbits were slaughtered in a rabbit drive in the Central district, Stanislaus county.

Pear thrips are doing less damage in the prune and other deciduous orchards of Santa Clara valley.

An artesian well showing a flow of 75 inches of water was recently completed on a ranch near Tulare.

From investigations of the apricot orchards of the Pajaro Valley it is believed a bumper crop will be given this year.

The squirrel inspectors of Stanislaus county have all been taken off the job and the campaign is at a standstill.

Thirteen counties were represented at the meeting of poultrymen in San Jose last week to form a state poultry association.

Bonds of $200,000 par value will be offered for sale by the directors of the Turlock Irrigation district on April 24th.

Secretary Bremner of the state horticultural commission reports much damage from pear thrips along the delta lands.

Many peach orchards are proving to be seriously affected with peach blight, this of course only in orchards not sprayed.

During an electric storm at Los Gatos, Santa Clara county, last week a bolt of lightning destroyed a large cypress tree.

Some farmers along the west side of the San Joaquin valley are contemplating large experimental plantings of cotton.

There was no meeting of the San Jose Grange last Saturday because of the entire membership attending the Saratoga Blossom Festival.

A Fresno man has invented a fruit cutting machine said to handle peaches and apricots much more economically than former methods.

The portion of the Sierra Nevada supplying water to Kings, San Joaquin and other rivers of the valley is said to be covered with a third more snow than a year ago.

Ranchers at Porterville who use electricity for power are conferring with the power company and hope to perfect arrangements by which extensive developments along power lines may be taken up.

Southern California

Santa Paula observed last Friday as annual clean-up day.

El Centro, Imperial Valley, is to hold a street fair April 10 to 15.

Orange County Poultry Association is planning for a big show in December.

Fullerton boasts of one of the largest chicken hatcheries of Southern California.

The Fullerton-Placentia district of Orange county will ship about 1600 cars of oranges.

Plans are already being laid for next year's National Orange Show at San Bernardino.

Oranges are still showing much decay and shippers are appealing for more care in picking.

Imperial Valley estimates approximately 4500 acres of cantaloupes have been planted this season.

Rialto and other western San Bernardino county points are having experience with horse thieves.

J. C. O'Neal, of Indian Wells, in the Coachella Valley, is making weekly shipments of peas to Los Angeles.

Fullerton cabbage growers are pleased at price prospects; that district will ship about 200 carloads.

The Whittier Citrus Association anticipates a million and a half dollars as return for its shipments this year.

Orange, San Bernardino, Riverside and Imperial counties claim a valuation of $9,000,000 in irrigation canals.

Horticultural Commissioner Beers of Santa Barbara county reports the planting of olive trees very extensive.

Poultrymen of Escondido, San Diego county, met last week and formed a county association, 15 members signing the charter.

Bean growers of Orange county claim they are getting far better prices than before co-operation was brought to their aid.

Many mules and horses owned by contractors near Santa Monica, Los Angeles county, have been lost because of spotted fever, or spinal meningitis.

The manager of the Lima Bean Growers Association of Ventura County reports prices for September and October delivery on a five cent basis f. o. b. Coast.

Hundreds of teams are doing development work in the Chucawalla Valley in anticipation of the water to be brought in by the Chucawalla Development company.

Orange county cabbage growers report tonnage per acre lighter than last year; it is feared it may be from three to five tons, whereas seven to eight was anticipated.

Owners of property along the San Gabriel river are forming a combination to commence suit against Los Angeles county because of damage to their lands during the recent floods.

The signing of the bill passed by the last state legislature appropriating a quarter of a million dollars for a California state building at the Panama-California Exposition to be held at San Diego, was accompanied with some ceremony, and the pen was a gold one mounted on a large ostrich plume quill.

The Coast

Oregon City Horse Show will be held April 22nd.

Hundreds of colonists are locating near Albany, Oregon.

Seattle egg market is now at 22 cents for local extras.

Spring plowing has been started in Flathead county, Montana.

Varieties of almonds are being tested in Hillsboro, Oregon.

The governor of Montana has proclaimed May 19th as Arbor Day.

Western Oregon reports that March of 1911 was the driest March since 1885.

Cold storage men at Portland report the apple market as exceptionally strong.

A number of new Granges have been organized in the state of Washington.

The governor of Montana has appointed a board of live stock commissioners.

Spokane, Washington, reports since the first of April genuine summer weather.

Pumps to supply water for irrigation were started at Hanford, Washington, on March 30th.

Twenty-five hundred acres of orchards will be planted at Prosser, Washington, this spring.

Montana farmers are looking for a great crop of grain, the winter having been most favorable.

Nine associations of fruit growers are uniting in a central selling agency to cover all the Northwest.

California leads the United States as a barley producer, Minnesota having formerly held the honor.

Foresters from various coast sections conferred with Chief Forrester Graves at Salt Lake City last week.

Umatilla county, Oregon, farmers are paying seven cents for grain sacks as against six cents last year.

The live stock market in Portland is reported remarkably dull because of generally poor condition of all offerings.

Farmers of Nevada and Montana maintain that they pay the highest average farm wage of any portion of the country.

The high school at Pasco, Washington, is being conducted on the centralized plan, busses carrying children from the outlying districts.

A famine of spraying material has been brought on in the Yakima Valley, Washington, because of the general campaign on the part of all fruit growers.

The reclamation service is to construct a dam at Lake Kaches near North Yakima, Washington, which will impound 210,000 acre-feet of water.

The Moro Province Fair held during late February at Zamboanga, on the Island of Mindanao, P. I., was declared a complete success; a good agricultural exhibit was made.

Orchardists of Spokane Valley, Washington, have organized the Spokane-Highlands Fruit Growers Association. The association will become a member of the Northwestern Fruit Exchange.

Good Tools Make Good Workmen

Farmers! Increase the efficiency of your men by giving them good tools. Don't expect raw hands to do as well with misfit tools as they would with well made, handy

KEEN KUTTER
Farming Tools

A workman is largely what his tool makes him. Therefore, see that the hoes, forks, rakes, scythes, shovels, spades, garden forks, axes, manure hooks, potato hooks, and other hand tools which your men use bear the Keen Kutter trademark. One of the best Keen Kutter tools made is the Keen Kutter Drain Cleaner. Forged from one piece best crucible steel, hardened and polished. Beveled for either pulling or pushing. Fitted with 6 foot Northern Ash handle.

E. C. SIMMONS KEEN KUTTER TRADE MARK

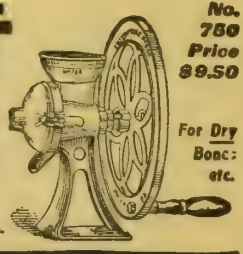
"The Recollection of Quality Remains Long After the Price is Forgotten."
Trademark Registered. —E. C. SIMMONS.

If not at your dealer's, write us.

SIMMONS HARDWARE COMPANY (Inc.), St. Louis and New York, U.S.A.

ENTERPRISE
Bone, Shell and Corn Mill

A money-saver and money-maker. Cracked grain, ground bone and shell, increase egg production when fed properly. The "ENTERPRISE" Mill is a wonder. Strongly built, reliable, runs easily and won't get out of order. Grinds *dry* bones, corn, oyster and other shells, etc. Price of Mill shown, No. 750, is $9.50. Weight, 60 lbs. Grinds 1¼ bushels of corn an hour. Hardware and general stores everywhere.

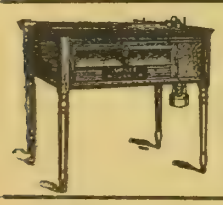


No. 750 Price $9.50

For Dry Bone: etc.

Catalogue FREE. Famous Recipe Book, "The Enterprising Housekeeper," for 4 cents in stamps.

THE ENTERPRISE MFG. CO. OF PA., DEPT. 61, PHILADELPHIA, PA.



Don't Make a Mistake Remember

There is but one **JUBILEE.** Our customers tell us that there is but one Incubator and that is the **"JUBILEE."**
Let us send you our Catalog. It's free.

JUBILEE INCUBATOR CO., Sunnyvale, Santa Clara Co., Cal.

All Metal Incubators and Brooders

SIMPLE—SAFE—DURABLE
The result of 25 years experience, and the most Practical Incubator made.

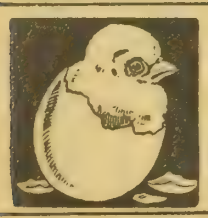
Cycle Hatchers $6.50, Brooder Hatchers $8.50
FIRELESS BROODERS THE KIND THAT RAISE THE CHICKS
THE PHILO SYSTEM
Philo System Book and Poultry Review (one year) $1.00
READ WHAT OTHERS SAY:

117 Miles Ave., Oakland, Cal., Nov. 12, 1910
Cycle Hatcher Co., Oakland, Cal.
Gentlemen: A year ago we started with the Philo System, and raised as fine a lot of White Orpington pullets as anyone would wish to see. The two machines we purchased of you last season have given excellent satisfaction. We shall probably need more this year, and shall use the Cycle machines in preference to a larger incubator. Yours truly, S. N. Haines

Send for "Poultry Profits." Mailed on request.

CYCLE HATCHER CO., OAKLAND, CAL.
Warehouse at Los Angeles Cal. Address all correspondence to Oakland.

Rancho Mirasol White Leghorns
Eggs for Hatching, January to June. Day Old Chicks, March to June.
PASADENA, CALIFORNIA.



White Leghorns

A Standard Strain of Great Layers and Great Winners. None superior. Prices reasonable. Descriptive booklet of our stock and farm and recipe for mixing best and cheapest egg-producing mash, sent free for stamp. Eggs, stock and baby chicks for sale. Also a grand lot of cockerels.

On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

MODEL POULTRY FARM Irvington, Alameda County, California

SULLIVAN'S
Buff Orpingtons

1000 birds to select from. Trios, $7.50 and up. Eggs for hatching, $2 and $3. Special selection; prices on application. Mr. & Mrs. W. S. Sullivan, 50 Market St., Agnew, Santa Clara Co., Cal.

S. C. BUFF ORPINGTONS
Eggs for hatching, Utility stock (no culls), $1.50 per 15; special matings.
Send Stamp for Mating List
No visitors on Sunday.
J. J. DEAN, Moneta, Cal.

Practical Poultry Culture

METHODS OF KEEPING EGGS.

By Mrs. A. Basley.

"Thank goodness, eggs are cheaper!" exclaims the housekeeper, while the egg-farmer shakes his head as he thinks what a price he might have realized if the hens had only laid more eggs a few months ago. Thrifty folks when eggs begin to be cheap plan to preserve them in some way so as to have eggs in the late fall and winter when the price soars high, and the eggs are few.

"What do you consider the best way of keeping eggs for use next winter," asks one of our readers. Personally I have tried the following ways: first standing them on the small end and covering them with salt, well sifted through and around them; results fairly good, at least at the end of six months they did well for cooking and very few were bad. Packing them in bran: poor results, a good many were entirely lost and some were mouldy in taste. Greasing them with butter within a few minutes after they were laid: these kept very well as a rule, that is, if they were greased all over with really good salt butter and before they were quite cold after they were laid. They kept six months well, and at three months could not be known when boiled from the eggs laid the previous day. I tried this plan as had my mother for many years, but it was a good deal of trouble. The next plan was keeping the eggs in lime water. This was very fairly satisfactory, the best and cheapest until the waterglass method was discovered.

Undoubtedly the best way of preserving eggs, so that they will at the end of six or nine months be almost as fresh as when newly laid, is to put them into a solution of waterglass. Waterglass, so-called, is "silicate of soda," sometimes called "dissolved glass." This last term describes just what the stuff is. When we buy it by the pint, quart or gallon we get dissolved glass. If we buy it dry, we get a soluble glass powder, which looks sometimes like powdered stone and sometimes white and glass like as to its particles. The powdered forms are supposed to dissolve in boiling water, but they frequently have to be boiled for hours before they will dissolve, and I have found that the most satisfactory is that which comes from the East in cans. I usually buy a gallon can at the beginning of the season. This is sufficient to preserve about sixty dozen eggs. The price of the "waterglass" varies, as many commodities do. I usually give about 85 cents a gallon, but on inquiry at a large drug store this week, I find they are selling it at 75 cents a gallon or 50 cents for half a gallon, or 25 cents for a pint. The stuff is very much like glucose in appearance. It is a thick, jelly-like liquid and is usually white, at least, that which is used in this part of the country is. One of our readers wrote me that some he had bought is watery. It should not be more watery, until after the water is added, than glucose or molasses.

If you cannot get such as I describe of your own druggist write to any poultry supply house which advertises in these columns.

Directions for Use.

Use pure water which has been thoroughly boiled and cooled. To each quart of this water add one quart of waterglass. Pack the eggs in the jar and pour the mixture over them. Or the solution may be placed in the jar and fresh eggs added from time to time until the jar is filled, but care must be used to keep fully two inches of solution of waterglass to cover the eggs. Keep the eggs in a cool place and the jar covered to prevent evaporation. A cool cellar is a good place to keep the eggs, but a neighbor of mine kept his under his north porch, covered to keep out dirt and insects.

If the eggs are kept in a place that is too warm the silicate will be deposited and the eggs will not be properly protected. Do not wash the eggs before packing, for by so doing you will injure their keeping qualities, by dissolving the mucilaginous coating on the outside of the shell. For packing use only perfectly fresh eggs, for eggs that have become stale before packing cannot be preserved by this or any other method. You cannot make a stale egg fresh again, and one stale egg may spoil the whole batch in the same receptacle.

I have kept eggs preserved in this manner for over eight months, and have no doubt that I could have kept them a full year in as fresh a condition had we not eaten them, for I found them to all appearance as fresh as if not over a week old.

The Kind of Vessels for Packing.

The best vessels are jars or crocks with a cover to them, but I have found that I could keep the eggs almost as well in tin receptacles. I have used five-gallon kerosene oil cans and large lard pails. These kept the eggs perfectly, but after a time the water and silicate of soda rusted the can in spots and the red rust formed a sediment on the eggs. This did not injure them as far as I could see, except giving the eggs a brownish tinge, and on my consulting the druggist he said that as the silicate of soda came from the East in tin cans he did not see why tin could not be used to hold the eggs. If tin receptacles are used do not paint or oil them, as the soda has an affinity for oil and will eat through it and the oil or paint may impart a disagreeable flavor to the eggs.

Professor Ladd of the North Dakota Agricultural Station in his bulletin mentions receiving complaints that barrels were not proving satisfactory, the waterglass appearing to dissolve some product which deposited on the eggs. He thinks that this might be attributed to the presence of glue, or sizing in the barrel. Altogether the preference seems to be for glass or stoneware vessels.

Professor Ladd's statement as to the satisfactory results of the waterglass method is very strong. He says: "This method has been tested in a commercial way, in nearly every state and part of our country, and we have not had to exceed eight adverse reports." One of the stations affirms that the failures reported are probably due to receiving waterglass of poor quality.

As the entire processes of preservation are an effort to fence out germs, the recommendation not to wash off the mucilaginous coating which nature puts on the eggs, and to use only

Here is a page of vital interest to every poultry raiser in California.

—It is to your interest to read it.

The Poultry Season is now at its height. Chicks are well under way and returns from market sales and egg production from the young flock are in sight. But the question is always uppermost in the mind of every poultryman, "Am I getting as much as I should from my birds?" It is only by comparison that one can determine whether or not the full capacity of eggs is produced or whether marketable poultry is at the right weight at a certain age.

Aside from good stock to start with, which is always necessary to success with poultry, the one fact standing out above all others is the quantity and quality of food supplied. Egg production consumes an enormous amount of vital energy. It is the bird's best effort. It is her real object; her life work, and she does it as well as she can under the conditions to which she is subjected. If you expect your flock to be a financial winner you should equip it with the proper fuel. Food is to a chicken what coal is to a boiler. The right kind will produce satisfactory results; the wrong kind will clog up the pipes.

WE ARE FUEL DEALERS. We supply the proper fuel for your chickens, and have a complete assortment to meet every requirement, both as to age and ultimate disposition of your birds.

THOUSANDS OF POULTRYMEN HAVE FAILED because they did not furnish the proper nourishment to their birds. BUYING A CHANCE FOOD IS DANGEROUS; MIXING YOUR OWN FOOD IS A RISK. YOU CANNOT AFFORD EITHER ONE OF THESE.

For a good many years we have devoted time and money to the preparation of proper food for chickens. Our business has increased from year to year, and we are at the present time by far the LARGEST POULTRY FOOD MANUFACTURERS IN CALIFORNIA. By our tremendous output we are able to keep a close watch as to results and we find that IN EVERY CASE our food has brought chicks to a standard of laying and marketable growth which has produced millions of dollars for the poultry raisers of the state.

The opportunity for poultry success is greater than ever before. The demand is good. If you are raising a few chicks you can increase your holdings and be sure of success.

We have prepared a new book called "CHICKENS." It is a concise and plain guide for the man who wants to raise chickens for profit. It gives every detail from the selection of the breed to the selling of eggs. We have only 5000 of these books. To that extent we will send one free to every reader of the Cultivator who writes for it. This book is intended mainly for beginners, but will be found attractive and interesting to poultry raisers, large and small. It deals with the problem from the standpoint of California conditions, and for this reason is especially useful and practical. You may have one of the five thousand if you want it.

Our foods are on sale by all reliable poultry supply houses. If you would like a sample we will gladly send it, and give you the name of our nearest agent.

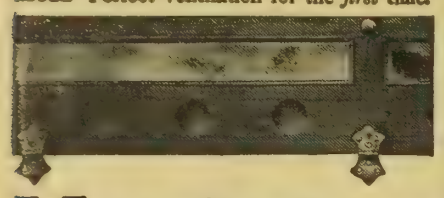
COULSON POULTRY and STOCK FOOD COMPANY

PETALUMA, CAL

Germain Seed and Plant Company, Los Angeles, Distributing Agent for Southern California

More Inventions by Lee

Here's his new Incubator door all are talking about. Perfect ventilation for the *first* time.

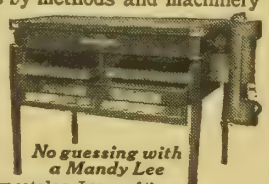


Mandy Lee Incubators

supply life-giving oxygen freely to the eggs and just as naturally draw off the poisonous gases. The most important step ever taken in incubator ventilation—neither above nor below, but *right at the eggs*—the correct principle, for the new Mandy Lee is making better hatches of *stronger* chicks than any other incubator in the world.

We Measure Everything

Heat—moisture—ventilation. You *guess* at nothing. If the eggs are good and you follow simple directions your work with a Mandy Lee is as nearly an absolute certainty as anything can be. There is no more reason why you should buy an incubator that regulates nothing but heat than for a farmer to continue to harvest his crops by methods and machinery used 100 years ago. Your success with poultry depends on your ability to select equipment that is *right*—that's what you *always* get from us.



No guessing with a Mandy Lee

Send *to-day* for new catalog. Learn of these new improvements and of our new *out-door, lamp-heated* and *regulated brooder*, just what is needed.

GEO. H. LEE CO.,
225 West Second St.,
LOS ANGELES, CAL.

Imported Carneaux

The Great Squab Pigeon

A limited number of mated pairs at

$3.00 PER PAIR

CHAS. N. TAYLOR
ARTESIA, CAL.

PHENOMENAL STRAIN OF

S. C. R. I. REDS

These hens equal any breed for laying purposes on the coast; this is their eighteenth month of steady laying, averaging higher in January 1911, than in January, 1910. Cup and ribbons to their credit.

Settings $2 and $5, by the hundred $6 $8 and $10

"THE LUEDKE'S"

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boiled water, appears very logical When we know just what we are aiming at, we are less likely to omit the little precautions which otherwise might seem like the whims of some fussy person. Too many people skip the essentials when trying to follow a formula.

Eggs preserved in waterglass will keep good after they have been removed and wiped off, about as long as if they had been freshly laid; at least mine did. All preserved eggs contain a little gas and when boiled they will be apt to crack open unless previously pricked through the shell at the large end.

POULTRY HOUSE FLOORS.

During the sixteen years or more I have made poultry keeping a business I have spent a lot of time studying the problem of good floors in all kinds of poultry houses. At one time I was sure that a clay floor, well tamped and a few inches higher than the ground outside the building was about the best that one could have as well as the cheapest. In a small house where not a great many birds are kept I found it to be a good floor. True, it gave up a great amount of dust unless the litter on it was so deep that the hens could not find the bottom of it.

Dusty hen houses are an abomination. Then in turn I tried cinders for a floor. This was better than clay. Later I put in board floors made of cheap shiplap, and set the house up off the ground so that a dog or cat could get under the floor and keep out rats or mice. It did not work too well and was very expensive. I could not get a cat to do its rat catching under the floor, and was never able to learn why it would dig out even when fed regularly and given every inducement to stay and fight the vermin.

Next I tried a cement floor. This was first filled in with common dirt and packed or left to settle well, then I placed a couple of inches of cinders or gravel on top of this and wet it down and put in a floor of five parts sand and one of cement. This cement was laid two inches thick. It is plenty heavy for such purposes and will not break or crack if heavy pounding is not done upon it.

Be sure to have the base of the cement floor laid higher than the ground outside, as this will keep the foundation dry. This is what the cinders and gravel are for. I am told by cement men that common dirt if filled in well and packed will make good base for a floor that is used no more than one in a poultry house. The idea is to keep the dampness out from under it and to have the base packed well.

Cement will prevent rats from digging under the sides and getting into the flocks. It will be easily cleaned and is sanitary. The average poultryman can put in a cement floor for himself if he gets a man to mix the "mud." It must be well mixed when dry and then as well mixed after the water is put on it. Put it in thin, that is relatively thin. I mixed mine a bit thinner than common mortar would be mixed and it set together well and is making a fine job. I took a straight edge and set it at both sides of the house, filling in the mud and leveling each couple of feet as the job progressed. Then the day after it was put in and had set pretty well, I sprinkled it to keep it from drying too fast. Fast drying will crack the surface.—Journal of Agriculture.

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EGG GRADING.

Mr A. G. Philips of the Purdue University Agricultural Experiment Station writes regarding detecting bad eggs as follows:

Not long ago it was stated that the eggs in Indiana were not bought according to quality, but at a flat rate of so much per dozen. However, when these eggs are received by the buyer, he is compelled to go over them and select the best eggs for his best trade.

Candling Eggs.

The method used for this selection of eggs is called "candling," or "testing." The "egg candle" or "tester" is made of wood or metal and, as a rule, is kept in a dark room. A light inside the tester shines through an opening, in front of which an egg is held by the candler. By a quick movement of the hand, the condition of the contents of the egg is quickly noted and the egg is placed in its proper class. A good candler works rapidly and will test a large number of eggs in a day.

Grading Eggs.

Eggs are sometimes graded as follows:

Extras: Weight 28 to 26 ounces, naturally and absolutely clean, fresh and sound, same color. (A grade seldom used).

Firsts: Weight 26 to 24 ounces, fresh and reasonably clean.

Seconds: Shrunken, stale, washed, stained and dirty.

Checks: Cracked, not leaking.

Rots: Incubator, blood rings, dead germs, and decomposed eggs.

All eggs should be bought and sold on this grading system so that an egg will bring what it is worth.

Description of Egg Contents.

When the candler tests the eggs he bases his judgment on the following indications:

Fresh: Opaque, appearing almost entirely free of any contents, sometimes dim outline of yolk visible, air cell very small

Stale: Outline of yolk plainly visible, sometimes muddy in appearance, air cell very large.

Developed Germ: Dark spot visible, from which radiate light colored blood vessels.

Dead Germ: Dark spot attached to shell, or red ring of blood visible.

Rotten: Muddy or very dark in appearance, yolk and white mixed, air cell large and sometimes movable.

Cracked: White lines showing irregularly in shell.

Testing as above suggested will aid one in determining absolutely, the quality of the eggs, not only for marketing, but for incubation. The farmer should demand that his eggs be bought upon the test. The buyer should co-operate with farmers and meet such demands by buying "loss off."

Recent changes in the pure food law make it unlawful to sell or offer for sale, eggs which are putrid, decomposed, rotten or unfit for food. The only way to obey this law is to sell eggs upon the grade.

DESICCATED EGGS.

Eggs put up in bulk, either frozen or dried, have disclosed in a number of instances the presence of decayed and filthy substance, showing plainly that either purposely or through carelessness spoiled eggs are broken into the cans. A number of notices of judgment have been issued in such cases, and it was deemed wise to make a thorough inspection of egg-packing establishments, observing the procedure from the candling of the eggs to the finishing of the product, and accompanying the inspection with the sampling of the output at various stages for the making of chemical and especially bacteriological examinations. It is obvious that the main consideration is the use of fresh material under sanitary conditions, but it was also developed that some of the details of handling in various packing houses result in lower bacterial counts and a better product than others, and suggestions will be made along these lines.—U. S. Ex. Sta. Record.

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Irrigation and Forestry

MOISTURE CONTENT OF SOIL.

By R. L. Parshall, Colorado Agricultural College.

Irrigation is as old as the hills, and is artificially supplying moisture to the soil for the growth of plants. In all these years the science of irrigation has not been made exact. Nature is so varied that irrigation must be made to meet the existing conditions.

Soil is composed of minute particles, irregular in appearance, and, when collected into a mass, there is a certain part of this that is space, and in this space water may be stored. It is this water so held in the soil that is useful to the growth of plants. A certain crop must have a certain amount of moisture for its needs; too much may be detrimental; not enough may cause the loss of the crop, but fortunately the limits are wide. The particular question always arises: What is the required amount of water for a maximum yield?

We find that soils differ in their make-up; different subsoil; the slope of the ground varies in different localities, and general climatic conditions may be different. All these considered, it may be said that what would be the proper amount to supply in one case may be too much or not enough in other cases. Efficient irrigation consists in supplying the requisite amount of moisture to the soil, and this may be accomplished by adding water to the ground, or regulating the drainage. It has been said that good plant growth will result if we have one pound of free moisture in the soil to about ten pounds of soil. This, of course, is general, and depends upon the kind of soil and the kind of crop.

You might make a test and determine for yourself the right amount for your farm and particular crop. First, select a place in your field where the plant growth seems to be best. Take from the roots of the plants a sample of the soil, which should be an average from the top roots to the lowest roots. Place this sample immediately into sealed jars of known weight. Weigh the jars and contents and the increase will be the true weight of soil and moisture. Put the soil in a pan and place in an oven of moderate temperature for several hours. When cooled to the temperature of the room, weigh again. The difference between the weights of the damp soil and the dry soil will give the weight of free water, or moisture that is available for the growth of plants.

EUCALYPTUS.

Mr. E. F. Adams is perhaps overconservative, however we think he is much nearer correct than promotion concerns which claimed profits beyond all reason from the planting of eucalyptus in California. Mr. Adams says in a recent Chronicle:

The ablest and most experienced lumbermen of this state have great confidence in the profit of eucalyptus growing in this state when done under proper conditions, but they also believe that nine-tenths of the planting done by inexperienced men under boom inspiration will represent so much wasted money. They probably doubt the wisdom of devoting first-class agricultural land to any such purpose. The conditions of profit are, first, ample capital which can afford to wait many years for returns. The twelve or fifteen year cycles which are suggested in the boom literature will not do at all. They will produce only immature wood almost impossible to handle on account of its warping and checking. Probably fifty years is the least it is safe to count on. Secondly there must be an ample area in one ownership, so as to produce a real forest. One of our wealthy and experienced lumbermen, who is himself considering a large investment in eucalyptus, recently told the writer that he would not even consider a proposition of planting less than 30,000 acres. Eucalyptus is a difficult wood to handle, and the area at command of a lumbering company must be large enough to justify the installment of a large and costly plant, which means the assurance of a supply of properly grown timber sufficient to last a good many years. Finally, it is not probable that the cost and risk of creating real forests of eucalypti will be assumed by experienced and competent business men until our methods of taxation are so changed that the tax on timber is paid when it is cut. If land and growing timber are to be assessed on such values as popular outcry would probably insist upon and then taxed at from 1½ to 2 per cent for forty or fifty years, it is evident that at compound interest any possible value would be used up long before the timber is mature and fit to cut. We clip the following from a recent document of the forest service:

A great deal of attention has recently been focused on the planting of eucalyptus in California. Many companies have been organized, much capital has been invested and the large acreage already planted is being rapidly increased. The forest service has sought to aid eucalyptus growers by publishing such information concerning the tree and its uses as it could secure after careful study.

Information presented for this purpose has at times been misused. Short passages have been quoted in such a way at times to convey a misleading impression and sometimes even to falsify the original meaning. Extravagant estimates of the probable returns from planted eucalyptus have been widely circulated, and there is reason to fear that many persons have formed an altogether false idea of the merits of eucalyptus growing as a field for investment, and have supposed that this false idea was justified by statements and figures of the forest service.

The truth is that there are as yet too many elements of uncertainty involved to permit a close calculation of money returns to be made. There is, however, every reason to believe that under proper conditions eucalyptus growing will be profitable. In eucalyptus growing as in any other class of commercial operations the investor needs to know not only whether the enterprise into which he thinks of putting his money is financially sound, but also how large a return is probable. It is the aim of the forest service to aid those who wish to know as nearly as possible what can be counted on by finding out and making known both what the tree will yield in wood and what uses the product will be suitable for. One of the ele-

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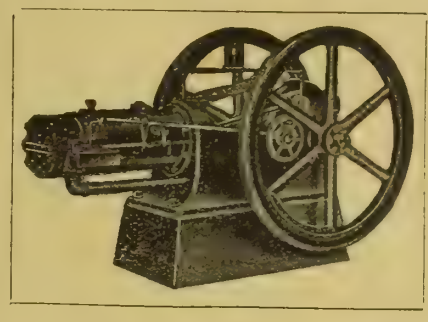

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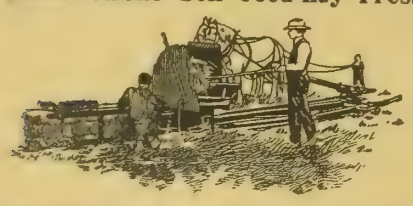

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ments of uncertainty is the value of the wood for high-grade purposes.

The problem of utilizing eucalyptus wood readily and without undue waste is a difficult one because of its tendency to warp, shrink and check in drying. In wood from trees as young as the California growers generally count on cutting this tendency is much stronger than in the wood from mature forest-grown trees in Australia and Tasmania. In the hope of finding means of controlling this tendency and for the further purpose of ascertaining the mechanical properties of eucalyptus wood, so that its industrial usefulness may be determined, the forest service has recently carried out, in co-operation with the University of California, a series of tests of several of the more common California species.

DUTY OF WATER.

How many farmers are there in the country who know what is meant by the term "Duty of Water?" Not many. Yet they have been living in an arid section and irrigating their fields for years. They have seen the value of water increase year after year, and they know that water in a reservoir is like money in a bank, and should be used when and where it will do the most good, and made to go as far as possible.

One farmer uses a certain head of water and with it covers five acres of his farm in a day. Another farmer uses the same head and irrigates only 2½ acres with it. The duty of the water in the hands and on the land of farmer No. 1 is double the duty in the hands and on the land of farmer No. 2.

It behooves every farmer, then, to know what duty he is getting out of his water, and, if he finds that he is not up to the standard, he may take the necessary steps to improve the position of his ditches or may, during the fall and early winter, cut off the high spots and fill in the low spots of the field and in this way increase the duty of his water two, three, and even fourfold.

There are two general ways of speaking of the duty of water. One is to state the number of acres a second foot of water will take care of, and the other is to speak of the number of acre feet of water used per acre.

We used to figure that land in this section needed one second foot of water for every 40 acres, and in this case the duty of water was 40 acres per second foot. Later we raised this duty to 60 acres per second foot; then we made the duty 80 acres per second foot, and for a long time it was the custom to provide a second foot of water for each 80-acre tract. Now we are figuring the duty of water to be 100 or 120 acres per second foot.

Can we do better than this? We certainly can, for in Southern California, where water is scarce and valuable, they make a second foot of water take care of 300 acres, and where subirrigation, by means of underground pipes, is used, the duty in some cases has reached 1000 acres per second foot.

This method, however, of figuring duty is not the best by any means, for it presupposes a continuous flow of one second foot throughout the irrigating season. The farmer when he irrigates usually wants more than a second-foot head, and he uses it for a few days or weeks and then uses no water at all for a period. Hence, the second way of stating it, which is in acre feet per acre, is usually the best way.

A second foot of water running for 24 hours delivers approximately 2 acre feet. (To be exact it delivers 2 acre feet in 24 hours, 12 minutes.) Let us say the irrigating period is 120 days, and one second-foot would deliver in that time approximately 240 acre feet. If this were applied all at once to 100 acres, it would cover it to a depth of 2.4 feet, and we would say that the duty of water in this case, is 2.4 acre feet per acre.

The duty of water, then, in acre feet per acre, is the number of acre feet of water applied to each acre of land, during the entire season. It varies the country over from 1 acre foot per acre, to 10 or 12 acre feet per acre.

Why not make an experiment, then, Mr. Farmer, and see what duty you are getting from your water? It will pay you.—E. B. House, Colorado Agricultural College.

ACRES AND BONDS.

The reclamation act of a few years ago gave permission to establish power plants in combination with irrigation works. In some of the United States Reclamation Service schemes, notably the Salt River Valley project, the power possibilities have been fully taken advantage of. The decision that water belongs to the land has settled former differences between companies owning canals, companies owning water rights, and land-owners. Now it is one great company of farmers and owners, where each acre of land represents one share of stock in a great concern to distribute not only water but that other great commodity "electricity." At a very low estimate, the revenue from each electrical horsepower, will net $50 per year, and the development of 27,000 h.p. would mean a revenue of $1,350,000 annually. This amount distributed over 240,000 acres of land brings a return of over $5 to each acre, each year.

When Colonel Roosevelt dedicated the Roosevelt dam, he officially approved of the great works that are nearing completion, for the generation of a total of 27,000 hydro-electric horsepower. The Salt River Valley farmers have added another product to their already very varied crops. From oranges and dates to alfalfa and cantaloupes they have a long list of growing things, nearly every semi-tropic fruit and vegetable can be listed. It is something of a feature to produce such a variety but they now include quotations on electricity with margins on kilowatts.

OUR WOOD FUEL BILL.

The annual wood fuel bill of the United States is $250,000,000, according to the latest estimate of the forestry department.

This is an enormous sum, and at first hearing seems to spell the doom of the forests. Yet since 1880, when the population of the land was only 50,000,000, and the consumption reached $322,000,000, coal has taken the place of wood, so that now only about 86,000,000 cords are used for fire. Of this a little more than 80 per cent is consumed in towns of from 1000 to 30,000 population, and about 17 per cent in the larger cities.

Our rapidly increasing growth does not mean, therefore, a corresponding destruction of the forests.—Journal of Agriculture.

However, isn't it the part of wisdom for all when there is a possibility of doing so to grow their fuel supply?

John Hayes Hammond, the American mining engineer and promoter, is reported to be making extensive investigations in Russia to direct investments in irrigation and public utility companies. It is claimed that the Russian government will encourage the American enterprise.—Irrigation Age.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Macaroni for Stock.

Please tell us through your columns as to feeding of calves and heifers on macaroni. We understand that this is very good feed and would like to know the amount to feed and how to feed it.—Subscriber, El Monte.

I have been unable to find any direct analysis of macaroni but find that taking the analysis of all the wheats we have water 10.5, ash 1.8, protein 11.9, crude fiber 1.8, nitrogen free extract 71.9. This would indicate while macaroni would have the crude fiber removed and is more concentrated, it should make an excellent feed if fed with a chop of hay or some roughage to lighten it in the stomach. It is rather high in protein to make alfalfa hay a good balance for it, but it should go well with the first cutting that has a mixture of other grass. Or it should do well with wheat or barley straw. If the calves are thin, this should not fatten them and if a little more fat is needed, add to the ration corn in some form. The actual way the cattle will act on this feed will have to be worked out by experiment. I will be glad for further report of the matter after a trial has been made.—M. E. S.

Mistletoe on Walnuts.

I have softshell walnuts that have growth of mistletoe on some of the branches. Will it kill the trees? It has already caused large knots to grow where it is attached. What is the best way to kill it?—G., Los Angeles.

The best way to correct a trouble like this is to remove it entirely, in fact, we presume that is the only way. We do not know that it would kill the tree, but it would undoubtedly reduce its bearing capacity. If the limb is an important one, we should remove as much of the mistletoe as possible, then watch carefully to keep down. Probably the very best way would be entire removal of limbs affected.

Record Holders.

Being a constant reader of your valuable hints on dairying in the California Cultivator, I am taking the liberty of asking you for the records of two or three of the best cows in the world.—Subscriber, Waukena.

While the list of the greatest producers is constantly changing with cows under tests, the following yearly records are among the highest and indicate the greatest value in their persistence of milk flow. It is hardly likely that the average dairyman will ever be able to approach these records, for the cows are protected from every annoyance and are watched and fed to the exact amount they can best handle. I saw one cow being tested that was in a special screened house and had an electric fan to keep the temperature even.

Colantha, 4th Johanna. Tested by the Wisconsin station. Holstein. One year's test: Milk 27,432 pounds, per cent butter fat 3.64, pounds of butter fat 998.8, equal to 1247.95 pounds of butter.

Yeksa Sunbeam, Guernsey cow. One year's test. Total milk 14,920 pounds, per cent of butter fat 5:74, pounds of butter fat 857.15, equal to 1071.43 pounds of butter.

Jacoba Irene. Jersey. 399 days' test: Milk 17,253, per cent of fat 5.22, pounds, per cent of butter fat 5.74, 1121 pounds of butter.

These three cows are all pure bred registered stock. They are called the half ton a year butter cows. If butter sells for an average of 25 cents during the year the butter returns alone will come up to $250.

A few tests of common cows handled with skill are also on record. The best of these is the common animal that was of no breed whatever, Molly W., with 8252.3 of milk in one year, per cent of fat 5.99, pounds of fat 466, equal to 882.85 pounds of butter.—M. E. S.

Squash Bugs.

What will drive away insects which are destroying vegetable garden? They are brown and white striped, also green with black spots, something like lady-bugs. They started in on beans, then went to squash and cucumbers. Are now taking the corn. They ruined my garden last year.—F. J., Woodland.

As near as we can determine from the letter these are the common squash bugs which are very destructive in gardens. Their numbers can be greatly reduced by hand picking, destroying them early in the season. Also pick off the eggs from the leaves. These are deposited in clusters when the vines are very young. Bugs may also be trapped by laying boards loosely over the ground; they will gather under these for protection and may easily be destroyed. However, if they are very thick use gypsum saturated with kerosene and scatter over the ground. This will generally drive them away. As soon as the crop is harvested gather and burn the vines to prevent pests appearing next year. In any case do not charge these pests with being "lady bugs." Lady bugs are always the gardener's helpers.

Aphis.

Rose bushes are covered with green lice. What are they and what will destroy them?—Subscriber.

Spray with tobacco extract made by steeping tobacco stems purchased at any cigar factory, or a preparation of tobacco may be purchased and diluted with water and sprayed over the tender tips on which the pest is doing its work. Kerosene emulsion and several other sprays are also good.

Rough Skinned Oranges.

I have several orange trees that bear rough-skinned fruit. What is the best fertilizer to apply to smooth them up? Trees are seven or eight years old. What is the cause of oranges decaying on the tree?—Subscriber, Glendora.

We do not believe these oranges can be "smoothed up" by any fertilizer. Of course, it is generally believed that a heavy application of stable manure results in strong growth of tree and sometimes thick and rough-skinned oranges, which withholding manure for a time will correct. A liberal application of superphosphate and possibly potash will place the soil in better condition and result in better condition of fruit, but we would judge from this letter that the roughness of fruit comes from character of the trees. If that be the case then rebudding is the only salvation. If the affected trees are surrounded by others giving fair-skinned fruit and the treatment has been identical, then we would rebud at once,

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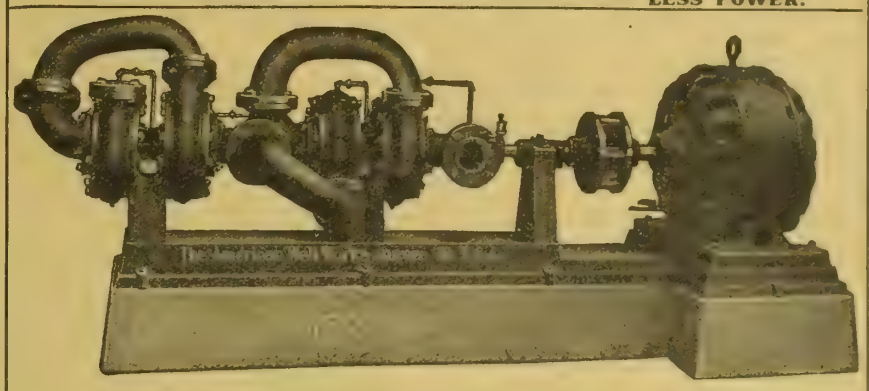

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if uncertainty exists observe the trees closely for a couple of years, then rebud if necessary.

Without further information we could not say definitely what is the cause of oranges decaying on the tree. It is possible that decayed oranges were dumped in the orchards last year for fertilizer and the mould spores have covered the ground and are attacking the fruit on the trees. This has been the case with lemons and was the occasion for investigations by the Department of Agriculture. We would be glad to hear more particulars as to this decay.

Oranges on Alkali.

Would you consider it advisable to set out orange trees where there is alkali? The alkali runs in spots over about ten acres. I believe it could be ditched and washed out, but I want to know whether it would be safe to plant while the alkali is there.—Subscriber, Sanger.

We do not think it would be advisable to plant oranges in soil which is subject to alkali. In the first place, it is an indication of an impervious subsoil, otherwise the alkali would have leached from these surface spots. The orange takes especially kindly to well-drained sub-soil. We have seen oranges budded on sour stock roots in slightly alkaline land, but they certainly will not stand any great amount. The best way is to have percentage of alkali in soil determined by analysis. It is possible that tiling this land would remove the alkali and put ground in good condition for oranges.

Irrigating Trees in Bloom.

Does it harm prune trees to irrigate during blossoming period? — Subscriber, Reedley.

We would prefer that heavy irrigation should precede blossoming period by a few weeks. The chilling of the ground which is inevitable, especially at this season when irrigating water is cold, checks the flow of sap to a certain extent. In case of weather conditions being adverse the combination might result in a shy crop. After the fruit is well set then heavy irrigation may be given.

Sulphuring Grapes.

Sometime since I saw query regarding sulphuring grapes immediately after blooming. Would you advise sulphuring early on a large scale? If so, how about rainy weather? How many times should sulphuring be done through the season? My vines are seven years old and bloom profusely but by picking time there are but few grapes left on the larger vines. The leaves die in the centers and the grapes burn.—Subscriber, Reedley.

Sulphur the vines at once, again when the blossoms are on them and again about three weeks later if the weather is not too hot. Apply the sulphur early in the morning up to nine o'clock while the vines are moist from the morning dampness. After the thermometer reaches 100 it is not safe to use sulphur for fear of burning. The sulphur should be of a velvety texture and of the bulkiest package for the weight obtainable. A knapsack sulphur machine will apply it more economically than the use of hand bellows or sacking. Are you sure your last season's trouble was not hoppers rather than mildew? Last season these little chaps played havoc with the vines all around the valley. The excessive drying out of the berries last year occurred owing to the long spring drought and was bad on all classes of grapes.—M. E. S.

Fumigation vs. Spraying.

What per cent is fumigation better than spraying with a ten per cent coal oil or a three per cent distillate mixture? Will fumigation kill silver mite? Can you give names of bulletins on fumigation?—Subscriber, San Diego.

It is impossible to give percentage of insects killed by either fumigation or spraying; it depends entirely upon the care of the operator in either case, also upon the particular insect treated. The three per cent distillate has been found to be injurious to orange trees and for that reason, if for no other, fumigation should be used where possible. The worst of the distillate injury to orange trees is that it is not immediately apparent, but in a period of years it has shown serious defects. Spiders and mites are usually effectively treated by the use of sulphur-hydrated lime mixture.

Write to the Bureau of Entomology, Department of Agriculture, Washington, D. C., for Bulletin 79, Fumigation Investigations in California, written by Special Field Agent R. S. Woglum.

Bloat or Hoven.

I have a fine Jersey cow that has been bloating. I was feeding her alfalfa hay and once I gave her three or four heads of Golden Amber cane which was not real dry and she bloated. I gave her soda, ginger and asafoetida, which gave her relief, then I fed her oat and barley hay with a little green alfilaria at times when it was not wet with dew or rain, but she still continues to bloat every few days. Soda and salts relieve her for the time. She does not seem sick, for she is ready to eat any time. I feed her carefully.—Subscriber, Beaumont.

While there may be medicines that are good in these cases, I have found better results in chronic cases of bloating from a change to more readily digested foods to cure them up quickly Make a mixture of 100 pounds of rolled barley, 100 pounds of bran, 50 pounds of oil cake. Add to each feed a tablesponful of common baking soda and a trifle of salt. Feed her at first half a pound morning and evening for two days, then a pound twice a day for several days, then raise to two pounds at a feed. When the bloating stops, change diet again by reducing it a little at a time so as to leave it off entirely. The use of oil cake is excellent in these cases and improves the digestion more quickly than anything else I have ever tried. Because it is good, do not try to feed more than a pound and a half at the most, or it will be too rich for the cow's digestion. There is nothing in the feed she is receiving to cause the trouble, except that it has become a habit that must be broken up. I would feed no other grain while using the barley-oil cake mixture. Give her enough long hay to help her regurgitate, and the alfilaria is always good for her.—M. E. S.

Crop on Overflowed Land.

What is the best crop to plant on land recently overflowed and left with deposit of silt from one to two feet deep? Would you advise millet, timothy or sorghum?—C. E. G., Hynes.

We have never heard of timothy doing well in this section, but do not doubt that either the millet or sorghum would make good feed on these lands. If the silt is fine and water could be supplied, these would be reasonably sure to give good crops. Of course it depends on the character of the deposit. If deposited by a strong current and only coarse sand is left the crop would be extremely poor, if anything at all. This is a question which only study of local conditions could answer.

Diseased Tomato Vines.

Can you give me information as to enclosed tomato vine? What is the disease and remedy?—Subscriber, Pacific Beach.

This was referred to Prof. Ralph E. Smith of the Southern California Pathological Laboratory and he writes: "The tomato plant which your subscriber enclosed is affected with the nematode worm root-gall. This trouble is caused by a microscopic worm which infests the roots and causes them to swell into little knots or galls. The only remedy for this trou-

ble is to change the soil and use none which has had affected plants upon it. Soil usually becomes free from this pest after drying thoroughly for a season."

Paraffining Orange Blossoms.

Can you tell me how to preserve orange blossoms for two or three months? I understand that paraffine wax is used.—W., Lindsay.

We repeat directions sent us by Mrs. F. B. Mitting of Oakland and published in our issue of October 10, 1910:

"Melt the paraffine and keep it quite warm. Use sufficient so that the bunch of blossoms will all be covered. As you hold the stem between the fingers, dip the blossom down quickly in the paraffine, then shake so that no drops will hang to the petals. Cool by blowing on the blossom and shaking a little until the wax seems to have cooled. If it gets too cool it shows on the blossoms. Dip one at a time. I have preserved perfect calla lilies, roses, forget-me-nots and many other flowers in this way."

We may add that while it is well to have paraffine "quite warm" it must not be quite hot. Test will soon determine proper temperature.

Alfalfa Seed Production.

Will you give information as to conditions necessary for alfalfa seed production? How many bushels may one expect, and other factors?—Subscriber, Ventura.

This would require more space than can be given in this department and we have in preparation an article for other pages of the paper which will appear within a short time, giving experiences of growers in different parts of the state.

Evaporator.

Can you tell what style dryer is best for the drying of apricots and apples? A dryer, say, that will hold some 2000 pounds of the green fruit. Also, will you give me some idea as to the construction of same?—Subscriber, San Luis Obispo.

Apricot drying in this state is so generally done in the open sunshine that the construction of evaporators is almost unknown, and while the product of an evaporator is somewhat nicer, the handicap of additional cost would put the producer at a disadvantage with those in the warmer valleys where such a process is not necessary. We ask any of our subscribers of the coast counties who have had experience with this method of handling fruit to give us any information they can on this line. In addition we refer the inquirer to the "Likfresh" system on page 423 of last week's Cultivator. We have seen some of the fruits processed by this system and it is indeed wonderful. Particulars may be had by addressing Wann Co., 514 Union Savings Bank Bldg., Oakland. Help may be had by writing U. S. Dept. of Agriculture, Washington D. C., and asking for Farmers Bulletin 291 "Evaporation of Apples."

Stock for Peach and Apricot.

What difference does it make in the growth of an apricot if it is budded on a peach or an apricot seedling? It is generally believed in this valley that the apricot roots are not as subject to root knot as the peach. Would not an apricot on apricot root be more likely to become affected by the green disease?

Would like to know if an apricot on peach root will live as long as one on apricot root.—W., Hemet.

Mr. George C. Roeding of the Fancher Creek Nurseries answers as follows:

It makes practically no difference as far as the growth of the tree is concerned whether an apricot is budded on a peach or apricot seedling. In some sections, particularly in Santa Clara county, where the crown root borer does considerable injury, the apricot and Myrobolan roots are used almost exclusively for apricot trees for the reason that this pest does not attack either of these roots. As to root knot, no accurate statement can be made because in my experience I found in some cases on the same ground apricot seedlings were as much subject to knot as peaches. Generally speaking, however, I do not think the apricot root is as subject to root knot as the peach. As to the longevity of the tree, I would consider the peach root under most conditions better than the apricot for over a period of years. The apricot root is far more subject to gum diseases and also to sour sap, when there are sudden changes in the temperature, than the peach.

Remedy for Snake Bite.

In response to inquiry from a subscriber at Plano for best method of treating snake bite in horses, Mr. T. Phillips of Alhambra sends the following: "Put on plenty of Venetian turpentine about four times a day. But keep your knife in your pocket, cut nothing, not even hair, but wipe the wound clean before each application."

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Splints.

A colt seven months old has small lumps the size of a bird's egg, one on the inside of each front leg about one inch below the knee. I am told these are splints. What will remove them?—Subscriber, Riverside.

Paint the parts with tincture of iodine three days in succession, skip ten days and repeat. Under this treatment the splints should disappear from a colt of the age mentioned, in six or eight weeks.—F. G. M.

Sores and Lameness.

A mare has sore places on the under surface of the body, exuding a watery fluid, blood and matter. The places itch at times. What will heal them? When standing, one forefoot and then the other is extended ahead as if something is wrong with the feet. Sometimes when coming from work she breaks out in a sweat. Why is this?—Subscriber, El Modena.

Use zinc oxide, the powder or ointment, every night. Observe if the heels of the shoes injure the wounds when the mare lies down, and correct this if necessary. Horses having coffin joint disease "point" or extend first one foot on the other and are disposed to perspire from moderate work, the perspiration appearing first at the base of the ears and in the flanks, but free general sweating may result after a day's work. When chronic the disease is incurable. Allow the mare to go without shoes as long as possible, then apply a shoe with a high heel.

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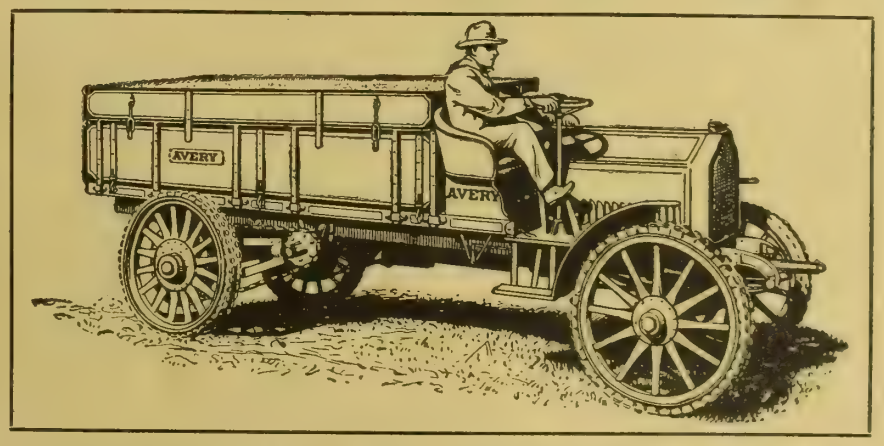

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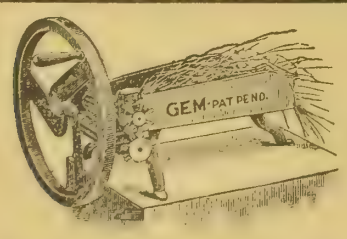

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Timely Ranch Suggestions

WORK OF THE GRANGE.

One of the oldest and best of the organizations used by farmers to advance their own interests is the Order of Patrons of Husbandry, or more generally known as the "Grange." In the issue of March 23 Mr. Keesling, of San Jose, described the work of the Grange in Santa Clara county. He also suggested that the advantage of this organization to Southern California is not appreciated. At our request, Mr. John Tuohy, of Tulare, gives an outline of work in that county. His account is most interesting, and we trust of value to other organizations, because of its suggestions.

Mr. Tuohy Writes:

Tulare county is a Grange county. Including the county or Pomona Grange, it has five Granges, Tulare Grange being the oldest. It is the business of the lecturer every six months to make up a program of subjects for consideration and discussion at each meeting. I herewith send a copy of the program for the present six months. Besides the subjects on our program, other subjects are discussed at our meetings, as they come up.

At each meeting we have a social lunch. The lunch and the sociability it provides are both very enjoyable. We invite you, sir, to join us in our lunch, if you are here at any of our meetings; our reception of you, as it is to each other, shall be one of friendship and respect. Come and see us and lunch with us.

The aim of the order, that on which it was organized forty years ago, is to build up the farming community. We have made slow work of it, but we have learned. We are earnest in our work. We desire to see it known better, but we feel timid about reporting it for publication.

The regular meetings of Tulare Grange are on the first and third Saturdays of each month. Yesterday was our regular meeting day, and after the lunch, which is never omitted, the first and second degrees were conferred on a class of six, three sisters and three brothers. The degree work was exceptionally well done, was appreciated by the candidates, and was a credit to the officers. After conferring degrees, the Grange passed a resolution expressing its gratification at the approval of Constitutional Amendment No. 1, providing for a new system of taxation and the enactment into law of a bill for its equitable enforcement. The State Grange, Patrons of Husbandry, fully appreciates the long-continued, able and patriotic work of Senator John Curtain in the adoption of the amendment and in the preparation and enactment of the law. Tulare Grange expressed its profound gratification to him for it. For the committee on state highway, Brother Thomas Jacob reported that the State Highway Commission is to be increased to seven members. It was claimed that on that commission the Order of Patrons of Husbandry, being both a state and national organization, should have one representative, and Brother Nichols, of Dinuba Grange, was recommended to the Governor and to the County Board of Trade for the place. Brother Nichols has all qualifications to fill the office with credit to himself and profit to the state. We shall always think the order is entitled to a representative on the Highway Commission, and that Brother Nichols should be the representative.

The first subject considered was, "How can the local Grange promote co-operation?" This is one of the most essential objects for which the Grange was organized. Perhaps the best object lesson in Grange co-operation in California is that of Soquel Grange. This Grange has made definite arrangements with the Rochdale store at that place to get certain articles at prices covering the cost of handling only to the Rochdale. Other articles are purchased at the regular rates charged by the store. Now, the result is that the Grange is the best sustained of any subordinate one in the state, and the Rochdale store is one of the few successful ones in California. This brings to our view two objects which should never be overlooked by any subordinate Grange. First, it should always provide and work for some material benefits to its members, that they may be interested in and work for the benefit of the order. Next, that co-operation will do it.

The second subject under consideration was, "Why do farm products increase in price 100 per cent or more between the farmer and the consumer? What is the remedy?" It was at a late hour of the meeting when this subject was brought up. It was not clearly shown that there is such an increase of cost or what is the remedy for it. It was argeed the subject should get further consideration, and if the farmer, for his products, does not get price enough to fully compensate him for labor and investment, equal to that accruing to other industries, then what is the remedy?

At times the consideration of many subjects is spirited, but at all times a considerate allowance is made for each others' personal feelings, under the masterful rulings of the lecturer; perhaps, too, the excellent lunch provided by the sisters—on that they need no lecture on co-operation—has much to do in promoting respect for each other.—John Tuohy, Tulare.

Program.

The program of the Tulare Grange for the coming three months is:

April 15. Is it wiser for a farmer to carry his own fire insurance than to pay the rates of the incorporated stock insurance companies?—John Tuohy.

Is it right that we patronize mail order houses?—Charles Carpenter.

Suggestions for labor-saving contrivances and conveniences for the farm and home.

May 6. Which has the better chance for success, the rich or the poor man's son?—Mrs. Flora Sayre.

My summer vacation.—Mrs. Ella Stiles.

May 20. Is it profitable for the Grange to hold open meetings?—R. F. Guerin.

May 28 being the anniversary of our organization, let us make it a birthday party.—Mrs. Lizzie Woods.

Question box.

June 3. How can the State Grange promote the industrial interests of the farmer?—J. T. Lawson.

Why is it that farmers do not take greater interest in the conservation of the natural resources of the country?—C. A. Henry.

June 17. Should the farmer fix the

selling price of his products? If so, how can he do it?—George Watts.

Roll call. My object in joining the Grange.

In addition, there is music and the luncheon at each session.

FORMALIN TREATMENT PREVENTS SMUT.

Were your oats attacked by smut last year? Are you using those oats for seed? If so, tne formalin seed treatment should be applied to such oats before sowing, even if only a small amount of smut was present, in order to prevent the disease in this year's crop.

Oat smut causes an enormous annual loss, the country over, and Indiana's share is much too great. It should, and can be, prevented.

Cause and Nature of the Disease.

Oat smut is a disease caused by a microscopical organism, a fungus, which entirely destroys the heads of the affected plants. This fungus lives and grows within the tissues of the affected oat plants, entirely invisible from without until the diseased plants begin to head out. The smut fungus then enters the young "would be" kernels and destroys both them and the accompanying chaff, and masses of worthless black, powdery material are produced instead. These powdery masses consist of innumerable, minute spores (corresponding to seeds) of the smut fungus. These smut spores are blown about by the wind to sound kernels of the healthy oat plants near by, and remain on them, ready to take advantage of the situation when such oats are used for seed. When such oats are sown, the attached smut spores germinate under the same conditions and at the same time that the oat kernels do, and the fungus, by its very minute, tubelike growth, penetrates into the tissues of the very young oat plant. Here the fungus thrives, drawing its nourishment from its host, and grows up within the oat plant through the season. When the latter heads out, the heads are entirely destroyed. The kernels and chaff are largely, if not entirely, changed to black, powdery masses, the spores of the fungus. These spores are thus ready to be blown about to sound oat kernels and carry the disease to the next year's crop.

The Remedy.

It is clear, then, that the point of attack is in the seed. If the seed oats can be so treated as to kill the smut fungus spores clinging to them, and yet not injure the growing quality of the oats themselves, then such a treatment is successful, and should be applied to seed oats wherever there is danger from smut. Both in specially conducted experiments and in ordinary farm practice, the formalin seed treatment has been repeatedly found to fulfil both of these requirements admirably. It not only has the merit of being highly efficient, but it is safe, inexpensive, and easy of application. The treatment is as follows:

Formalin Seed Treatment.

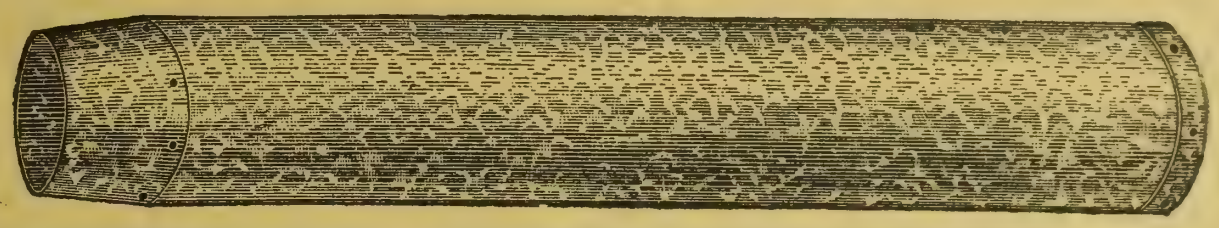
After the seed oats are well cleaned with a fanning mill, spread them out on a clean floor or canvas, or in a tight wagon box. While shoveling them over, sprinkle them, until thoroughly moistened, with the following solution, which may be mixed in a barrel and applied with a sprinkling can: One pound (about one pint) of formalin (40 per cent formaldehyde, procurable at drug stores) thoroughly mixed with fifty gallons of water. Continue to shovel the oats until all kernels are evenly moist, then cover the pile with clean grain bags or canvas and leave covered at least two hours. The formaldehye gas, thus confined and evenly distributed through the pile, kills the smut spores, but does not injure the oats. After the two hours, uncover and spread out the oats to dry, stirring occasionally with a garden rake, or otherwise. When sufficiently dry, the oats are ready to sow. If they are to be kept for some time before sowing, they should, of course, be more thoroughly dried, to prevent heating. Ordinarily it is most convenient to treat the oats the afternoon or evening before they are to be sown. Then in the morning they are ready.

Each gallon of the made up solution is enough for a little more than a bushel of oats; that is, one pound of formalin mixed with fifty gallons of water is enough for fifty or sixty bushels. The price of formalin (40 per cent formaldehyde) varies from 25 to 40 cents per pound. It should be practically as clear as water.

After treating the seed oats, avoid contamination with smut spores from untreated oats, as in bags, bins, etc. Clean bags and bins should be used, or they may be cleaned by washing with boiling water or the formalin solution.

Two or three men can easily treat fifty bushels in less than half an hour, that is, to the point of covering the pile. The treatment should be generally practiced where there is any danger from oat smut.—A. G. Johnson, Assistant Botanist, Indiana University Ag. Ex. Sta.

SAVE YOUR TIME WATER and GRADING
BY IRRIGATING WITH AMERICAN
SURFACE IRRIGATION PIPE



The **PIPE RECOMMENDED BY ALL USERS.** It is the **ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE** on the market. **THERE'S NO ROUND SEAMS TO LEAK,** retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a life-time. For irrigating alfalfa it is the only pipe to use. We make **RIVETED PIPE AND TANKS.** Write for Illustrated Catalogue, also **SPECIAL IRRIGATION FOLDER** which may mean much to you.
American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., **Los Angeles, Calif.**

WATER PIPE

Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c	per foot
10,000 feet	⅜-inch Standard, at	1c	per foot
25,000 feet	½-inch Standard, at	2c	per foot
20,000 feet	¾-inch Standard, at	3c	per foot
36,000 feet	1-inch Standard, at	4c	per foot
20,000 feet	1¼-inch Standard, at	5c	per foot
30,000 feet	1½-inch Standard, at	6c	per foot
50,000 feet	2-inch Standard, at	8½c	per foot
10,000 feet	2½-inch Standard, at	14c	per foot
15,600 feet	3-inch Standard, at	17c	per foot
15,000 feet	3½-inch Standard, at	19c	per foot
20,000 feet	4-inch Standard, at	24c	per foot
30,000 feet	5-inch Standard, at	40c	per foot
20,000 feet	6-inch Standard, at	45c	per foot

Oil Well Casings

1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00	per foot
1,000 feet	11⅝-inch Casing, at	$1.00	per foot
1,000 feet	9⅝-inch Casing, at	75c	per foot
2,000 feet	7⅝-inch Casing, at	45c	per foot
20,000 feet	5⅝-inch Casing, at	32c	per foot
30,000 feet	4-inch Casing, at	19c	per foot
30,000 feet	3½-inch Casing, at	16c	per foot
20,000 feet	3¼-inch Casing, at	15c	per foot
25,000 feet	3-inch Casing, at	14c	per foot
50,000 feet	2-inch Casing, at	6½c	per foot

WATER PIPE—Riveted Dipped Pipe

10,000 feet 24-inch Riveted Pipe, dipped, good as new	80c
10,000 feet 12-inch Riveted Pipe, dipped, good as new, 10-guage	35c
20,000 feet 10-inch Riveted Pipe, dipped, good as new, 12-guage	35c
10,000 feet 8-inch Riveted Pipe, dipped, good as new, 16-guage	25c
10,000 feet 6-inch Riveted Pipe, depped, good as new, 16-guage	20c
10,000 feet 4-inch Riveted Pipe, dipped, good as new, 16-guage	10c

20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.

Telephone and Telegraph Poles

20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

PHONE OR WRITE FOR PRICES

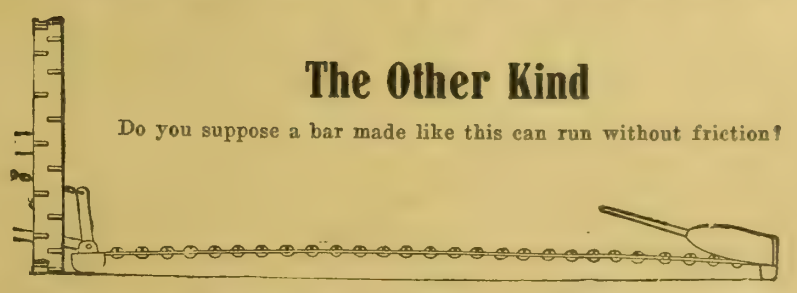
Take Santa Fe Ave. or Huntington Park car at 7th & Bro'd'y, Get off at Bay St.

ADAMS PIPE WORKS, 2025 Bay St., F 1917 Broadway 1274 **Los Angeles, Cal**

The New Standard Mower

The New Standard Cutter Bar

It is the Lightest Draft, Because the Compensating Lever and Suspension Spring enable the use of the curved cutter bar(straight when lowered), which forms a frictionless channel for the knife. In this construction the Bar floats over the ground, instead of being pulled or pushed as in all other mowers. Heavy Draft and Side Draft are avoided.



The Other Kind

Do you suppose a bar made like this can run without friction?

It is the Most Powerful Cutter, Because the entire weight of the Cutter Bar, when cutting, is transferred through the Compensating Lever and Suspension Spring to the main drive wheels, thus securing additional traction when most needed.

IT IS MADE TO CUT—ALWAYS AND EASILY

Your request will bring full information promptly.

Newell Mathews Company

LOS ANGELES, Established 1886 **CALIFORNIA.**

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray. Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—Milch Goats. (1) One-half Tog. doe kid, bred to Andreas Hofer, $20.00. (2) Seven-eighths Tog. buck, a beauty, $25.00. (3) Zeta, three-year-old spotted Alpine doe (3 quarts daily), $30.00. (4) Zeta's white buck kid, sired by Andreas Hofer, $20.00. Satisfaction guaranteed. R. M. Cartwright, 1353 Palm St., San Luis Obispo, Cal.

For Sale—Fine young Jersey bull, dropped August 6, 1909; sires St. Lambert of Ramona, 62633; dam Comma of Ramona, 202577. Solid color and an animal perfect in every particular. This splendid combination of St. Lambert and Pedro stock means a sire fit to head the best thoroughbred herd. See or address W. E. Vallentine, Sterling Milk Co., R. F. D., Corona, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Registered Yorkshire Boars. The Yorkshire is the greatest bacon hog in the world. Address Joe M. Regan, De Luz, San Diego Co., Cal.

For Sale—Berkshire pigs from registered stock, 4 months old, both sexes. B. de Groot, Aptos, Cal.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

Saanen Milk Goats for sale. Fred Hansen, Carpinteria, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L448 Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Creamery Manager wanted for modern creamery, in operation one year. Opportunity for investment if desired. Address M, c|o Cultivator.

Bee Men Wanted—One man to run apiary, in hills between Pomona and Fullerton, on shares. Another man to care for apiary by the month, current wages, on ranch, Kern county. Employment all the year. Address Palm Fruit Co., Wasco, Kern Co., Cal.

MACHINERY.

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, harness, disc, gang, walking, riding and side hill plowers; slip, Fresno and wheel scrapers; header, baler, seed sower, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.

8 ft. steel Star, tower, tank, tank house, pump complete, $39.00, or $42.50 on cars; 10 ft. steel Aermotor, steel tower, 3000 R.W. tank, 20 ft. stand, 100 ft. 2-inch galv. pipe at ½ new price; 12 ft. steel Aermotor and tower complete at $49, or $59 on cars; also many others. Several gasoline pumping plants.

TANKS, TANKS, TANKS.

50 gallons to 50,000. Special price on 25,000, 30,000 and 50,000 gallon; 15,000 on 20-ft. stand, 5,000 and tank house.

COMPLETE BRICK YARD.

Including one 100 H. P. boiler, brand new; one 60 H. P. boiler, and 50 H. P. engine; brick making machine, cutting table, clay screen, 50,000 new brick; plant complete or separate. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—A good portable drilling rig, good for 800 ft., complete string of tools. About half its value, at $750.00. Address M. H. Magie, 1242 Harvard Blvd., Los Angeles, Cal.

For Sale—24 inch double-acting deep well head and cylinder, like new. Will install if desired. Bailie & Brandt Co., 943 No. Main St., Los Angeles, Cal.

For Sale—40 H. P. Stover gas engine, used about one week. Will guarantee. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

This Ad cost $1.20

Eggs from Select Trapnest Stock—No culls. Black Minorcas, Northrup strain; White Wyandottes, great winter layers; Barred and White Rocks; Buff Orpingtons; Rhode Island Reds; all $2.50 per 36 eggs, $6.00 per 100; White Minorcas, beauties, fine layers of the largest white eggs, $3.00 per 36, $7.00 per 100. White and Brown Leghorns, heavy laying strains, $2.25 per 36, $4.50 per 100. Pullets and cockerels for sale. Enclose stamp for reply. W. D. Rose, R. D. 6, Santa Ana, Cal.

R. D. No. 6, Santa Ana, Cal.,
February 13th, 1911.

The California Cultivator,
115 No. Broadway, Los Angeles, Cal.

Gentlemen: It may be of interest to you to know that the small liner which I recently inserted for one issue in your paper (as per clipping above attached) has brought to me returns to the amount of $386.50. More than one-half of this came to me from the central and northern part of the State. I have been compelled to return to correspondents $48.00 because of the impossibility of filling some of their orders at the exact time desired. You can see from the above that this has been a profitable advertising proposition for me.

Very truly yours,
W. D. ROSE.

And sold stock and eggs to the the amount of $386.50

NURSERY STOCK.

Honeysuckle, yellow, 10c each; 2 for 15c, 75c per dozen. Potato Vine, white (Solanum Jasminoides), 10c. Campsidium, cream, 25c. Ficus Repens, 5c each, 60c per dozen. Ballou's Nursery, Pasadena, Cal.

For Sale—Choice nursery stock, 1 and 2 years old. Valencias, Navels, and Eureka lemons. Balled ready for shipment. Covina Realty Co., Covina, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Berbara, Cal.

For Sale—10,000 sweet orange and 5,000 grapefruit seed bed stock, two years old, large and healthy. Jas. F. Stewart, Mentone, Cal.

For Sale—Orange seedbed stock, sweet. Write for prices. Frank Morris, Covina, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

White Indian Runner and Buff Orpington Ducks. Stock and eggs. Belgian, Angora New Zealand and Flemish Giant Rabbits. Belgian Hare Guide, illustrated; price 50c. List free. Caldwell Bros., Los Angeles, Cal.

TREES.

Special prices on Tilton apricot, apples, Salway peaches, Satsuma plums, lemons, Navel and Valencia oranges, seedling walnuts. Grafted walnuts on own and black root. Anything in nursery line. Get my prices. A. R. Marshall's Nurseries, Cor. 3rd and Bush Sts., Santa Ana, Cal. Box 64.

500 Washingtonia Robusta Palms in 5-gal. cans for sale at a bargain; also Washington Navel and Eureka Lemon trees for sale. We still have a quantity of Eucalyptus Rostrata and Tereticornis which we are offering at a sacrifice. Write at once for our prices. Covina Nurseries, Covina, Cal.

For Sale—About 3000 each of Washington Navels and Valencias, 1 to 2 ft. high, at 35c each. Also several thousand each of Washington Navels and Valencias, 2 ft. high and upwards, branched, at 50c each. All the above are 1-yr.-old buds; guaranteed clean, healthy, vigorous trees. Carroll B. Smith, Box 9, Redlands, Cal.

Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seed bed stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

Eureka Lemon Trees for sale. B. A. Ropp and W. H. Fowler, R. D. 2, Ventura, Cal.

MISCELLANEOUS

Panama Canal. My book reproduces Panama and Canal, 100 pages; 20 illustrations including map and profile. Sent postpaid for 25c. C. C. Muldner, Jr., 2861 Laclede, Maplewood, Mo.

For Sale—Ringed-neck Pheasants, Mongolian, $5 a pair; also pheasant eggs now for April delivery, $3 for 15. Mrs. Geo. W. Jenkins, Route 1, Box 40, Sonoma, Cal.

For Sale—Pure Bred New Zealand Rabbits, young does and bucks for breeders. Prices and stock right. Write to Chas. W. Mixter, Banning, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade, the live stock and poultry industries, are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 123 S. Los Angeles St., Los Angeles.

POULTRY.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

Hayes, E. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Light Brahmas, Bulah Hill strain, champions of the West. Grand in shape and color; winners of blue wherever shown. Eggs $2.00 to $7.00 for setting; 75 per cent fertility guaranteed. Exhibition and breeding stock for sale. Correspondence solicited. J. E. Chandler, 220 N. Ave. 23, Los Angeles, Cal.

Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene, Waukena, Tulare Co., Cal.

Eggs from our famous winter laying strains of trap-nested bred to lay Rose and Single Comb Rhode Island Reds. $1.50 per 15, $6.00 per 100. A. L. Harmon, Glen View Poultry Yards, Pasadena, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 934 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

For Sale—Pure White Leghorn and Black Minorca hens, one year old, in fine laying condition, $1.20 each. B. de Groot, Aptos, Cal.

Choice Settings of Guinea Fowl eggs for sale. $3.00 for 15 eggs. Winthrop Howland, Box 564, Redlands, Cal.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

Ancona Eggs for Hatching—Extra good stock. Eggs, $2.50 and $2.00 per setting of 15. Also White Mammoth Pekin Duck eggs $1.00 for eleven. C. S. Norton, Corning, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Baby Chicks—White and Barred Rocks, White Leghorns and Black Minorcas. Eggs from my own hens, and incubated right. They will live and grow. J. W. Lyon, R. D. 1, Gardena, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

White Orpingtons—High grade stock; heavy layers. Eggs 20c each; day-old chicks 50c each. H. E. Dickinson, R. F. D. 1, Napa, Cal.

POULTRY

Lasher's Hatchery, 15 Kent St. Petaluma, Cal.—Why my chicks live and grow in the hands of my customers, they are all hatched from free range stock, bred right, mated right, fed right. I have the most up-to-date hatchery building in the country, built of brick, with dead-air space in wall, giving me a uniform heat that means strong, healthy chicks; 16 years in the hatching business, 10 years at present stand. It is no experiment or guesswork with me. Prices per 100, White Leghorn, $7.25 and $8.50. Leghorn-Minorca cross, $7.25. Black Minorca, $10.00. Terms, cash with order.

White Orpington and White Wyandotte eggs for hatching. My winnings at Los Angeles 1911 were 1st cock, 1st hen, 1st and 2nd cockerel and 1st pullet on White Wyandottes. White Orpingtons, 1st, 3rd, 4th and 5th pullets, and 2nd and 4th hens. I breed my winners and am up to date in mating for results. I have no other business. Eggs sell at $3.00 and $5.00 per 15. No more stock until May 15th, when I will sell part of my breeders. Order direct from this ad and your order will receive my most careful attention. A. W. Huskins, 713 Waterloo St., Los Angeles, Cal.

Jubilee Orpingtons—Just received from Wm. H. Cook, England, a pen of Jubilee Orpingtons. Will have only a limited number of settings for sale. These are the best that England can produce. F. S. Washburn, Direct Importer, 240 Anita Street, San Jose, Cal.

Overcrowded; will sacrifice a few splendid White Rock roosters, 20 months old, fine breeders, $5.00 apiece while they last; also 6 hens, 20 months old, for $10.00. Write Dr. T. J. DeVaughn, 30 N. First St., Alhambra, Cal.

White Wyandotte Eggs for Sale—From good strong, large, vigorous stock. My birds are pure white and typical Wyandotte shape. Price per setting of 15, $2.00; per 100, $9.00. All eggs carefully packed for shipment. M. B. Patton, 1124 Brent Ave., So. Pasadena, Cal.

For Sale—One 120-egg Cyphers Incubator, new; one 30-candle power gas machine, used only a short time. Same can be had at less than 1-3 of original cost. Address Fred J. Moll, Sr., Eagle Rock, Cal.

Eggs from pure bred Buff, Black, White Cochin Bantams, $1.25 dozen. Rocks, Reds, $1.00 setting (15); Houdans, Cornish Games, $2.00 setting. Pigeons in variety. 114 prizes, 6 cups in 1910. B. Kuechel, Orange, Cal.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

This is My Last Notice for the Season. Those who desire eggs from either "Kellerstrass" White Orpingtons or Buff Wyandottes should write at once and book orders. Orpington eggs 20c each, Wyandotte 10c straight. Good stock. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders; all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

S. C. Thoroughbred Brown Leghorns exclusively. Large, bred to lay. Eggs only 75c and $1.25 per 14. $4.00 and $6.00 per 100. N. Bray, R. D. 9, Campbell, Cal.

Eggs for hatching, $1.00 per 15; $5.00 per 100. Day old chicks, $15.00 per 100. Barred Plymouth Rocks, R. I. Reds and Buff Orpingtons. Stamped envelope or cash with order. L. W. Neilsen, R. D. 2, Box A-1, Petaluma, Cal.

Barred Rocks exclusively. Eggs from best matings $1.50 and $3.00 for 15, incubator lots $3.00 to $6.00 per 100. Prices right. G. L. Hawley, Madera, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Day-Old Chicks for Sale—Barred Rocks, 12½c; White Leghorns, 10c. Baby ducks, White Pekins, 16c. Orders for April and May delivery taken. All good stock. S. Stone, Moneta, Cal.

White Wyandotte Eggs for hatching; 10 years trap-nested and bred only from 200-egg birds by Richardson, Boston. $2.00 per 15, $10 per hundred. Hand and Hand, Inglewood, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs. E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

S. C. Brown Leghorn Baby Chicks, April 20th, $7.50 per 50 or $15 per 100. Mrs. C. H. Vary, Pomona, Cal.

White Plymouth Rock and Rhode Island Reds, thoroughbred eggs, $5.00 per 100, $1.00 for 15. Palm Fruit Co., Wasco, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. F. V. Peterson, Guerneville, Cal.

Houdan Eggs, $1.50 per 15, $9.00 per 100, $4.50 per 50. Baby chicks 20c, mother hen $1.25. Mrs. Hocking, Guasti, Cal.

Get Your Rose Comb Black Minorca eggs from the largest and best mated flock in California—bar none. Eight year line bred. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Very Fine Strain Barred Rock, S. C. Black Minorca, R. I. Red. Chicks $14.00 per 100; eggs, $1.00 per setting of 15. All pure thoroughbred, guaranteed. R. B. Sherman, Newcastle, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington —from best strains. $2.00 per 15. choice Buff Minorca eggs. Mrs. A. V. Box 302, San Luis Obispo, Cal.

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Alfalfa, as high as four tons to the cutting; timothy with 10-inch heads; from 350 to 500 bushels of potatoes to the acre; as fine Spitzenberg and Winesap apples as grow in Washington and Oregon; a hog, cattle and poultry country that we believe is superior to anything in the State, and, on top of this, the most delightful climate and wonderful scenery.

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For Sale—50 to 200 acres, $27.00 per acre, irrigated land; 1-3 cash, balance easy terms. My ranch of two hundred acres can be had on above terms. I will guarantee your expenses in writing if you go and see this property and do not find it to be all level land, good rich soil (free from alkali and hardpan). Water right goes with land and all ditches to the land are complete and paid for. This property is located in the Yaqui Valley, Sonora, Mexico. All adjoining property owned by Americans. Hotels, stores, warehouses run by Americans. Two hours' drive to the ocean. Good markets, two full crops yearly. You can earn over $50 per acre net profit yearly on this land and can grow anything you know how to plant. Address Box "O," Cultivator.

$12,000 Cash—The best located, best improved and equipped fruit ranch for sale in Sonoma Valley. 41½ acres fully bearing trees, principally apples (Gravenstein and Astrachans), Bartlett pears, peaches and prunes. Packing and dipping houses with cement floors. Tool, chicken houses, and granary. 8-room house for help, large barn, 7-room dwelling, lighted by electricity and furnished completely. Laundry and bath, hot and cold water. All vehicles and implements, one gasoline spray and pump outfit (new), cow, team. Inspection solicited. For further description and particulars write owner, W. S. Ross, R. D. 1, Box 26, Sonoma, Cal.

For Sale—A fine 20-acre money-making alfalfa ranch, sandy loam, with plenty of water for irrigation. 3½ miles east of Bakersfield, 1 mile south of Kern, 1½ miles from good school, on good oiled road. Mail daily. Fine 8-room house, large barn, new hay shed with track and fork, capacity 50 tons; outbuildings. Chicken house, 150 White Leghorn chickens. Good well water, piped conveniently. All farming implements. 2 extra fine young mares, No. 1 colt, 2 good milk cows, some household furniture. 14 stands bees. Also 20 acres of fine wheat. Price $6500, $3800 cash, balance 4 years, 7 per cent. No trades. Wm. Mantz, Maricopa, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Address Z. H. Grace, Central Point, Ore., P. O. Box 203.

20 Acres, adjoining the Roeding and Wood Nursery land, 1½ miles S.E. of Exeter; best of soil, good location; fine for oranges or lemons. Pumping water at shallow depth, road on both sides, high school. Price $175 per acre, $2000 cash, balance 2 and 3 years, interest 7 per cent net. Fred M. Hart, Exeter, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

For Sale—Orange land in small tracts in Exeter district. Large tract of level, fenced, pasture land. Plenty water. Part cash, terms. Apply Fred M. Hart, Exeter, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 481, Lancaster, Cal.

Tulare County Alfalfa Land—8000 acres in any size tracts, artesian water. Opening sale from $30 to $60. Easy terms. To the first man who will immediately improve will allow him his own time to pay for his land. Thomson & Rupp, 322 West 6th St., Los Angeles.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—Fine alfalfa ranch, ½ mile from R.R. station, 86 acres, abundance of water. Only $300 per acre. $10,000 cash will handle this. Would consider a trade for good income property in Los Angeles. John W. Shepardson, 215 Katz Bldg., San Bernardino, Cal.

For Sale—Two small farms, or both as one. Plentiful water supply. Good house and barn on one. Part in alfalfa. Ideal for poultry raising. Address owners for particulars. Leonard Coates Nursery Company, Morganhill, Cal.

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For Sale—One 5-passenger Winton auto, extra tires and inner tubes. Also one autocar runabout, fully equipped. M. Jacobs, 201 Howard St., San Francisco, Cal.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Poults 50c. Bronze Turkey eggs $2.00 and $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J. Rhode Island Red and White Leghorn eggs and baby chicks.

White Holland Turkey Eggs $7.00 per dozen, from special mating; $5.00 from 2d yard. Large, vigorous stock. Mrs. Hocking, Guasti, Cal. Winner of 1st prize Los Angeles, 1911.

For Sale—Thoroughbred Mammoth Bronze Turkey hens of large size and fine markings. Also eggs for hatching. Mrs. Nellie Hart, Holtville, Cal.

Mammoth White Holland Turkey eggs, $3.00 per dozen. R. L. Warren, National City, Cal., R. D. 1.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

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WICK'S FOWL WHITE FARM, Moorpark, Cal

A Boon to Cabbage Growers—A New and Sure Remedy for the destructive Green Cabbage Worms, which will save the loss of millions of dollars, will be sent Free to all who send 10 cents for a trial package of New "Early Snowball" Cabbage, the finest early variety yet. Tillinghast, the Seedsman, Scranton, Pa.

LITTLE WILLIE AGAIN.

"Pa!" came little Willie's voice from the darkness of the nursery.

Pa gave a bad imitation of a snore. He was tired and did not wish to be disturbed.

"Pa!" came the little voice again.

"What is it, Willie?" replied his father, sleepily.

"Tum in here; I want to ast you sumpin'," said the little voice.

So pa rose up from his downy and, putting on his bathrobe and slippers, marched into the nursery.

"Well, what is it now?" he asked.

"Say, pa," said little Willie, "if you was to feed the cow on soap would she give shaving-cream?"—Harper's Weekly.

HOW ABOUT IT?

Griggs—I am a great believer in the magic number seven. "Success" has just seven letters, you will notice.

Briggs—And how about "failure"?—Boston Transcript.

Children should be trained to eat slowly and masticate their food thoroughly. This necessitates cultivating the habit of being prompt in rising in the morning, so the breakfast need not be hurried. Many a mother thinks she is doing a kindness to her child to let him sleep in the morning. She does not realize what a bad habit she is helping him to form, one that will prove a hindrance all through life. If the child goes to bed at the proper time he will get the required amount of sleep and can rise promptly without the slightest harm.

Many children do not care for vegetables, yet they should be encouraged to eat them. Vegetables supply valuable minerals which aid in purifying the blood; they also furnish bulk to the food, which causes a healthy exercise of the muscles in the digestive organs. By presenting a variety and preparing each vegetable in a number of ways, the child may be led to cultivate a taste for this class of foods.

A child who is fussy about his eating meets many unpleasant situations later in life and often places his hostess in an awkward position, because he has not cultivated a liking for good, wholesome foods in general.

General Household Notes

EASTER.

By Margherita Arlina Hamm.

The lilies whisper to the bees;
The palm leaves murmur to the breeze
And birds in roundelay
Repeat the message high in air,
Until it echoes everywhere,
"The Savior rose today."

Full well the swaying blossom knows
How loving spring dispels the snows;
And songsters half behold
A truer life within the breast,
When newer life invades the nest
And mingles with the old.

It may be that a hidden sense
Reveals to their intelligence
The presence and the sway
Of Him who notes the sparrow's fall,
So that in gratitude they call,
The Savior rose today.

Who, looking over time's long scroll
Cannot but see a master soul
Behind the dross and clay,
And realize that in the good
Which brought the world beatitude
"The Savior rose today."

The earth brings forth both bud and flower
By some unfailing subtle power
Which baffles all decay;
When into being sprang the word,
The flowering of mankind occurred,
The Savior rose that day.

From ugliness new beauty springs;
From death life soars aloft on wings;
And evil dies away.
A splendor dissipates the gloom
And fear lies dead within the tomb,
The Savior rose today.

THE ORIGIN OF EASTER EGGS.

By E. A. Matthews.

Germany is the home of the Easter egg. Other lands, of course, have them, but nowhere are they so beautiful or so freely bestowed, or used in so many lively games. On Easter morning in Germany there is always great excitement over the colored eggs and sugar eggs, and painted eggs and eggs with presents inside found in the nests the children have prepared, and every little one you meet will be saying, "Oh, just see what the dear little Easter Hare has brought me!" No one seems to be quite sure where this idea started. Some say it came from the old days of heathen-worship. But I have heard a wise German scholar tell this story, and he says that it is believed by most thoughtful people among the Germans:

Many hundred years ago there lived a good and noble woman whose name was Frau Rosalinda von Lindenburg. In those days a cruel war was laying waste the land, and she had to fly from her home in the dead of night, with her two children. At first she knew not where to go, but her old serving-man begged her to go with him to his own people, who lived in a little mining village hidden away in the Harz mountains. So the noble Countess put herself in his care, and his brothers and sisters were very kind to the poor wanderers, took them in and gave them the best they had. But the best they had was very poor, and, at first, the daintily-reared woman and children came near starving. There was no meat, no fish, and not even an egg; and this last for the good reason that there was not a single fowl in the settlement. These domestic fowls that seem so common to us, and that we see everywhere, at first came from the far East, and had at that time only been seen in large cities and towns. And these mountain folks had never even heard of such "strange birds."

So the Countess decided to repay their kindness. She secretly sent her servant down to their old home. There he found the castle almost wholly destroyed, but was lucky enough to gather up a large number of the chickens that still roosted about their old home. He brought them up to the mountains and great was the surprise of all the peasants as they saw the queer birds. But a few weeks afterwards they were still more astonished and delighted, for a young brood of chicks was shown to them by the kind Countess. O, how the village children laughed and clapped their hands at the sight of the little, downy, bright-eyed creatures, who were so strong and spry, and who followed the old hen about to pick up their food on the very day they came out of their shells. Such a contrast to the blind, bald, ugly little fledglings that they saw in the nests in the hedges.

Now the Countess saved up her eggs until she had enough for a feast, when she invited all the housewives to come and taste the new food, and learn how to prepare it. At the close of the feast she gave each family a number of fowls to take home and use for the family. When Easter came, she was anxious to do something for the children, and it occurred to her that as the egg was the sign of new life it would be a nice thing to have an egg festival for the children's Easter treat. So she took mosses and roots, and with them colored some of the eggs—saying that "the earth lays aside her mantle of snow in the spring, and God himself made the fruit and berries not only good to eat, but pleasant to look upon."

On Easter Sunday, after the villagers had met for their simple service, she called all the little ones, and after talking pleasantly to them for awhile, she led them into a grove near by. There she told them to play about, and pretend they were little birdies, and make themselves some cute little nests. Then she called them to her house, or cottage, and gave them a little feast of the best she could prepare. It was only some nice milk-soup, with cooked eggs, and egg-cakes. When they had finished their feast, they heard a great whispering and cooing, and squeaking in the grove where they had left their nests. What could be the matter? The children ran back to see, and lo! in every nest there were five beautiful colored eggs, and on one of these, a little rhyme was painted. Imagine the surprise and delight of these simple children. They talked among themselves, and wondered where they came from. "What a strange hen it must be to lay eggs of so many colors!" said one. "O, I do not think that hens lay such hard eggs," said another. But a third one said, "I am sure it was that dear little hare I saw jumping out from behind the bushes where I made my nest." This idea seemed to please the little ones, and they all shouted together—"Yes, yes—the little hare laid the colored eggs." And they kept on repeating it until they began to believe it.

Not long afterward, as the Countess sat talking to the children, who was it that the little daughter saw coming up the mountain? It was the dear father, the husband whom they all thought must be dead. And as he

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REFERENCES: First National Bank; Marine Trust and Savings Bank, San Francisco.

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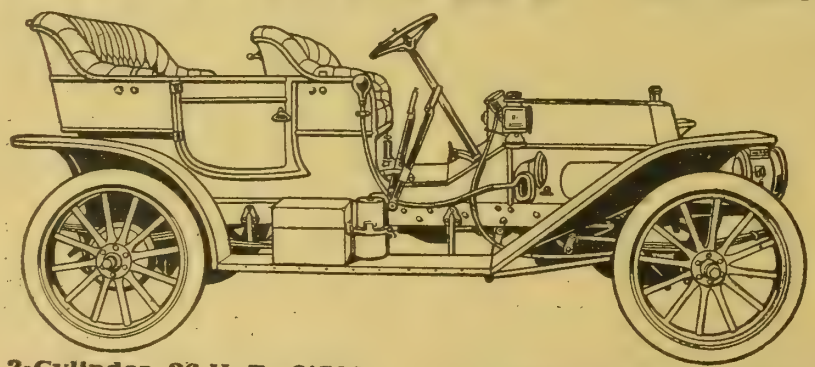

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came to them on this Easter day, it was another reason why the Countess loved the day and wished to have it always celebrated. So when she went back with her husband and children to rebuild their old home, she left a sum of money to be expended in giving the children an Easter egg-feast every year. She also started the fashion of the "egg-feast" in her own Duchy, and so it grew, and by degrees the custom spread all over the land, and the eggs also at length became a sort of a symbol of restoration to happiness and redemption from sin. The custom has spread to our own country, but I think none but German children believe that the eggs are laid by the timid little hare.—Exchange.

EASTER MONDAY.

Since Easter day always comes on Sunday, the day following has been termed Easter Monday, and its special mission seems to be to allow the children a chance for rolling their Easter eggs.

On Easter Monday the gates to the beautiful yard of the white house are thrown open and the children of Washington are allowed to roll their colored eggs. Hundreds of children take advantage of this privilege and spend the day romping and playing games on the private lawn of the president and his family. Not only the children enjoy this day, but a great many grown people go also, so the large yard is well filled all day. The lawn is especially suited for egg rolling as it slopes down from all sides. The eggs go tumbling and rolling down the grassy slopes and as they strike against each other many are broken. Sometimes a wee urchin brings with him a turkey egg and takes pride in seeing how many of the smaller eggs he can break. The president usually spends a part of the day watching the children enjoying the sports of their annual holiday.

HOT TAMALES.

Here are two chicken tamale recipes taken from the American Weekly. Will some of the Cultivator subscribers send in beef and Texas tamale recipes.

Cook a good-sized chicken in salted water and when tender chop the meat fine. Peel and seed a dozen red peppers, soften in warm water, then chop fine with a clove of garlic. Fry a small onion in a little lard and when brown add a tablespoon of flour, then add peppers. Cook for five minutes and add chicken with some finely chopped olives; a few raisins may be added if liked. Season the mixture with pepper, salt and a little sugar; meanwhile prepare a paste by mixing yellow cornmeal with some of the liquor left when the chicken was boiled. Add a little butter or lard, season with salt and knead well. When the chicken mixture is well cooked take the necessary number of good corn husks that have been softened in warm water and spread them, first with the corn meal and then with the chicken. Roll the husks so that the cornmeal will be on the outside; turn the ends and tie with twine; steam three-quarters of an hour and serve in husks.

Another.

Boil a chicken until tender; remove bones and chop meat fine; to each pound of meat add one medium-sized tomato and onion, chopped fine, salt and red pepper to taste, and moisten to the consistency of mush with chicken broth. Heat the remainder of the liquor to boiling, stir in cornmeal to make a little stiffer than ordinary mush and cook thoroughly. Soak fresh corn husks in warm water until soft, then spread a half-inch layer of mush on each husk; put a good spoonful of the meat mixture on that and roll up so that the meat is covered by the mush and the whole is nicely wrapped in the husk. Turn in the ends, tie tightly with twine and steam half an hour. Serve in the husks.

CRULLERS.

A good recipe for plain crullers: One tablespoonful of melted butter, two heaping tablespoonfuls sugar, one egg, yolk and white beaten separately; ½ saltspoonful cinnamon or mace, ½ saltspoonful salt; flour enough to roll out. Roll, cut into strips, and twist up; fry in boiling fat.

Crullers are especially good if fried in olive oil, the oil being used in making them instead of butter. To ½ cup of sugar add two tablespoonfuls of oil, two beaten eggs, ½ teaspoonful of salt, ¼ teaspoonful of cinnamon and a little nutmeg; add two cups of flour sifted with two teaspoonfuls of baking powder, alternately with ¼ cup of milk. Roll out, cut and fry as usual. In frying them let the oil get just hot enough to smoke.

Crullers, Chocolate—Two eggs beaten until they are creamy and then beaten into one cupful sugar, adding one tablespoonful melted butter, ½ teaspoonful each of salt and cinnamon, one square grated chocolate. Mix well and then add one cupful sweet milk, three cupfuls of flour sifted with two teaspoonfuls baking powder. Roll out ¼ inch thick, cut, cook to a golden brown in smoking hot fat. Roll in powdered sugar when cool.—Rural New Yorker.

A REMINDER IN BLACK AND WHITE.

Upon going into the kitchen one morning I saw a newspaper lying on the floor in front of the oven. Starting to pick it up, my maid said, "That is to remind me that I have something in the oven." This idea has proven very helpful to me, especially when I am baking and have other duties to attend to.—Woman's Home Companion.

THE DANGEROUS GARMENT.

Mrs. Jasper—"Mrs. Turnley has given her hobble skirt away; she was afraid to have it around."

Mrs. Davis—"Why?"

Mrs. Jasper—"It nearly strangled her cook the other day."

Mrs. Davis—"How?"

Mrs. Jasper—"The ignorant girl tried it on upside down, and the small part got 'round her neck."—Woman's Home Companion.

SO ABSURD.

Youth—Look here! This horse I hired from you runs on to the pavement every time he sees a motorcar.

Horse Dealer—Well, you don't expect a horse to run up a telegraph pole or climb a tree, do you?—New York Journal.

WASTED.

We refuse sympathy and intimacy with people as if we waited for some better sympathy and intimacy to come. But whence and where? To-morrow will be like today. Life wastes itself while we are preparing to live.—Emerson.

The superiority of some men is purely local. They are great because their associates are little.—Johnson.

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Pioneer Roofing is made in several weights; suitable for residences, hotels, outhouses, business blocks; anywhere that a sunproof, rainproof roof is required. Comes in handy rolls. Easy to lay. No special tools needed. Everything necessary will be found in the center of each roll, for which there is no extra charge.

Free Booklet and Samples

The mauufacturers of Pioneer Roofing have published a 32-page booklet, which is effectively illustrated. The booklet is both interesting and instructive. It tells how to lay roofing—and what weight or thickness of roofing is best suited to the various kinds of buildings. The booklet and samples of roofing will be mailed free upon request.

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Los Angeles, California.

If your dealer does not carry Pioneer Roofing—notify us, and we will see that you are supplied. Address Dept. 11.

Paint Is Cheaper Than New Buildings

You know how quickly a building that never saw paint goes to rack and ruin.

The boards rot around the nails, they crack and warp.

Only constant repair keeps the building standing.

An occasional coat of good paint made with

"Dutch Boy Painter"
White Lead

and real linseed oil will save your buildings and reduce repair, to say nothing of improving the looks of the place.

Decide to use "Dutch Boy Painter" White Lead this spring. It's a mighty good investment.

Write for our "Helps No. 1326 which will tell you why, how, with what and when to paint.

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New York Cleveland Chicago
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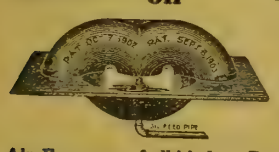
Sievert Distillate Oil Burners



the most efficient all round Heating appliances for Stoves, Ranges, Boilers, Water-Heaters, and especially Hot Air Furnaces of all kinds. Brooder House and Heating Stoves. Send for Free Circulars.

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710 N. Main St., Los Angeles, Cal.
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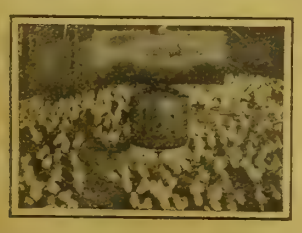

Hunter's Improved 1911 Brooder House Stove is the Petaluma sensation—economical, clean and perfectly safe. Write for free folder.

HUNTER BROODER STOVE CO.,
Petaluma, Cal.

ARE YOU GETTING ANYWHERE?

You are rushing after riches, with a grim look on your face;
You are spurred by one ambition, in your breast peace has not place;
You have turned away from others whom you clung to long ago,
You have ceased to find contentment in the nooks you used to know;
You are straining, you are striving, through the dark days and the fair,
But, oh, restless, eager brother, are you getting anywhere?

In your haste you have forgotten how to linger or to smile
When a child looks up and greets you or would claim your care awhile;
Though the wild rose sheds its petals in the lonely pasture still,
And glad breezes sway the blossoms in the orchard on the hill,
You are too much in a hurry, too much occupied to care,
But, with all your eager efforts, are you getting anywhere?

You have turned away from pleasure, trouble haunts you in your dreams;
It is long since you have lingered on the shores of shaded streams
That go singing to the pebbles they have made so clean and white
And have polished at their leisure and their pleasure day and night;
You have ceased to know the solace that is in a sweet old air,
But with all your greedy grasping, are you getting anywhere?

You have given up old fancies; you have left old friends behind;
You are getting rich in pocket, but you're poor in heart and mind;
You have lost the sense of beauty in your haste to get ahead,
And along the ways you travel, grief and bitterness are spread;
You no longer care how others bend beneath the woes they bear,
But with all your cruel crowding, are you getting anywhere?

Out beyond you there is darkness that no morning's light shall break;
In the distance there is silence that no song shall ever wake;
At the journey's end dishonor waits for them that day by day
Cheat their souls and starve their senses while they hurry on the way;
You are passing many pleasures that you have the right to share,
As you rush to fill the hollow men will dig for you somewhere.

—S. E. Kiser—in Record Herald.

Making a life is a larger thing than making a living. Many a man has made a good living who has made a poor life. Some men have made splendid lives who have made very moderate or even scanty livings. Such was Goldsmith's village preacher, who was "passing rich on forty pounds a year." Such was the citizen of Germany, and of the world, who earned hardly three hundred dollars in any single year of his journey here; yet few men have ever had more out of life than Martin Luther. It behooves us, therefore, to consider how we may add to our making of a living the making of a life. So to make a living as to make also the capability of enjoying a living, of using a living after we have made it; so to make a living as also to make a character, a faith, a hope, a soul—this is to add to the making of our living the making of a life.—Anon.

NO RISE.

They say that living sterner grows,
From high to higher varies;
They speak of food and roof and clothes
As costly necessaries.
But still no rise in smiles I see,
In friendship and forgiving,
In love and jest and charity,
Which make up truly living.
—Woman's Home Companion.

I would not enter on my list of friends
(Though graced with polished manners and fine sense,
Yet wanting sensibility) the man
Who needlessly sets foot upon a worm.
—Cowper.

He who is not actively kind is cruel.
—Ruskin.

SECURITY BUILDING
Ground floor and Basement occupied by the Security Savings Bank and Safe Deposit Vaults.

SECURITY SAVINGS BANK

Spring and Fifth Sts. Los Angeles, Cal.

OLDEST AND LARGEST IN THE SOUTHWEST

Capital and Reserve $1,938,000.00

Resources - - - $30,000,000.00

More than 63,800 Open Accounts

4% Interest on Savings Accounts
And on Six Month's Certificates of Deposit

3% On Special (Ordinary) Savings Accounts
Which Accounts may be checked against without presentation of Pass Book. Interest is paid monthly on the minimum monthly balances provided it amounts to $300 or over.

The Safe Deposit and Storage Department is the largest and best equipped in the West

The Luitwieler Non-Pulsating Pumping System

Deep Well Pump Talk Continued:

Cut shown is of the Machine Room of the Luitwieler Factory, 60x267 feet. The Plant is fully equipped with the most modern machine tools, and turns out perfect machines ready for use—no pit is required. No babbiting or other machine work has to be done in the field. Luitwieler Pumps come finished ready for starting. Order now. There's a reason for our success. Most economical and most durable. Established 1877.

Luitwieler Pumping Engine Co. Los Angeles

Krogh New Type Vertical Water Balanced Pump

This Pump

Will Interest the Irrigator

Pump has Water Sealed Gland, Enclosed Balanced Impellor. Will not cut out by sand. Can be placed in a smaller pit than any other pump. Our Bulletin, C12, tells all about it. The pump can be seen in operation at our places of business. We have a permanent branch house at

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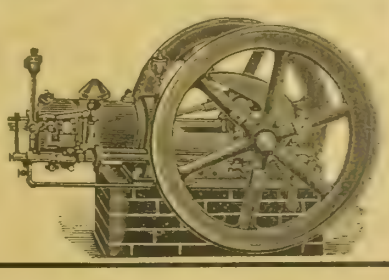
Krogh Mfg. Co.

149 Beale St. San Francisco, Cal.

DO YOU WANT WATER?

If so, see us in regard to Pumping Problems. We are headquarters for the Otto Gas Engine. The best engine made; Economical, Reliable.



Henshaw, Bulkley & Co.

262-264 South Los Angeles Street,
Los Angeles, Cal.

Phones: A5430, Broadway 5430.
Estimates and Plans Furnished.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 12, 1911.

Butter.

With receipts of butter approaching 90,000 pounds, prices have been lowered, and the market is not strong.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	20
Firsts	19
Ladles	18
Country	14

Cheese.

Oregon Daisy	16½
Northern	14@16
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

The egg market is strong, and light receipts have caused a material advance. Receipts now are from 440 to 500 cases daily.

Paying price f. o. b. Los Angeles is:

Local ranch candled	24
Case count buying price	20
Northern	18@22
Eastern	20

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	19
Broilers	27
Fryers	23
Roasters	19
Turkeys	23@25
Ducks	20
Geese	17
Pines hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7¾
Steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.25@2.40
Salinas	2.60@2.65
Oregon	2.50
Lompoc	2.75
Idaho	2.00@2.25
Sweets, yellow, cental	6.00
Sweets, white	4.50@5.00
New potatoes, lugs	2.00@2.50

Onions.

Wholesale quotations:

Oregons	3.00
Northern	3.00
Australian browns, Northern	3.50
Nevadas	3.00@3.25
Utah	3.00
Mexican Bermudas	3.00
Garlic	8

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	1.00
Asparagus, lb	5@8
Beets, sack	90
Brussels sprouts, lb	12
Bell peppers, lb	25
Green chilis	25
Cucumbers, doz	1.00@3.00
Cabbage, sack	90@1.00
Celery, crate	3.50
Cauliflower, crate	2.00
Carrots, sack	1.00
Egg plant, lb	10
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, doz	40
Lettuce, crate	1.00@1.25
Oyster plant, doz	40
Peas, lb	6@8
Parsley, doz bunches	30@40
Parsnips, doz bunches	45
Radishes, doz bunches	20@25
Rhubarb, Strawberry	1.00@1.25
Spinach, doz	20@25
Squash, Hubbard	3½
Tomatoes, Mexican	1.25@1.35
Turnips, sack	1.25

Citrus Fruits.

Navels	1.75@2.00
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.50
Tangerines	1.50@1.65

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	2.75
Spitzenbergs	2.50@3.00
Pearmains	2.00@2.25
Newtown Pippins	2.25@2.50
Bananas	4½
Loquats, lb	3@5
Pineapples	10
Pears, lb	5@6
Winter Nelis	2.50@2.75
Strawberries	10@15

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	10½@13½
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.75
Black eyes	6.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.50

San Francisco Market

SAN FRANCISCO, April 11, 1911.

Butter.

Butter market is easy, with promise of further decline. Receipts about 70,000 pounds daily.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	20
California prime firsts	19½
California firsts	19
Seconds	18

Cheese.

California flats, new	10@14
Cal. Y. America, fancy, new	14@14½
Oregon fancy	12½

Eggs and Poultry.

All eggs have advanced, and the market is firm at present quotations.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	18
Firsts	17
Seconds	16

Hens, doz	5.00@12.00
Fryers, doz	6.00@7.00
Ducks	6.00@10.00
Broilers	3.50@5.00
Roosters, doz	5.00@10.00
Turkeys	18@20
Geese	2.50@3.50
Pigeons	1.50@2.50
Squabs	2.50@3.00
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6½
Cows and heifers	4@5½
Calves, lb	5½@7
Hogs	5@7¾
Milk lambs	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	2.00@2.10
Salinas Burbanks, cwt	2.40@2.50
Oregon Burbanks, cwt	2.15@2.25
Lompoc	2.40@2.50
Sweets, cental	5.00@6.00
New potatoes, lb	4@5

Onions.

Onions	2.50@2.65
Garlic, lb	4@5

Vegetables.

Wholesale quotations:

Asparagus, box	75@1.25
Beans, string	40
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	50@1.25
Celery, crate	1.50@2.50
Beans, string	15@40
Chili peppers, lb	15@30
Egg plant, lb	8@10
Lettuce, crate	75@2.00
Peas, lb	5@6½
Rhubarb	50@75
Summer squash	1.50@1.75
Tomatoes, Mexican	1.25@1.50
Turnips	60@75

Citrus Fruits.

Navels, new	1.50@2.40
Grapefruit	75@2.50
Lemons	1.50@3.50
Limes, Mexican	5.50@6.00
Tangerines, halves	75@2.00

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.25@1.50
Spitzenberg	1.50@2.75
Bananas, Hawaiian	75@1.25
Strawberries, Southern, crate	2.25
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 11½@13c; Apricots, 10½@12¾c; do, Moorparks, 14c; Peaches, 6@7½c, with a premium o ⅛@¼c on Muirs; Prunes, bulk basis, 9¼@9¾c; Figs, 1911, 4@5¼ for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6@6¼c; Choice, No. 16, 5⅝@5¾c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 4¾@5c; do, 3-crown, 4½@4¾c; do, 2-crown, 4@4½c. Dried Grapes, 2¾@3c. Seedless — Muscatels, 3¾@4c; Sultanas, 4¾@5c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	13
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.25@6.35
Pink	5.35@5.55
Black eyes	6.60@6.75
Small white	3.40@3.50
Large white	3.40@3.45
Kidneys	6.25
Garbanzos	2.75@3.00
Bayou	4.60@4.75
Horse beans	2.50@2.70
Red Mexicans	5.25@5.40
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	20@22
Hops, 1911 contracts	14@16
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week were 2,427 tons, quite a decrease from last week of 3,970 tons. It would have been impossible for the market to have taken care of receipts as large as last week, as even with the smaller receipts the market has shown a trace of weakness, whereas last week there was quite a firmness to note in good qualities, and they moved off with little difficulty. The majority of the hay for the past week has been of an exceptionally good quality.

From our information there has been very little activity in the country, and few lots have changed hands. We have had a most seasonable rain in the last few days, which has extended practically all over the state, and has been of inestimable value to the growing crops. Export trade has also been very light during the week, and very few orders have been placed here for immediate shipment.

Alfalfa has been in light supply as well as demand.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Barley, fancy	1.48¾
Barley, good to choice	1.45@1.47½
Barley, poor to fair	1.40@1.42½
Oats, white	1.50@1.60
Rye, new crop	1.35@1.42½
Alfalfa seed	18@20
Mustard, brown	4½
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	25.00@26.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	30.00@31.50
Rolled oats, ton	27.50@29.00
Middlings	33.50@36.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	25.00@26.00

Citrus Fruit Market

LOS ANGELES, April 12, 1911.

The weather has forced a slightly reduced shipment of oranges, which, with the high grade of the fruit going forward, has induced a strong condition of the market, and fancy fruit is commanding $2.60, and occasionally as high as $2.75. Shipments are now running an average of 180 cars daily. This will doubtless be increased to close to 200, and at that rate Navels, Mikes and Seedlings will all be cleaned up before the first of June. This will leave a clear field for Valencias, of which there is an exceptionally large crop. Some Navels are showing a little indication to drop, and some are puffing, but this is not serious enough to make any special pressure to unload.

Lemons are behaving beautifully, and even increasing in quotations. With the close approach of warm weather it is a safe prediction that these conditions will obtain until the higher prices of early summer.

Shipments.

Shipments of oranges to date since November 1, 1910, 19,484 cars, lemons 2,299, total 21,783. To same date last season, oranges, 12,729, lemons 1,901, total 14,630.

LOS ANGELES, Friday, April 7.—Five cars sold here at auction today.

NAVELS—	Avge.
Red Raven, xf, Riverside, not shipped	1.55
Brownie, fy, Rialto, shipped April 5, iced	1.47½
Conqueror, xc, Covina, shipped April 6, iced	1.30
Brownie, fy, Rialto, shipped April 5, iced	1.40
H C A, S T, Riverside, not shipped	1.00

LOS ANGELES, Monday, April 10.—Four cars sold.

NAVELS—	Avge.
Red Raven, fy, Riverside, not shipped	1.57½
Aster, or, Rialto, not shipped	1.45
Good Buy, sd, Rialto, not shipped	1.20
Monrovia Heights, fy, Monrovia, not shipped	1.47½
Robin, sds, Monrovia, not shipped	1.22½
Heap Good, fy or, Riverside, not shipped	1.40
Red Raven, fy or, Riverside, not shipped	1.40
Red Raven, half boxes navels, not shipped	.70
Heap Good, fy or, Jaffas, not shipped	1.40
Heap Good, Ruby Bloods, not shipped	1.40
Squaw Ruby Bloods, halves, not shipped	.70

NEW YORK, Friday, April 7.—Twenty-seven cars navels, one navelencias, one bloods and one car lemons sold. Market strong on navels and lemons. Weather fair.

NAVELS—	Avge.
Naralimo, or, Sparr F Co, iced	2.40
Del Oro, iced, ch, Sparr F Co	2.10
Corona, imp, National O Co	2.65
Old Mission, ch, iced, Chapman	2.40

CHICAGO, Friday, April 7.—Lemons steady and unchanged. Boxes, California fancy 300s, 3.35@3.50; 360s, 3.25@3.50; off sizes, 3.00.

Oranges—Conditions as lately noted continue to prevail in this market. There is a good business doing in navels. Demand is good, and receipts are good. Boxes, California navels, sound or made sound, extra fancy, all sizes, 2.85; fancy do, 2.60@2.75; extra choice do, 2.25@2.50; choice do, 2.00@2.25; cars in original condition, depending on condition, 1.25@2.75.

NEW YORK, Monday, April 10.—Fifty cars navels, four cars bloods, one Valencia, two tangerines and five cars lemons sold. Market doing better on navels, strong on good quality lemons. Weather fair.

NAVELS—	Avge.
Swastika, iced, L V W Brown	2.70
Sunset, iced	2.40
Elephant, or, Elephant Orchard	2.80
Elephant 2ds, Elephant Orchard	2.25
Blue Banner, imp, iced, Sutherl'd	2.95
Upland King, iced, Upland M O A	3.00
Upland Sultan, iced	2.75
Mercury, iced	2.60
Laverne Heights, iced	2.60
Trophy, xf	1.85
Monogram, O K Ex	1.70
Titus R'ch, iced, S Marino G P A	2.50
El Toreador, iced, S Marino G P A	2.30
Titus R'ch, iced, S Marino G P A	2.55
El Toreador, iced, S Marino G P A	2.35
Euclid, iced, or, Growers F Co	3.05
Uplander, iced	2.70
Diamond A, iced	2.60
Diamond B, iced	2.40
Old Mission, ch, iced, Chapman	2.45
Golden Eagle, iced, sd, Chapman	2.15
Regina, iced, ch, Growers F Co	2.60
Sweetest Yet, fy, iced	2.55
Sweetest Yet, ch, iced	2.45
Mt Harrison, fy, iced, Sewell	2.55
Mt Harrison, ch, iced, Sewell	2.30
Independent, iced, Growers F Co	2.45
Beauties, iced	2.20
Euclid, iced, or, Growers F Co	3.20
Uplanders, iced, Growers F Co	2.80
Regina, iced, ch, Growers F Co	2.60
Regent, iced, sd, Growers F Co	2.30
SEEDLINGS—	
Ideal, High Prot F A	2.25
Delicious, iced, F A	2.15
Stock Label, iced, F A	1.85
VALENCIAS—	
Vista de Robles	2.15
Symbol, Stewart F Co	2.00

TANGERINES, Halves — Mahala, iced, 1.10; East Highlands A, iced, 1.25; King, iced, 1.00; Redlands Best, iced, .75; Golden Cross, precooled, 1.45; Red X, precooled, 1.20; Glendora Heights, iced, 1.30; Quail, iced, 1.60; Lotus, iced, 1.70; Monogram, iced, 1.30; Tally Ho, iced, 1.15; Golden Cross, precooled, 1.20; Red X, precooled, 1.00; Quail, iced, 1.40; So Beauties, iced, 1.10; Red Globe, iced, 1.30; Blue Seal, iced, 1.00; Squirrel, iced, .80; Palm Tree, iced, .70; Euclid, iced, 1.25; Orchard, 1.20, 1.75.

MANDARINS, Halves—Gold Buckle, iced, 1.05.

LEMONS—East Highland B, iced, 2.80; Santa, iced, 2.50; Peerless, 3.35; Sunset, 2.95; Slover Mountain, 2.20; The Hub, 1.85; Santa Anita, 2.15; Limoneira, selected, 3.70; Squirrel, 2.65; Palm Tree, 2.25.

CINCINNATI, Monday, April 10.—Cool. Market advancing on navels. Six cars navels and one car lemons sold.

NAVELS—	Avge.
Parrot, S A Ex	2.40
Cal Orange, Riv Ex, Riverside	2.10
Hunter, A C G, Lateen S	2.30
California, S T, C O Farm	2.20
National, Randolph F Co	2.25
Hawk, S A Ex	2.20
Pointer, A C G, Lateen S	2.40
Possum, A C G, Lateen S	2.15
Hawk, S A Ex	2.25

LEMONS—AAAA, Keen & Son, La Mesa, 2.00.

CLEVELAND, Monday, April 10.—Nine cars navels, one lemons, two mixed cars sold. Market firm on good fruit, lower on other grades navels. Unchanged on lemons. Cool and clear.

NAVELS—	Avge.
Truth, Riv, Arl	2.30
Big R, S B, Rialto	1.80
Greyhound, S A Ex	1.80
Hunter, imp, A C G, Azusa	1.90
Alta Cresta, A H, Pach	2.80
Hobo, A H, Pach	2.05
Jasmine, D M, Mon	2.05
Peasant, A H, Riv	2.15
Violet, D M, Mon	2.20
Fiesta, Riv, Pach	2.40
Pond Lily, Riv, Pach	1.90
Elephant, 2ds, Elephant Orchard	1.95
La Paloma, Riv, Arl	1.90
Yacht, S B, R	1.55
Hunter, A C G, Azusa	1.55
Pico, S T, Whittier	1.90
Robusta, A H, Pach	2.60
Violet, D M, Mon	2.25

ST. LOUIS, Monday, April 10.—Cool, clear. Prices low on account of condition of fruit. Market firm on good stock. Easy on account of heavy offering of navels. Twelve cars navels, two mixed cars and one car sweets sold.

NAVELS—	Avge.
Cougar, Covina Ex	1.60
Pointer, A C G, Azusa	1.85
Golden, Riv Ex, Riv	1.90
Mt Baldy, imp, Riv Ex, Riv	1.75
Don Quixote, S T E, Alham	1.40
Mt Baldy, Riv Ex, Rix	2.05
Lochinvar, R H E, High	2.60
Gabriella, xc, Ind F Co	2.15
Wildflower, ch, Randolph F Co	1.70
Imperial	1.80
Plain Ends	1.45
Pappoose, ch, Strachan F Co	1.60
Dulce, sd, Randolph F	1.60
Parrot, S A Ex	2.35
Hunter, A C G, Azusa	1.65
Mt Baldy, Riv Ex, Riv	1.75
Alhambra, S T E, Alhambra	1.55
Belt, R H E, High	2.25
SEEDLINGS—Kingmaker, 1.35.	
SWEETS—Pappoose, 1.60.	
BLOODS—Nacional, 1.90.	

PITTSBURG, Monday, April 10.—Nineteen cars sold. Steady on oranges, stronger on lemons. Weather favorable.

NAVELS—	Avge.
Orchard, or, National O Co	2.55
Naralimo, Sparr F Co	2.35
Caledonia, xc, Placentia M O A	2.05
Cambria, xc, Placentia	1.50
Del Oro, Sparr F Co	2.10
Naralimo, Sparr F Co	1.75
Hiddendale, E C U, Escondido	2.15
El Capitan, S A Ex	1.80
Cal Orange, Riv Ex, Riv	2.05
Braeside, Riv Ex, Riv	1.90
Moose, O K Ex	2.80
Buck, O K Ex	1.95

BLOODS, Halves — Gavilan, 1.15. Boxes—Braeside, 2.15; Glendora Hts, 2.40.

LEMONS—Coyote, 2.75; Blue Jay, 2.50.

PHILADELPHIA, Monday, April 10.—Seven cars navels and eight mixed cars sold. Also three cars bloods and three cars seedlings. Sixteen cars Floridas sold. Oranges, $1.10@4.50; average, 2.40. Grapefruit, 1.75@3.25; average, 2.50. Market firm on good stock.

NAVELS—	Avge.
Red Globe, Riv Ex, Riv	1.85
Searchlight, S S, Orange	1.95
Hunter, A C G, Azusa	1.80
Martha Washington, S S, Tustin	1.65
Stag, A C G, Glendora	2.80
Hunter, A C G, Glendora	1.80
Pointer, A C G, Azusa	2.05
Red C, Covina Ex	2.25
Stork, S A Ex	2.50
Salt Lake, King F Co	2.40
Knight, Ely, Gilmore	2.30
Golden Orchard, fy or, Ind F Co	2.10
Cal Orange ,Riv Ex, Riv	1.65
S S Brand, S S, Orange	1.75
Pointer, A C G, Azusa	2.35
Cowboy, S S, Tustin	1.60
Pointer, A C G, Glendora	2.40
Pointer, imp, A C G, Azusa	2.45
Pointer, imp, A C G, Azusa	2.45
Cougar, Covina Ex	1.80
Native Sons, King F Co	2.65
Bishop, Ely, Gilmore	2.10
Mars xc, E Peycke Co	1.85

BLOODS—Searchlight, 1.00; Mother Colony, 2.15; Carnival, 1.90; Robusta, 2.15; Golden Orchard, 2.15; Salt Lake, 2.05; Bear, 1.80. Halves—Mother Colony, 1.05; Carnival, 1.05; Golden Orchard, 1.20; Robusta, 1.10; Santa Anita, 1.10.

SEEDLINGS — Searchlight, 1.90; Golden Orchard, 1.95.

NAVELENCIAS—Pointer, 2.50.

TANGERINES, Halves—Stag, 1.00; Red C, .95.

HOMOSASSAS, Halves—Dan Patch, 1.10; Pony, 1.05.

SWEETS—Avian, 2.10.

BOSTON, Monday, April 10.—Twenty-eight cars sold. Clear and pleasant. Market is doing better on oranges and lemons.

NAVELS—	Avge.
Swan, R H, Red	2.40
Princess, Q C, Corona	2.40
Quail, O K Ex	2.55
Golden Bar, S B, High	2.35
Kenilworth, A H, Riv	2.50
Pinnacle, O K Ex	2.85
Golden Cross, O K Ex	2.70
Big R, S B, Rialto	2.30
Robusta, A H, Pach	2.65
Laurel, Q C, Corona	2.75
Euclid, or, Growers F Co	2.75
Orchard, or, National O Co	2.65
Uplander, or, Growers F Co	2.45
Elk, Henderson	2.40
Alpha, xf, R, Henderson	2.40
Rialto, or, Growers F Co	2.35
Orchard, or, National O Co	2.30
Half Moon, xf, Red G O A	2.30
Cerrito, L V W B	2.25
Standard, sd, National O Co	2.20
Elephant, 2ds, Elephant Orchard	2.15
Delta, R Henderson	2.10
Princess, Q C, Corona	2.50
Alpha, xf, R Henderson	2.65
Elephant, or, Elephant Orchard	2.55
Regina, ch, Growers F Co	2.45
Uplander, Growers F Co	2.40
Pansy, xf, Colton, O G A	2.40
Elk, R Henderson	2.30
Clover, xc, Red O G A	2.30
Regent, sd, Growers F Co	2.25
Swastika, L V W B	2.25
Herald, W American F	2.15
Rose, xf, Red O G A	2.10
Rialto Crest, Growers F	2.05
Standard	2.00

LEMONS—Pride of Corona, 3.40; Corona Beauty, 3.30.

BLOODS, Halves—Royal, 1.05; Sierra Vista, 1.10; Kenilworth, 1.05; Bear, 1.25; Bluetag, 1.10; Rialto, .95; Rialto Crest, .90.

TANGERINES, Halves—Bear, 1.30; Quail, 1.10.

SEEDLINGS—Signal, 2.05; Solano, 1.95.

CHICAGO, Monday, April 10.—Lemons are quiet. Values steady and unchanged. Offerings are ample. Boxes, California fancy 300s, 3.35@3.50; 360s, 3.25@3.50; off sizes, 3.00 asked.

Oranges—For navels the demand is good. Lately they have been moving freely. A good many have to be repacked, as more or less of the stock is arriving in bad order. Soft stock is selling at low and irregular prices. Boxes, California navels, sound or made sound, extra fancy, all sizes, 2.85 asked; fancy do, 2.60@2.75; extra choice do, 2.25@2.50; choice do, 2.00@2.25; cars, in original condition, depending on condition, $1.25@2.75.

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Irrigated Land

FOR

$27 an Acre?

In

The Great Yaqui Valley

The rush to Mexico is on. The American farmer is beginning to realize that the only CHEAP land—that is, GOOD LAND—left on the American continent today is in MEXICO. It's the LAST CHANCE. And the American farmer is taking advantage of it.

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Land level as a floor—splendid irrigation system now in operation—railroad transportation—15,000 acres now under cultivation and American farmers behind the plows wheat, barley, oats, corn, cotton and all other staples.

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WHAT IS IT?

The greatest time and money saver on a farm. It is so handy you can use it for anything you want to hoist.

Last season Mr. H. C. Porter of Alpaugh, Calif., saw our ad in the California Cultivator and, after securing descriptive circulars and prices, he ordered one of our Medium Derricks. The following letter indicates that he is well pleased with the Derrick:

ALPAUGH, CALIF., Feb. 18th, 1911.
SCHMEISER MANUFACTURING CO., Davis, Calif.

GENTLEMEN:—Please send circulars describing your Portable Automatic Derrick to the following:

H. H. Cathcart — Jacob Sonke — J. A. Callister
A. D. Overman — A. B. Ward — F. N. Beason
Ernest Shields

—All of Alpaugh.

Some of them have used my Derrick and all have seen it work and think it is alright. They have alfalfa and need one. I am more than pleased with my Derrick and, with labor scarce and high priced, it is a great saving.. If you wish, I will act as your agent here and try to sell some Derricks.

Yours respectfully,
H. C. PORTER.

We want your name and address if you are a grower of alfalfa or any other kind of hay, so that we may send you circulars describing our Portable Automatic Derrick, a money-maker for you.

☞For further information drop a postal to the

SCHMEISER MANUFACTURING CO.,
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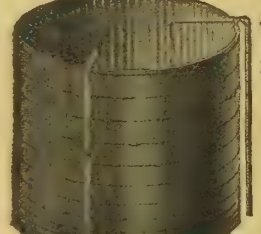
Pacific Tank & Pipe Co.



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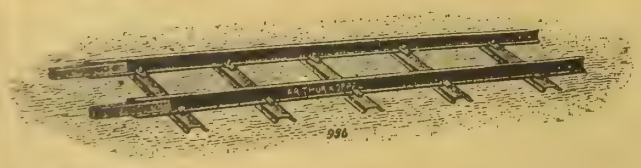

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Ask for Price List C. C. and descriptions.

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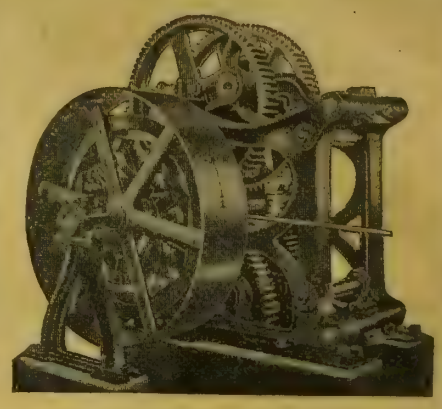

Send for literature and price, or if possible come to Pomona.

POMONA MANUFACTURING CO.

POMONA, CALIFORNIA

Or C. H. Weed, Porterville, Cal.
Agent for the San Joaquin Valley.

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The only roller with dirt-proof bearings, deep oil chambers and self-oiling Babbitt metal bearings that last a lifetime.

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High carbon hardened steel rollers. Extra heavy angle steel weight boxes.

Removable Babbitt or Wood Bearings:
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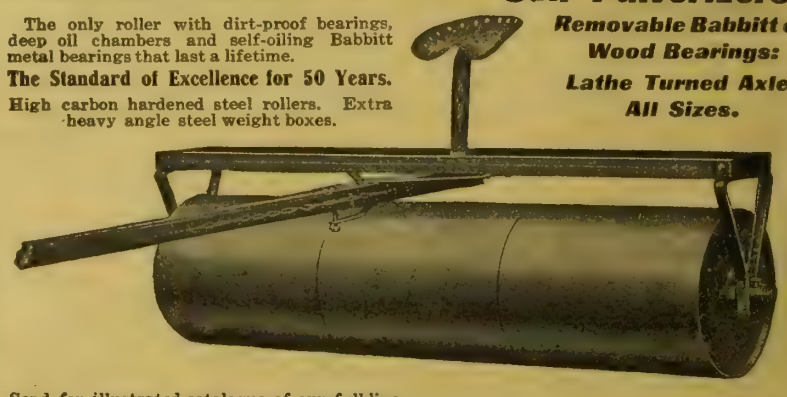
All Sizes.



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ARNOTT & CO., 112-118 South Los Angeles St., **LOS ANGELES, CAL.**

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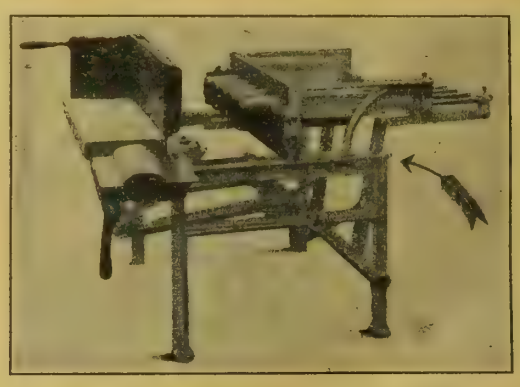

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Irrigating Pipe Tools
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Orchard and Vineyard Plow received first premium at State Fair.

If you cannot get our plow send us the name of your dealer and we will see that you are supplied. Has given entire satisfaction for over thirty years. Equally as good for valley as hill sides. We manufacture five sizes—from one-horse orchard and vineyard plow, to the strongest grading plow.

SAN JOSE, CALIFORNIA **H. G. KNAPP & SON**

Tell us where you saw this advertisement

The only Orchard and Vineyard Harness that satisfies every one.

PRICE, $17.50

Write for circular.

The H. C. Shaw Co.
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California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES APRIL 20, 1911 SAN FRANCISCO

Growing Cotton Fields of the Imperial Valley

The Valley Produced Last Year Nearly 6000 Bales of Superior Cotton, Longer in Fibre Than That Produced in the South. This Year's Acreage will be Far Greater Than Last Year's.

Courtesy Calexico Chronicle.

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The Light Weight Wonder

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—masters the most difficult pieces of land—cuts the brush—stirs the soil so it won't need ploughing—levels the land—throws up dikes—digs ditches and maintains your roads.

This grader is invaluable on fruit farms. One man—one team—operates it. The 20th Century is

The Original One-Man Machine

It is all steel and will last through years of hard service.

It does the work of several special machines and adds to your profits.

Send a postal card for complete detailed information and pictures of machine in actual service. Address

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Save $5.00 per Thousand

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They are tough and durable; will last as long as trees need protection. Will protect against Sunburn, Rabbits and Squirrels. Can be taken off and put on again without splitting.

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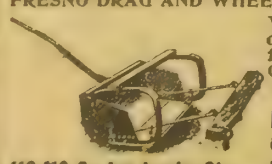

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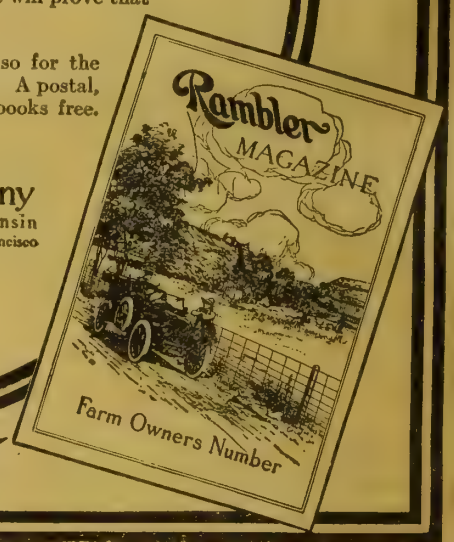

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425 East 3rd Street, LOS ANGELES, CAL.

California Cultivator

Vol. XXXVI. No. 16. LOS ANGELES: THURSDAY, APRIL 20, 1911 One Dollar the Year

King Cotton Extending His Domain in California

Shipments of the Finest Grade of Cotton Made From the Imperial Valley to the Mills at Oakland and Exports Made to Japan. The Industry is Rapidly Increasing.

Experiments in cotton culture made for some years in the Imperial Valley created but little general interest. We believe as a rule the venture was looked at skeptically, not that the fear prevailed that nature would not enter into the contract, but that the situation would be complicated by the labor factor. However, two crops have been marketed from the Imperial Valley, the last one aggregating 5,779 bales. For the preceding year it was only 400 bales, but that gave impetus to the next season's planting, so that the acreage increased vastly and the one little gin at El Centro was increased to five, located at El Centro, Imperial, Holtville, Calexico and Brawley. Regarding the planting of last season the Calexico Chronicle says in its annual issue in December:

"There were about 15,000 acres planted this season. Most of it was put in by people having no experience in this branch of agriculture, and consequently there were many who did not obtain the best results. Some fields were not properly prepared, others were planted too deep, and on some, irrigating water was not properly applied. There were about 10,000 acres which had reasonably proper care. Some fields which received proper care, cultivation and irrigation will yield a bale and a half to the acre. It is evident that if a few people, by careful work, can produce a large yield, others can also if they will profit by the example of their successful neighbors. The returns this year will be sufficient to act as an incentive to ranchers to put in a large crop next year. From preparations now being made by growers it is estimated that not less than 50,000 acres will be planted next season.

"Experiments have been made with various kinds of seed. All that has been raised commercially has been short staple upland cotton, most of it being of the varieties known as Sim's Improved and Mebane Triumph. Several growers are experimenting with Egyptian cotton. Enough has been raised to show that it can be made commercially profitable, but up to date our rich soil and abundant water have produced very large stalks, sometimes reaching to a height of eight or nine feet, without a corresponding amount of fruit. This no doubt can be remedied by a proper selection of seed and with less frequent irrigations. This cotton, having a much longer length of staple, sells for about thirty cents a pound on the market when ordinary short staple brings only about half that.

"No trouble was experienced in obtaining help for the production of the crop, but the picking season arrived with a scarcity of the proper kind of help. At the time of this writing this need has been met to a great degree, and the remainder of the crop will be harvested without trouble. As we have no frost until about Christmas, cotton will continue to make growth until that time, and our picking season will probably last through January.

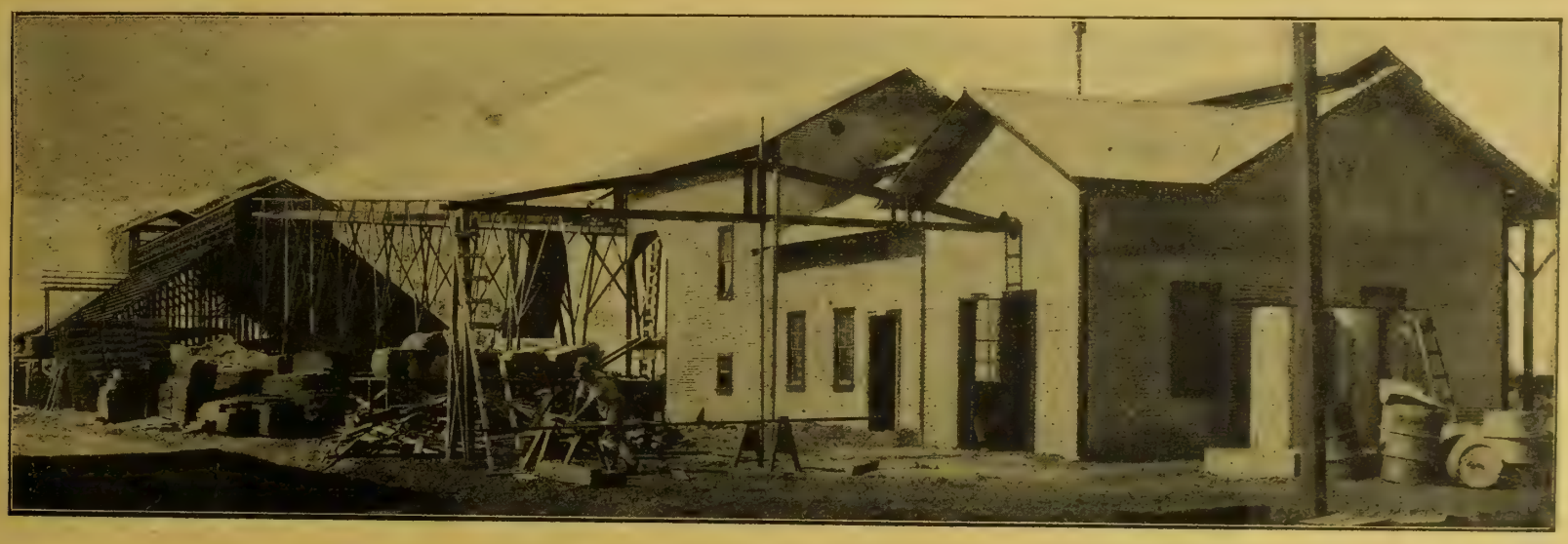
"An average sample of the cotton grown here was submitted to the New Orleans Cotton Exchange Board of Classers, who report as follows: 'The cotton is of fine style and as good as the Texas cotton. It has good body, strong staple, measuring one and one-sixteenth to one and one-eighth inch. The sample grades good middling. In fact, such description of cotton will always find a ready sale at full prices in our market.' Much of the cotton which has been carefully picked will grade higher than this sample. With the absence of rain and dews, and the driving storms which stain and dirty the cotton, the product is uniformly of very good color.

"This crop is being marketed on this coast, the Oakland Cotton Mills taking a portion and Japanese buyers the remainder. As the freight rate to a port is less than from Texas points, Japanese mills find it to their advantage to give us the benefit of the difference and get the excellent quality of cotton grown here.

"The cost of raising a crop here must depend, as anywhere else, on the care exercised in planting and cultivating it. But a total expense of $35 per acre should prepare the ground, pay for the seed, planting, water for irrigation, cultivating, picking and ginning, where the work is all done by hired help. With a yield of one bale to the acre, from $60 to $70 can be realized for the lint, and $7.50 for the seed, which makes an attractive proposition."

The production of the various sections was: El Centro, 2,093 bales; Brawley, 1,077; Holtville, 929; Calex-

(Continued on Page 498.)



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Buy and Plant Citrus Trees NOW

We have a magnificent stock of the best varieties still on hand and are prepared to fill orders for almost any quantity from our extensive nurseries either at Whittier or Exeter.

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As a revenue producer, where conditions are favorable for its development, one year after another, we know of no more profitable variety than

THE VALENCIA LATE

On account of its coming on the market in the late spring and early summer months and the further fact of its being an acid fruit, makes it sell nicely in connection with deciduous fruits.
VALENCIA LATE ORANGES have sold at higher prices than any other oranges and in favorable localities where there is no danger of the fruit getting frozen, the Valencia is sure to be a money winner on account of its increasing strong demand. It is a vigorous grower and prolific bearer. Actual returns from producing orchards show more net profit per acre than from any other orange grown. We have a fine stock of 2-year-old trees and can fill your orders for these trees as well as the WASHINGTON NAVEL in almost any quantity.

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People who intend to plant lemon or grafted walnut trees this season will have to secure them from some source early as they are now very scarce.

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Citrus and Tropical Fruits

CITRUS BY-PRODUCTS.

By Alexander Craig, Folsom.

In his address reported in recent Cultivator, Mr. Harold G. Powell said with much truth that future success in the citrus industry will depend to a large extent on the creation of by-products. The wonder is that we have been able to get along as well as we have hitherto without any attention to them. The beef trust makes fertilizers, the oil trust makes aniline dyes, the steel trust turns its slag into Portland cement; every great industry makes its profits largely out of by-products, and why should the citrus industry be an exception to the general rule?

Year by year we are increasing the orange crop by thousands of carloads and calmly expecting the good American people to have stomach for them all. This year they tell us that over forty thousand carloads of navel oranges will be shipped out of the state and that means over twenty oranges for every man, woman and child in the United States. When you consider that millions of the people are too poor to buy oranges and millions of infants too young to eat them, you will have to reckon thirty or forty oranges for every available month.

It would be all the better for the people to eat an average of thirty or forty oranges per annum but the question is, will they pay a reasonable price for any such quantity?

The diminishing returns would indicate that they will not do so. In this section the net price received this year has been only about a cent and a quarter a pound—half of what we have to pay for very inferior potatoes. Isn't that enough to break the fruit growers' heart? Well now, suppose we were to market only the extra fancy fruit and turn all the rest into orange cider, marmalade, orange juice, alcohol, flavoring extracts, or whatever else can be proved profitable. As long ago as 1893 an excellent article of orange cider was made in California, and sold on the fair grounds of the Columbian Exposition at Chicago. It was a fine beverage and appeared to be in good demand. It would seem as if a little judicious advertising might have made it popular all over the world. For generations a firm in Dundee, Scotland, has been making orange marmalade and selling it everywhere. No oranges grow within a thousand miles of Dundee, and there is little doubt that better marmalade can be made from the sweet navel orange than from the bitter seedlings of Spain. The big hotels in New York are serving glasses of orange juice to their guests in place of the fruit itself. Why cannot we put up the juice in bottles and sterilize it so that it will bear transportation?

In these days of wireless telegraphy and airships we cannot believe that anything is impossible, and there is no question but that good, saleable by-products of the orange can be made and marketed in almost unlimited quantities. It would take some money for experimenting, and some more for advertising, and it would be rather a formidable undertaking for any individual, but the Fruit Growers' Exchange could do it with their fine organization and excellent methods of working. They saved us from destruction once—will they not do it again?

PREVENTING DECAY.

From a circular to packing house managers, issued by the Citrus Protective League, we quote the summary, for in it are many points of interest to orchardists:

The following suggestions are offered to the packing house managers. Their hearty co-operation is asked in putting these suggestions into practice. It is a business question and affects the interest of every fruit grower vitally:

Do not allow decayed oranges to accumulate under the brusher, the bins or hoppers, or around any part of the machinery, or in any part of the house. Sweep the house clean every day, wash the machinery frequently, and destroy every orange that is not fit to ship.

Do not allow decayed oranges or lemons to enter the washing machine, the brusher, or any part of the machinery. This happens frequently in many houses, and one decayed orange passing through the machine affects it and spreads the disease.

Do not brush the fruit if it is already clean. The brush is a most effective way of spreading disease. The bristles carry the spores into the mechanical injuries of the fruit.

Do not wash the fruit unless it is smutty. Segregate the clean fruit, and wash only that which actually requires it. There is no more effective method of spreading blue mold than the washing machine, especially the old tank type of washer. The water furnishes ideal conditions for the growth of the disease. This is especially true of navel oranges. The water accumulates and is held in the folds of the navel.

Do not try to disinfect the water for blue mold. This disease cannot be killed by any strength of copper sulphate or permanganate of potash that would not be injurious to the fruit.

Do not place boxes of decayed fruit on the windward side of the house, or have the cull pile near the house. Clouds of spores are carried in with every gust of wind. They settle on the machinery, on the fruit, in the bins and boxes, and increase the chances of infection.

Do not handle decayed fruit with gloves, and afterward handle the sound fruit with the same gloves. No surer method of infection could be adopted.

Do not keep the decayed fruit in boxes that are afterward to be used in the grove. Provide special boxes, mark them, and use them for nothing else.

Do not allow the hucksters to sort over cull fruit that contains decayed oranges or lemons, unless the cull pile is removed some distance from the house. The spores rise in innumerable numbers in handling the rotten fruit.

Do not fail to wash the picking boxes, if decay starts while the fruit is in them. This applies also to lemon trays. It is a wise precaution to line the bottom of lemon trays with paper. It reduces the injury to the fruit, and makes it easier to keep the trays clean.

Do not fail to line the rot boxes with paper in such a way that the papers may be folded over the boxes when full. This will prevent the

spread of an enormous number of spores.

Do not allow the graders to throw decayed fruit in the rot boxes. Have it placed in them carefully. The spores from a single rotten orange or lemon thrown in a rot box spread throughout the house.

In cleaning lemons which have been next to decayed fruit, use a damp sponge, to prevent the spores from flying through the house. Clean the sponge frequently.

Do not let up on the campaign for careful handling. It was never needed more than in the present year.

These suggestions are made to supplement the careful handling of the fruit, and not to take the place of it. They apply to the citrus industry some of the simple fundamental precautions that are in every-day use in preventing the spread of human diseases.

Do not forget that the cleanliness and neatness of the packing house is an infallible indication of the care with which all the fruit-handling operations are carried out.

FLORIDA ORANGE DECAY.

California is not alone in its problem of orange decay. Experts of the Bureau of Plant Industry are working in Florida and proving helpful and the problems are practically the same in both cases. We therefore quote from a short address made by Mr. A. V. Stubenrauch before a mass meeting held in the city of Tampa recently. We say "mass" meeting though there were only twelve orange growers present. We sometimes think California fruit growers are slow, but we recall the Pomona meeting of citrus growers when from 700 to 800 filled the hall at each of the two-days sessions and appreciate the fact that California growers are more insistent for the latest information which concerns their business.

Mr. Stubenrauch said in part, as reported by the Florida Grower:

We attacked the problems in the field or grove and packing house by studying, first of all; by getting data in the grove on picking and handling. We have one man who has devoted practically his entire time to studying conditions in the work that is being done by various gangs of pickers and had one man—or rather two men studying the cleaning of the fruit—cleaning, washing and preparing the fruit for shipment. Still others have taken over the shipping problems; have prepared fruit for shipment; have taken fruit which has been very carefully handled from the time of leaving the tree until it went into the car along side of fruit which had been commercially picked and carefully handled and packed; another lot which had been commercially handled throughout. These were shipped through to Washington where we have had men busily engaged all the winter inspecting these various lots and obtaining the actual percentage of decay in the experimental boxes which have been shipped.

You see, therefore, that there is no guess work, and no estimating about it. The results cover wide grounds, approaching practical commercial conditions. At first sight it seems easy to prevent injury to fruit, but we will bring out in the course of this discussion that it goes back to handling and to the methods of carrying on the business of preparing the fruit for handling.

The general principle regarding blue mold getting into punctures, which causes most of the decay, was worked out in California on an exceedingly large scale. There was no guesswork. It was worked out in a way that allowed of no doubt. Lots of oranges were taken just as they were brought in from the grove. They were gone over very carefully and only the sound ones were placed together, and all those which were injured in any way were placed in another lot. Then we took decayed oranges, covered with spores and we blew the spores over the fruit in each box; put the different boxes away for two weeks, holding them in lemon sweat rooms where the temperature was kept to between 80 and 90 degrees, with water evaporating, giving just the conditions of warmth and moisture for decay. Some 300 experiments were made, and the work showed that where you had a perfectly sound orange with blue mold spores over it, there was only a little over one per cent decay, while the average of all the injured fruit was something like 25 per cent; proof positive of the general principle demonstrated in a large way.

The question was then asked: "What kind of clippers do the best work?" Mr. Stubenrauch answered it by stating that the clipper did not matter as much as the man behind it. Good work was done with all kinds of clippers, and poor work with some good clippers. He went so far as to state that good work was done with poor clippers. He had seen four and five per cent of clipper cuts with an instrument that was supposed not to be able to make cuts. The clippers must be kept sharp and taut at the joint; if they are dull, or if they wobble, they will give a ragged edge to the stem, which will then injure other oranges. Every scratch and every puncture, remember, is a chance for blue mold.

The charts show that some houses in Florida are doing good work; they get their fruit to market in sound condition, with only a very small per centage of decay. The matter of handling has got to be placed on a profit and loss basis. We have examples both here and in California showing what a good investment careful handling is. You can work out the extra profit on the fruit carefully handled, but you can't estimate in dollars and cents the value of a reputation in the market. I don't think I am putting this too strongly.

VARIATION IN BUDS.

By Carroll B. Smith.

A great deal of attention is being given by orange growers these days to bud selection and some interesting results have already been observed.

I have in citrus nursery some one year old and some two-year old buds. These trees will average smaller than those of same age in most other nurseries, I have observed. The buds were selected from outside fruit spurs of mature, heavily bearing trees, and I have been told by several nursery men and others that such buds will make very prolific trees, but not rapid growers. These gentlemen say also that buds chosen from "fat" suckers or "water sprouts" usually found inside the tree, will make large "fat" trees but not so prolific.

A few rows of the nursery referred to above contain trees from buds from large "fat" suckers and their size and general vigor are much more marked.

If any of your readers have had any experience with this subject I am sure many of us would be glad to hear from them through your columns. The "outside fruit spur" bud wood mentioned will have a diameter of about ⅜inch and short, whereas the large fat sucker wood will have double that diameter and larger.

LARGEST CITRUS NURSERIES IN THE WORLD

Parties contemplating the planting of citrus groves this coming spring will do well to send for our prices soon, as there will evidently be a shortage of strictly first class stock. Write today for particulars, or, better still, pay us a visit so that we may be able to show you just what we have.

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I have a fine lot of Navel Trees from Selected Buds.
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Citrus Trees Exclusively.

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will please remember that there is a vast amount of work in the chemical analysis of a soil. They will therefore kindly have patience with what may seem to them undue delay.
To accommodate the increasing business, I have been obliged to secure a helper, but can now take care of whatever business may come.
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Extra fine one year stock, the best to be had; be sure you are getting the genuine article. If you will send your orders in now, we are prepared to fill them, be they large or small; but order early, as the supply is limited.
3,000 fine large two year Valencias, get our prices.
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Orange Trees
First-Class Navel and Valencia one and two years old.
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SEED BED STOCK FOR SALE
Why not buy the best? I have about 100,000 one year sour stock, also a large amount of two year stock, both sweet and sour.
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Placentia Perfection Walnut Scions, Eucalyptus Trees and Seeds, and a General Nursery Stock. SUNSET NURSERIES, Tropico, Cal.

Thoroughbred Poland China Swine
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High Grade Stock of Best Strains.
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Deciduous Bush-Tree Fruits

APRICOT OUTPUT.

It is altogether too early to make any definite predictions of the apricot output for the coming season. But as there were many fears expressed that the shyness of bloom would result in an extremely light crop, requests were sent to several apricot producing sections for report of the early outlook. It is definitely known that the crop will ripen much later (at least two weeks) than did last year's, which was one of the earliest ever.

The interest in marketing operations is increasing every day and we note that Ventura county is now organizing a marketing association. The Orange county association has met and discussed plans and has decided on one change which will be made from last year's program; the association itself will handle the crop instead of leaving the fruit in the growers' hands and then marketing at a minimum price, or as much more as the grower could secure. The association has not announced any minimum price for this year; it will merely go into the market and secure the best possible returns. This is a wise change, for last years' plan left the association people holding the sack while outsiders shaved the association price by the merest fraction and unloaded. If in addition to Ventura and Orange counties other sections will form these marketing organizations, the industry of the whole state will be benefited. On the day producers refuse to sell unless the price is entirely satisfactory they will not only begin to make money themselves, but will give a boost to markets all along the line. Orange county's output last year was about 1000 tons of cured fruit and the average price to association members was ten cents. It is estimated that the formation of the association resulted in a saving to members of more than $40,000.

From estimates of this season's crop formed in various sections we quote:

J. G. Berneike, Santa Ana, Orange Co.

Our apricot trees bloomed out very late, and drying will begin later than usual. Judging from orchards in my immediate neighborhood the outlook at the present time is for a good crop, at least normal, and much heavier than last year. It will be two to four weeks before we will feel quite sure of what we shall have. We are assured by this time that the price will be good.

J. A. Wilson, Secy. Chamber of Commerce, Santa Ana, Orange Co.

From indications today the apricot crop will be 30 per cent greater than last year.

L. O. Yount, Redlands, San Bernardino county.

It is a little early to estimate closely but I think the crop of apricots is about the same as last season, which was 750 tons green. The 1909 crop was about 1100 tons. This includes all Redlands district.

D. C. Funk, Upland, San Bernardino county.

The crop along the foothills north of Cucamonga where my own orchard is located is heavy and it will be necessary to thin. Farther down in the valley the crop gets lighter especially south of Cucamonga, and south and east of Ontario it is almost nothing. There are only a few apricot orchards along the foothills and the average as a whole would only be a small per cent of last year's crop.

Wm. B. Jackson, Ontario, San Bernardino county.

From the present outlook for the South Cucamonga district, we will have a fair crop this year; trees have as much on as they will carry and make fair-sized fruit, and much larger crop than last year.

Hemet Canning Company, Hemet, Riverside county.

The indication for apricots on the Hemet tract is about normal, or the same as last year. Peaches better than last year; plums good; pears rather light. The frosts of last week did no damage on the Hemet tract as far as we can learn.

A Two-Year-Old Imperial Valley Vineyard.

John Dent, Ventura, Ventura county.

There was a good deal more blossom this year than last, but the rain and damp weather have done considerable damage. In my own orchard for example, there were three different blooms. The first bloom set well and fruit is now the size of cherries; the second all rotted when about the size of a pea; the third bloom was damaged, but cannot say yet to what extent.

C. Thorpe, Santa Paula, Ventura Co.

Conditions generally seem to be about as favorable as they were last year. Perhaps in the large valleys in this county the crop will be somewhat lighter than last season, but I find that in the higher altitudes there are about as many apricots on the trees as can be brought to maturity. Last week in a small section around Moorpark, black frost damaged the crop to a slight extent, but present indications are for a yield of about fifteen or sixteen hundred tons for Ventura county.

John W. McKay, Saticoy, Ventura Co.

Orchards about Saticoy will run all the way from a quarter to a full crop. Royals are showing up well; what Moorparks there are are very shy. There have been planted this season in Wheeler Canyon some 2500 apricot trees; on my place I have added about 700, mostly Tiltons.

THE COMING ALMOND CROP.

Mr. T. C. Tucker, sales manager of the California Almond Growers Exchange, gives the following condition of the almond market and its promise, also estimates of the coming crop:

"The Exchange since the first of the year has been marketing almonds direct through brokers in the East instead of the Edmund Peycke Company of Los Angeles, and we have now arrangements under way with brokers in some fifty markets of the United States, who are representing us this season. We found it unsatisfactory to endeavor to do business through a third party.

"We might say for your information the Exchange held its annual meeting April 14, and the old directors and officers were re-elected to serve the following year.

"The manager's report was very enthusiastically received, as the showing made by the Exchange the first year is remarkable. We were able to do business along broad lines at a very reasonable expense. We have not lost any members or tonnage so far, and this fact alone is worthy of comment. We have obtained additional tonnage

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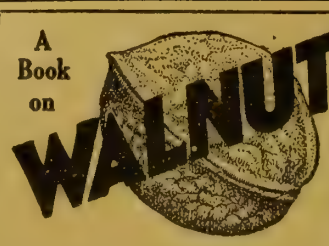

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Sacramento, California

for the coming year by the reason of new members joining hands with us, and where we had 40 per cent of the crop last year we will probably have 50 per cent or more this season. The outlook for the California Almond Growers Exchange as a co-operative organization is very flattering, and the associations affiliated with us are well pleased with the results. We have already received a great many orders; in fact, we are declining orders for certain varieties at this time.

Very careful estimates of the crop indicate the crop of the state to be about one-half of what is was last year. Ne Plus and IXL will be extremely short, Nonpareil about two-thirds of last year, and the soft-shell varieties will be a fair crop.

VINEGAR MAKING.

It is only within comparatively recent years that the true nature of the biological processes involved in vinegar making have been fully understood. Pure cider vinegar, as it is produced on the farm, has been taken as the standard of excellence for a long time, but as one buys this article on the open market, he seldom finds it possessing the merits claimed for it. There seems to be little excuse for the existence of so poor an article, for with a little care and a few simple directions the average farmer can produce as high-grade vinegar as the most fastidious could desire.

In the first place, avoid the use of old vinegar barrels, unless they are thoroughly scalded with either boiling water or live steam. The object of this is to destroy objectionable germs which are apt to be present, and which might produce bad flavors if allowed to develop in the fresh cider. If practical, pasteurize the sweet cider by heating it for twenty minutes at 155 degrees before placing it in the clean barrels. This precaution is taken in order to rid the cider of undesirable yeasts and bacteria. The barrels should not be more than two-thirds to three-fourths filled with apple juice, and the outer air allowed free access to the cask through an open bunghole stoppered with a cotton plug.

The alcoholic fermentation is started best by adding a cake of either compressed or dry yeast. By this means a good quality of alcohol is produced, and the hard cider which develops is reasonably free from the numerous off flavors which are so commonly present in vinegar made in the old-fashioned way.

When the cider has reached the "hard cider" stage, which, under ordinary farm mangement, requires from five to six months, if the barrels are kept in a temperature of 45 to 55 degrees F., add to each cask a small piece of "mother of vinegar" which previous experiment has shown to possess desirable vinegar-making properties. The hard cider should now be kept in a warmer place, 65 to 75 degrees, to allow the more rapid growth of the acetic acid germ, the chief constituent of the "mother," which changes the alcohol of the hard cider into acetic acid. At this temperature the acetic acid fermentation may be completed in fifteen to eighteen months, or, if left at the lower temperature, in twenty-one to twenty-four months. When the maximum amount of acetic acid has been produced, the clear vinegar should be drawn off and stored in clean, well-scalded barrels, which should be completely filled and tightly stoppered; otherwise deterioration may take place, due to the action of certain germs which destroy the acetic acid in the presence of an abundant supply of oxygen.

Pasteurization has been suggested as another means of preventing the deterioration, and, if carried on properly, is to be preferred to the method above described. This consists in heating the vinegar for twenty minutes at 120 degrees F. By this means the harmful bacteria are destroyed, without the loss of either the acid itself or the volatile substances which give cider vinegar its characteristic flavor.—Walter G. Sackett, in American Cultivator.

THE SUPPLY OF POTASH.

Potash is used in the arts for many purposes, but by far the largest use is for fertilizing the land.

While we were engaged in robbing the soil there was no special demand for fertilizers in this country, and what there was was easily supplied while we were in the process of removing the forests in the hardwood sections of the country, with such supplies from imports or small mineral deposits as were available.

In recent years the demand for this essential fertilizing element has rapidly increased. Deep borings in Germany and Austria revealed the existence of enormous beds, apparently as nearly inexhaustible as any mineral deposit can be.

The potash from these mines can be delivered in the markets of the world so much cheaper than potash from any other source that it has been considered that Germany had virtually a monopoly. Like all other important German industries, the potash output is controlled by a trust, in which the German government participates, and which limits output and regulates prices. The country is familiar with the difficulties growing out of a contract secured by an American syndicate, while the German trust was temporarily disorganized, and which the German government is rendering nugatory by an export tax.

This trouble with Germany is naturally increasing interest in endeavors to discover potash deposits in this country which will make us independent of Germany. It is highly improbable that any limited district has a monopoly of profitably working deposits of a mineral so generally diffused in nature. The great German deposits lie very deep in the earth and were discovered by borings made for other purposes.

The geological survey announces in a bulletin just issued that conditions are favorable for the discovery of potash deposits in the arid districts of this country, and if congress appropriates the funds thorough exploration will be made.

If such deposits are found, it will be an indication that when sufficiently pressed mankind is likely to find on or in the earth whatever it may need to sustain its increasing population. It has been recently stated that our coal is likely to be conserved by electrical heating, to a great extent, by utilizing falling water now running to waste. The world probably has potash enough, and if Germany is unreasonable we shall dig till we find it.

If the geological survey should find potash deposits, it will be interesting to see whether we shall follow the German method of organizing trusts under government regulation.—San Francisco Chronicle.

Something of a rumpus has been kicked up among prune growers in the northern part of the state because the board of control of the state of Iowa has decided it cannot buy California prunes at 12½ cents a pound. Perhaps if they would send a commission of their board to this state they might be able to purchase a few at a much lower price than that.

Sweet Orange Seed
IN ANY QUANTITY
150,000 sweet seed bed stock. Prices reasonable.
Small's Seed and Plant Co.
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Irrigated Land Opening
We have just secured from the great Crocker Estate in Merced County 3,000 acres of their finest alfalfa land. The new tract,
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It does not PAY to farm poor land. It means time wasted, poor crops and a bad investment. Therefore, when you buy land
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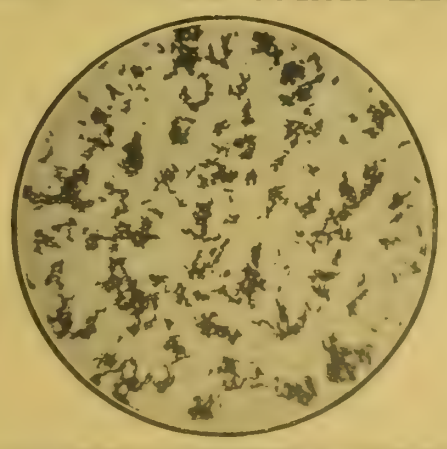
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Garden and Field Crops

PEANUTS.

By R. H. Forbes and R. L. Crane, Arizona Experiment Station.

While peanuts are not as yet an important crop in Arizona, many inquiries concerning them necessitate the writing of a timely hint on the subject.

Soil: Peanuts, like most subterranean crops, thrive best in light, sandy soils; and, being leguminous in character contribute materially to their own fertilization. At the Yuma garden we have therefore secured fair yields without special effort to manure the crop. Arid region soils are always rich in lime, a circumstance also favorable to peanut culture in the Southwest.

Season: Peanuts require a long summer growing season, this fact limiting their profitable culture to more southerly latitudes. At Yuma (Arizona) they should be planted in March or April when danger of frost is over, and will then mature in September, five or six months after planting.

Planting and care: In gardens the shelled peanuts are planted at intervals of about twenty inches in rows three feet apart. The ground should be ridged under the rows only just enough to confine a small irrigating stream between, the soil being gradually thrown towards the rows as the plants develop. About six weeks after planting, the vines will begin to bloom, and the fertilized seeds, in the form of pegs, will shoot vigorously towards the ground in order to bury themselves in the soil and complete their development. The pegs, especially on erect varieties, often have difficulty in reaching the ground. It is therefore necessary, after an abundance of bloom has developed, three to four months after planting, to cover and weight down the vines with earth from the furrows, which may be applied in a small field with a shovel. This will enable the nuts to develop until, two months later, they are ready for harvest.

Irrigation and cultivation: In this hot, dry climate especial care must be taken, after the crop is set and the growing nuts are buried in the soil, to keep them well irrigated. A shortage of water in midsummer in the case of some varieties, will result in a crop of empty shells; and in all cases the yield will be greatly lessened. During warm weather about three irrigations a month have been found sufficient in the light, sandy soil of the Yuma garden.

Cultivation after each irrigation will keep the nuts out of the irrigating furrows, and should throw the soil gradually towards the vines, thus affording pegging ground for the crop. An object in ridging the rows at this time is to have the nuts well above water level so that they will not be discolored by being wetted when irrigated.

When the space between rows is covered with vines, cultivation may cease as even bermuda grass can not then secure a foothold.

Insect pests: As thus far observed, peanuts have not been seriously affected by insect pests. Nematodes do not injure them; and insect depredations or plant diseases have not yet occurred upon our crops.

Varieties: With reference to habit of growth, there are erect varieties, such as Spanish and Indian Runner; and the more prostrate sorts, such as Virginia Red. The former require more labor to cover with earth for pegging; while the latter are more troublesome in the irrigating furrows. The Spanish is an abundant yielder, but the nuts are very small. Jumbo and Steckler's Mammoth are showy sorts, but are uselessly large. With sufficient irrigating water the Virginia Red has done well under our conditions, but fails to fill if water is short in summer. Indian Runner, on the contrary, has matured a small crop of well filled nuts with a deficiency of water in August.

Harvesting: When the leaves turn yellow in early autumn the crop should be promptly harvested, as the nuts will sprout and spoil if they should become wet in the ground. Horse diggers are available for large crops; but garden rows may be lifted with a spading fork, and the vines cured and piled where there is no danger of wet or frost. The crop may then be picked from the vines by hand or by machinery, as its size may warrant. Spanish, Indian Runner and Virginia Red have all yielded in small tests (at Yuma) at the rate of from 3,000 to 3,600 pounds per acre, or from 120 to 145 bushels.

Uses of the crop: Peanuts are, for the most part, roasted and used as human food. They are also employed in confectionery, especially the small Spanish variety, and are roasted and salted like almonds. They may also be made into a dry but rich and oily paste or butter. In the Old World great quantities of oil are made from them, which is often used as a substitute for more costly olive oil. The cured vines make excellent hay, relished by horses, cattle and pigs; and, with reference to nitrogen, this leguminous plant is beneficial to the soils in which it is grown.

INVESTIGATING AS TO BENEFICIAL PARASITES.

We note in the monthly report of Prof. C. W. Beers, horticultural commissioner of Santa Barbara county, the following reference to a representative of the department of agriculture now in the state:

Mr. P. H. Timberlake, who has been engaged on the Gipsy Moth work of the department of agriculture, for a number of years, has been sent to our state to make a thorough study of the life history of the friendly parasites that are in our midst. He came to Santa Barbara and sought material along his special line.

Dr. Howard suggested his establishing himself in a section where such material is abundant, and it is very likely that he may spend the summer in this country. This will be of great value to this department, as it will bring to our office door expert entomological discoveries at first hand, and will disclose to us those different parasites of whose real nature so little is known at present. We hope, through this work, to secure some better solution of the problem of propagating such parasites as are most helpful and thus more perfectly protect our orchards against pests.

San Joaquin county will make extensive experiments in rice culture this season.

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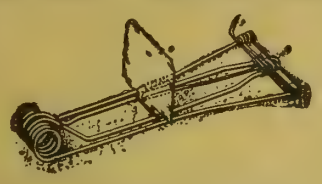

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LOVE OF THE SOIL.

By Chas. D. Merrill.

Take this train for Chatillon, a village two miles south of the fortifications. We have a card to a market gardener there from a firm in the city—he will show us his vegetable garden. He has four acres enclosed by a stone wall seven feet high, as are nearly all these thousand little farms of the suburbs of Paris. At this moment the obliging proprietor, keen, clear-eyed, blue-bloused and with wooden sabots over his leather shoes, is transplanting lettuce, and three women of his family are assisting. It is the middle of December. From beneath the square glass frames where the lettuce was sown and started, the tiny plants an inch high are transplanted to another bed, and there, three being grouped within a circle of fifteen inches diameter, a bell glass is placed over them and under it they grow into clean crisp heads that sell all winter at a fancy price. From this garden go every day in winter great crates of lettuce to Berlin, London, Cologne and other cities where it sells at enough to bring the grower from seven to ten francs for each bell glass of his garden. No heat is used in all this process of intensive culture except that of the sun and the fermenting manures mixed with the soil. So skillful are these gardeners that by the proper mixing of decaying manures with the soil they maintain just the amount of heat required to promote growth and prevent freezing all winter long, and they are justly proud of their success under this mode of culture.

The market gardens surround Paris for four or five miles out and the better ones yield a gross return of $1500 to $1600 per acre in crops, net $800 to $1000. The pride of these people is intense in their skill, and their love of the soil is most admirable. Vast quantities of vegetables go daily to England and Germany, so that Waterloo and Sedan are retrieved and forgotten in the returns of these marvelous achievements of French horticulture. Greater is he who makes two vegetables grow where but one grew before than all warriors; greater still he (the Frenchman) who makes one fine vegetable grow, where none grew before. The brainy hoe is mightier than the brutal sword. Just so in fruits and flowers and trees.

The marvel of conquest that the Parisians have gained over an inhospitable climate and an impoverished soil, continually excites your admiration, as you visit the flower markets of Paris, which are held every day in the year at Pont St. Michel, the Halles Centrales, and around the Madelaine, and as you examine the hundreds of fruit and flower shops throughout the city, and in the vast general market off the Rue Rivoli.

The city easily excels the world in the production and display of flowers and fruits and in the care of its shade trees, and daily thousands of strangers may be seen feasting mind and heart over the marvelous exhibits of the windows and stalls found everywhere in the city.

The variety of French beans, and the delicacy of their flavor excel all beans, and the kinds and flavor of so common a vegetable as the carrot, of which there are nine varieties for the table, and which at Vichi are a regular "cure" (liver and stomach) where thousands of patients go for the carrot diet and the medicinal waters—these are proof of the skill of the gardeners and of their knowledge of plants and soils.

The trees along the boulevards and in the parks of Paris are another proof. No municipal corps can make trees grow so close to great buildings, and in such shaded courts, and so close to the water's edge, and of such uniform heights and shapes on given boulevards and river quays as Paris does. No city has such simple, sensible plans for maintaining its parks and gardens and for decorating its public buildings and streets as Paris. You must come to the Porte Auteil at the fortifications, and see the Horticole Municipal, a farm-garden maintained by the city itself for the production and care of plants, trees and flowers for the decoration of the city. A ticket easily procured at the Hotel de Ville admits you with a party of five and you enter, on the last day of the year to see what the city can do to adorn itself from the laboratory of the soil. You first enter the camellia house (glass) where hundreds of these beautiful trees, some of them with tops three or four feet in diameter are standing in ranks one above the other, many in full bloom, and all in huge pots or tubs, ready to be moved at a moment's notice. Then the great palm house with its thousands of palms in jars and barrels, of all varieties, and all of the glossiest green. Many of these rise to fifteen and some to twenty feet in height. Then a long orchid house with a number of the choicest varieties, many in full bloom, and all in pots, of course. Then the azalea house, beautifully in blossom, and then the houses of the primroses and cyclamen and ferns and poinsettias and chrysathemums, each and every tree and flower and vine ready to travel; you visit last the wagon house where a dozen vans from small to great stand ready to transport these beautiful plants to any building, boulevard or gallery of the city. For instance, on the occasion of a visit of the king of Portugal, the great city hall (Hotel de Ville) with its vast stairways and salons and courts was decorated for a royal reception. A hundred men answered the telephone instructions and within eight hours the Hotel de Ville was a bower of beauty with flowers and vines, and rows and circles of ornamental trees reflecting from their glistening foliage the thousands of electric lights that illumined the reception of the king. A parade will pass for a mile along one of the great boulevards, one on which there happens to be no trees. An order flashes from the city hall to the Horticole and in four hours that boulevard is adorned in its whole length with a double line of handsome trees, through which the parade will pass.

Out of this garden come millions of pansy roots and foliage plants and violets, which will in spring and summer be set around the monuments, and in the places and gardens and parks of the city and will make them gay as paradise. All is as scientific and settled and sure in this system of municipal adornment as it is possible in human affairs to be, and it is delightful in the work and in the result. It looks as you cast your glance over the garden and then over the distant decorated buildings or boulevard, like a dream come true. Nothing but a deep and devoted love of the soil could work such enchantment under a city administration.

So in the great city markets, as you visit them in the early morning, every winter's day (as in summer, of course), they are overflowing with vegetables and fruits and flowers, grown, conserved, transported, with a victory over all weathers and seasons that challenges the world to a comparison. Strangers see but little of the hard but cheerful toil of these myriad faithful workers of the gardens, who give time and strength and skill to develop what these strangers so freely and so fully enjoy. Behind the great stone walls of the thousands of gardens they work unseen, but the reward and the honor are theirs in their devoted love of the soil.

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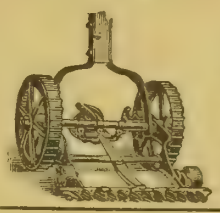

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Keep a-smiling.
If your mouth tastes dark red brown,
Keep a-smiling.
If your friends keep, in their blindness,
Back the milk of human kindness,
There is other milk in town—
Keep a cow!

—Toledo Blade.

Entomology and Bees

BEE LEGISLATION.

By J. G. Gilstrap, Ceres.

The subject of bee legislation has been one of absorbing interest to bee men in all parts of the state, and we, in this part of the valley, are greatly interested in the matter and were sorely disappointed in there being "nothing doing" at this session of the legislature. We cast in "our little mite" toward the passage of the bill. I went to Sacramento a few days ago carrying a petition with 144 signatures urging the passage of the bill. I saw some of the leading northern bee men and tried to persuade them to withdraw their opposition. While it must be confessed that the bill does not to our mind reach the full needs of the bee men, yet it is a step far in advance and we desired its passage.

At senate chamber I met most courteous treatment as well as by the bee men at Elk Grove. I learned that the senate committee had given two hearings to the bill and refused any further hearing in the matter, as they had received so much protestation from bee men at different places, claiming the bill had not been properly presented to the bee men for their approval or endorsement and that it did not cover the ground as it should.

The senators, a number of them, told me plainly that no legislation would be made by the senate until the bee men could and would get together in the matter and recognize the interests and wishes of the bee men of all parts of the state. Mr. Gates, the senator who introduced the bill in the senate, is one who takes this stand, and disfavors the present bill.

After a careful investigation of the whole situation we see there was no show at all. I was given to understand from senate members that a more favorable plan of law would be something along the lines of the horticultural commission. The senate members radically disfavor a "free service" proposition. They think it betokens a "nigger in the wood pile." And to eliminate county lines, that is to allow an inspector of one county to enter any adjoining county where there is no inspector, or where said official is not doing his duty, and clean up disease at expense of said county, would meet with more favor, and I believe there is no reason why the southern and northern and central bee men should not stand as a unit for a good law two years hence. I have had considerable to do with the southern bee men in the way of correspondence, and I credit them with honesty of purpose, and the same I must say of the northern bee men. So, fellow workers, let us keep the one object in view of a united move among the bee men of California. We keenly feel the situation, but with good will towards all.

THE HELP ONE ANOTHER CLUB.

We may beat our swords to plowshares
And our spears to pruning hooks,
And betake ourselves to farming
In the peaceful country nooks.
But we want them back as weapons
When we find at early dawn
That our neighbor's pesky chickens
Have been scratching up our lawn.

Oroville's citrus fruit shipments have been completed for the season.

THE ADVANTAGES OF GOOD COMBS.

By R. Beuhne, President, Victorian Apiarists' Association.

In the production of honey as a special business, or as a profitable side issue of other rural occupations, the frame hive is now in general use. The advantages it offers over the common box hive are, however, not availed of by a large number of beekeepers to anything like the fullest extent, and the best possible return is therefore not obtained.

To get the maximum yield of honey it is essential to have a good strain of bees, good management and good combs. The importance of the latter is often quite ignored by otherwise up-to-date beekeepers. Perfect combs for the brood chamber, as well as for extracting, cannot be obtained profitably from starters, but only from full sheets of foundation in properly wired frames and drawn out by the bees in the super of the hive when conditions are favorable.

It is admitted that good combs can be obtained from starters in limited numbers under certain conditions, but these conditions rarely exist for a sufficient length of time in our variable climate. The building of the combs by the bees requires so much supervision and attention by the beekeeper, that they are really more expensive than combs from full sheets of foundation, notwithstanding that the first cost of the latter is about eight times that of one-inch starters.

One of our largest apiarists, when asked whether he used full sheets or starters, replied "that he could not afford to use starters." The average beekeeper who uses starters gets a considerable amount of drone comb built in his frames. As drones are consumers, instead of producers, he occasionally cuts it out, compelling the bees to build it in again, which they usually do with drone cells. When the heads of the drone brood are shaved off with the honey knife, the bees remove the drones and the queen deposits drone eggs in the cells.

A worker cell measures 1-5 inch in diameter, and a drone cell ¼ inch. There are thus 25 worker cells or 16 drone cells in a square inch of comb. As a comb has two faces 32 drones are raised in the space which should produce 50 workers. The food used, and the labor of the bees involved in raising the former, are wasted, while the presence of drone comb in the hive is a check on the development of the colony in early spring and an inducement to swarming later on.

Beginners in beekeeping usually shrink from the expense of full sheets of foundation. They buy well-made hives and frames but use starters, raise enormous numbers of drones, lose a large portion of the honey yield in consequence, and then have combs which are liable to melt down in hot weather or break in the extractor. If economy is necessary it would be better to use home-made makeshift hives for a start, but good frames and full sheets of foundation. When the bees have earned new hives it is easier to effect the change than to replace the brood nest.

A frame of fully built out all worker comb is worth 1s. to the beekeeper; one largely consisting of drone cells is only worth the value of the wax it contains—about 3d. But the use of full sheets of foundation results in good combs only when due attention is paid by the beekeeper to several details.

Combs, whether for brood-rearing or the storing of honey, should be perfectly straight and built on to the frame on each of the four sides. To insure these qualities the frame should be properly wired and the foundation cut, so as to allow for expansion under the influence of the heat of the hive and the weight of the bees hanging on the sheet; further, it should not be given to the bees till the conditions are such that it will be worked on at once.

There are several different ways of wiring frames—horizontal, vertical, diagonal, W., M., etc. After trying them all I have found four horizontal wires the best for keeping the foundation straight without drawing in the top and bottom bar, as in vertical wiring, or leaving large unsupported surfaces of foundation, as in some of the other methods.

When four horizontal wires are used the bottom one should not be more than ½ inch from the bottom bar. The sheet of foundation should be less than the inside measurements of the frame by ⅜ inch in length and width. The exact dimensions cannot be given as they vary according to the different thicknesses of the bars of the various styles of frames. Fastening the foundation to the top bar and embedding the wires should be done when the foundation is warm and pliable, otherwise buckling is sure to result and the sheet will come away from the wires in places when the wax expands with the warmth in the hive. The board on which the frame is laid to embed the wires should be kept wet to prevent the foundation adhering. The bottom wire is embedded last and drawn upwards as far as it will allow, so as to form a low arch; the other wires are, however, kept straight. In this way a slight strain is kept on the foundation which will take up any subsequent expansion of the wax.

The trade size of foundation is such that the sheets are large enough for simplicity frames with ½ inch top and ¼ inch bottom bars. In the case of frames with thicker bars the foundation should be reduced in width to leave a clear ⅜ inch between the edge of the sheet and the bottom bar. Badly buckled combs may, however, result even when all these points have been observed, if the foundation is poorly made. Quite a number of beekeepers have roller mills and manufacture their own foundation; but, in many instances, the sheets turned out are little more than marked with the rollers and good straight combs cannot be expected from them. Well brought up foundation differs from that which is flat, in the same way as corrugated iron does from plain. In both instances, the flat sheet is less rigid and expands more under the influence of a rise of temperature.

The necessity of having straight combs for brood, as well as for extracting, is so self-evident that it is surprising so many poor combs are found in the majority of apiaries. It does not involve extra labor to produce good combs, but only the same amount done in a different way.

The disadvantages of crooked combs are: A reduction of the brood capacity of the combs, brace combs, difficulty in handling of frames, loss of time

(Continued on Page 511.)

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

EDUCATIONAL BUTTER SCORING CONTEST.

By Leon M. Davis, Davis.

The second entry of the California Butter scoring contest, scored April 4th, was participated in by twenty two California buttermakers, representing creameries from Imperial to Humboldt counties. The number of cubes was the same as sent to the first entry, although several new contestants replace those who have dropped out since then. The butter was scored by Mr. W. B. Thurston, who has recently come to the Coast as permanent representative of the U. S. Dairy division, and by members of the dairy department, who placed the scores as follows:

Grizzly Bluff Cr., Grizzly Bluff	94½
Laton Co-op. Creamery, Laton	94
Castroville Cr., Castroville	93
Dairymen's Co-op. Cr., Tulare	92½
Ceres Creamery, Ceres	92½
Santa Rosa Cr., Santa Rosa	92½
Elk Horn Cr., Santa Barbara	92½
University Farm Cr., Davis	92
Meridian Creamery, Meridian	92
Pozzi Creamery, Marysville	92
Elite Creamery, Nicasio	92
Willow Brook Cr., Penngrove	92
Stanislaus Cr., Modesto	91½
Cottonwood Cr., Cottonwood	91½
Salinas Creamery, Salinas	90½
Delta Creamery, Imperial	90½
Suisun Creamery, Suisum	90
Crescent Creamery, Los Angeles	90
Glenn County Cr., Willows	90

There is one thing in general that is noted from a study of the butter scores since the scoring contest began in 1909, and that is, a general improvement in quality of the finished product. Better butter is being sent in. Many of the competing buttermakers are working under conditions which are adverse to best results, but, even in view of this, are doing remarkably well. This leads one to believe that better methods are being practiced.

Some of the contestants report that their best cream is now being used to supply a sweet cream trade, and this puts them at a disadvantage. Having the poorer cream to work with, the plentiful use of a good starter will be found helpful; the amount and time of adding depending upon local conditions. The few warm days of the past week, when cream for the contest butter was delivered, were unfavorable in some parts, especially through the valley regions, and may account, in part, for the lower scores of some of the butter from those sections. A buttermaker who will stay with the contest regardless of unfavorable circumstances, is to be commended, and the suggestions made to him should be the more valuable.

Among the defects under flavor, several cubes gave evidence of a feed flavor. Such is likely to appear at this time of the year, and a liberal amount of starter will do much toward its disappearance. Four cubes were criticised for a high acid flavor, and in going over the method blanks these particular defects seemed to be due to either holding the cream too long, holding at too high temperature, or ripening to an acidity too high. When cream is received in the afternoon, it is often necessary to hold until the next morning before churning, but the buttermaker should bear in mind that butter keeps better than cream.

The number of mechanical defects was fewer as compared with the first entry. But two cubes were cut because of grittiness, and four for defective body. One piece was cut for mottles, and several were noted as being slightly mottled.

The criticisms under package were not unfavorable. One buttermaker sent his cubes packed in ice, and several took extra pains in the preparation of their boxes. A clean neat package is to be desired, as it indicates, to a certain extent, the care which is given to all parts of the butter making. All of the cubes arrived at Davis in due time, and when scored, had been in the refrigerator room for from 24 to 72 hours.

The call for third entry will be sent out late in May, and it is hoped that not only those who have participated so far, but many more will respond.

SORGHUM OR CANE.

Sorghum will produce immense quantities of fairly good quality of green forage or hay on shorter notice and with less trouble than almost any other crop.

An acre of good sorghum should produce three to five tons of fair hay. In composition this hay is slightly superior to corn stover (stalks without the ears), containing slightly more of all three of the food compounds. It has a greater advantage over corn stover, however, since it is more palatable on account of its sweetness, and is cleaned up better, the stalks being finer. It is relished by all kinds of stock if fed before starting to sour in the late winter. Take it all in all, sowing sorghum is one of the easiest ways of getting out of the difficulty caused by shortage of meadow.

Any good corn soil is good for sorghum. Sorghum appreciates warm weather even more than corn, and should be sown a week or two later. In the latitude of central Iowa the first half of June is about the right time, although it may be sown slightly earlier or several weeks later than this and yet produce a good crop. The seed bed should be prepared fully as well if not better than for corn. Young sorghum plants grow slowly at first and are very easily choked by weeds. The soil is best worked up by fall or early spring plowing, followed every week or ten days during the months of April and May by disking. This continual disking does important service by germinating and sprouting many weeds that would otherwise cause considerable trouble to the young sorghum; by warming up the seed bed, and by saving moisture. Sorghum deeply appreciates a deep, warm seed bed, free from weeds.

For hay sorghum is generally sown broadcast or drilled thickly, sixty pounds of germinable seed being used to the acre. This means about one hundred pounds of the seed usually bought on the market, as so much of it will not grow. Broadcasting is simply done by scattering the seed and following with a harrow. Generally we would prefer the drill, since slightly less seed is used per acre and a more even stand is secured. In the southwest sorghum and kaffir corn are

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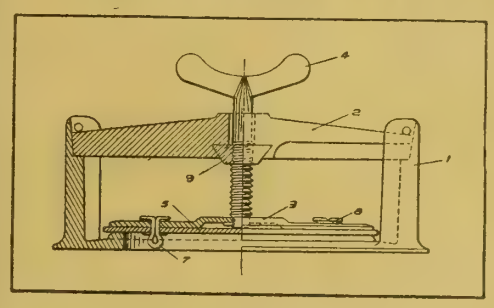

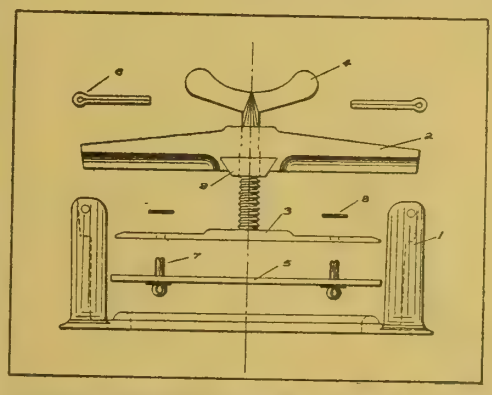

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6 Cotter Pin
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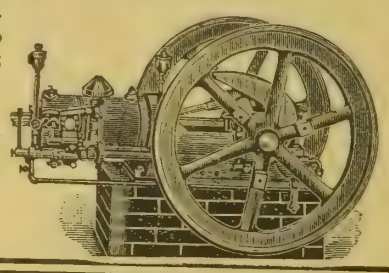
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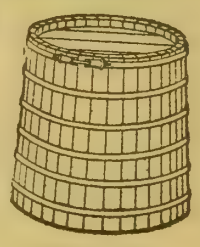
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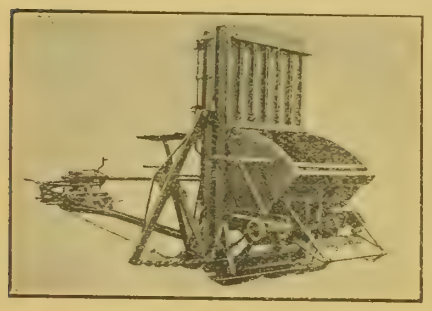
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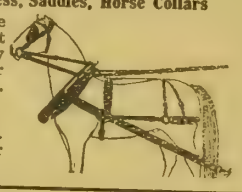

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BUCKING HORSES.

A contributor to Bailey's Magazine writes entertainingly of the outlaw horses of the western plains. He says:

"Bucking horses may be roughly divided into two classes—wild horses and rogues. The former buck from fear and hereditary instinct, the latter with cunning and deliberation, and the steady improvement of consistent application and practice.

"Of the two classes, the first is more dangerous. Their inherited fear of man makes them wild to approach, difficult to saddle and mount, and uncontrollable when mounted, becoming almost mad and blind with passion when unable to unseat their rider.

"The rogue, on the other hand, bucks with deliberate coolness and precision, uses no more effort than is necessary to dislodge the horseman, and never loses more than the average share of good looks. On the sheep and cattle stations of New South Wales and Queensland, the station outlaw is almost invariably the best looking horse on the place, and is distinguished for the excellence of his paces or for remarkable stamina.

"I saw Pin Ears, the famous western outlaw, ridden in Colorado; a handsomer horse never stepped. A rich bay in color, short legged, deep shouldered, shore backed, he was the impersonation of quality and strength and showed the perfect symmetry that makes the machine-like accuracy of motion and marvelous stamina. And he 'pitched' as prettily as he walked. He was full of guile and cunning, and the side lurch with which he unseated one well-known horseman was one of the daintiest moves in the game that I have ever seen.

"Of course, from the very nature of his calling, the outlaw is generally in good condition, and therefore looks well; but the fact remains that he is usually a horse of good build, too; and all the worst-tempered horses I can recall in my experience have been as pretty as pictures. I am ready, however, to admit that the rule has its exceptions.

"It is not true that all buck-jumpers are mean spirited and cowardly. On the contrary, many of them, like the human rebels they resemble, are the very impersonation of pluck and courage, and any horseman who has owned and mastered an outlaw can testify that from no other has he won such loyal service and ungrudging labor or such true and lasting regard."

THE VALUE OF A TON OF SILAGE.

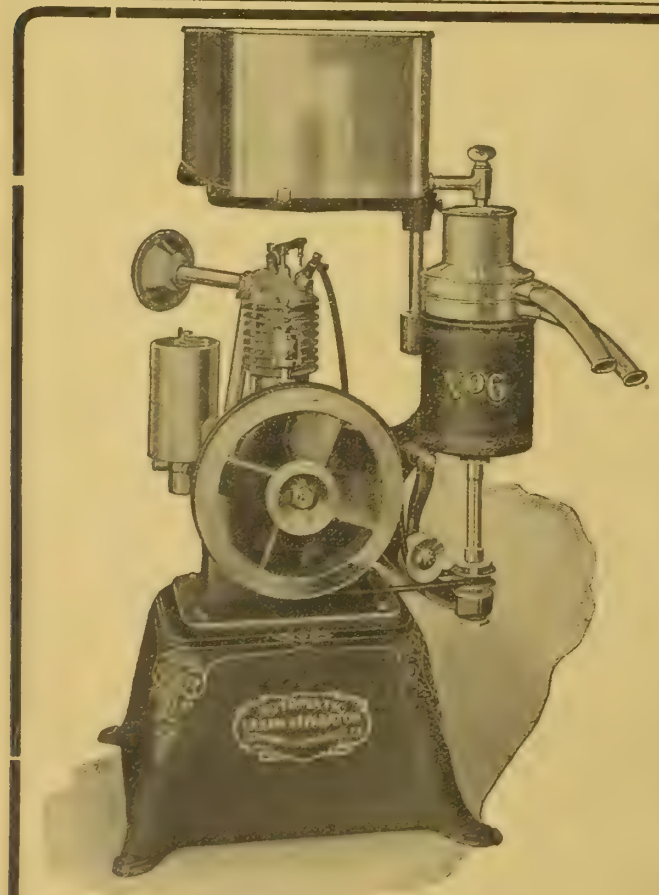
Silage, being so rarely sold, has no definite market value. The average cost of production of a ton of silage under corn belt conditions is about $2. Its feeding value, as compared with other feeds, has never been completely determined. It is rather difficult to compare it with such feeds as corn, oats and hay, since silage has a peculiar value on account of its succulence. The Maine station compared silage with mixed hay for dairy cows, finding that 100 pounds of mixed hay (mostly timothy) were equal to 440 pounds of corn silage. The conclusion was that with timothy hay selling for $10 per ton, corn silage is worth about $2.60 per ton for dairy cows. The New Jersey station compared corn silage with corn fodder, finding that for milk production a pound of corn fodder was about equal to two and three-fourths pounds of corn silage. With corn fodder at $8 per ton, this would give a feeding value to corn silage for dairy cows of about $3. At the Nebraska station it was found that corn silage was slightly superior, pound for pound, to sugar beets for milk production. With sugar beets at their present price of $5 per ton, this would give corn silage a value of slightly more than $5. Many loose estimates, ranging from $2 to $6 per ton, have been placed upon silage. Until a market price has been established for the stuff, we would think that a fair basis of selling would be the entire cost of production per ton, plus a reasonable profit.—Wallace's Farmer.

Under California. conditions and prices, silage would be worth materially more than in the East.

HEAVES.

There is no sure cure for an advanced case of heaves. Much can be done, however, to relieve the trouble. Some of the heave remedies now on the market have given excellent satisfaction when given before the disease progresses to any great extent. All medical treatment for heaves should be accompanied by a careful dieting. Only the very best quality of roughage should be given, and that only in small quantities. One veterinarian recommends avoiding dusty hay by feeding wet oat straw in winter and grass in summer. Another suggests cutting and dampening the hay. Helpful precautions are to water before and never after a meal. Horses affected with heaves require nearly twice as much rest after eating as ordinary horses. As a medicine, one-half ounce of Fowler's solution given morning and night in the drinking water, is recommended as good.—Wallace's Farmer.

California produces the only English walnuts in the United States; Orange county claims to produce 40 per cent of all grown in California, aggregating about $1,000,000 to the growers.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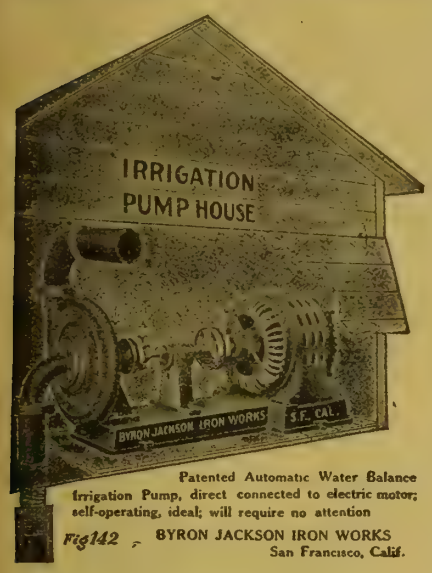

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There is an old saying that "Nature abhors incestuous mating." In a measure this is true, but not in the sense which most people think it. Animals which have many strong qualities and but few weak ones when bred together intensify their strong qualities in the offspring. Thus it is that in the hands of a master breeder, inbreeding may be used to secure the most rapid improvement. But by breeding together animals that have several weak points in common, the undesirable points are intensified just as surely as are the strong ones, and the ultimate extinction of animals so bred is rendered quite certain. Possibly to this is due the failure of some of Thomas Bates' strains of Shorthorn cattle. In his inbreeding he apparently overlooked at times the qualities of constitution and ability to reproduce (breeding capacity). At any rate, some of his most famous strains were strongly inclined to be infertile.

In the hands of the real breeder, inbreeding is one of the most rapid methods of improvement, but in the hands of a careless breeder it is a most certain road to deterioration. A man who is breeding rather mediocre stock, especially if it be of scrub blood, should never use inbreeding. A man who has an excellent quality of stock and a particularly outstanding individual may sometimes practice inbreeding to great advantage. Any man who is thinking of following the practice of inbreeding extensively should read up on the work of the founders of our prominent breeds of stock, and should study the principles of heredity.—Wallace's Farmer.

Prior to about the year 1870 the Poland-Chinas averaged larger than now, were inclined to coarseness, or sponginess of bone, had much heavier, drooping ears, and were spotted with about even proportions of black and white. Since then the tendency each year has been to breed them with more black, until now those in highest esteem have identically the color and markings so long characteristic of the Berkshires, viz., solid black, with white feet, white tip of tail, a little white on or about the face and jowl, and occasionally a splash of white elsewhere. Their ears are medium or small in size, but still drooping, and are pliable and silky. A. C. Moore of Fulton county, Illinois, and D. M. Magie, of Butler county, Ohio, were the men who, by judicious selection, careful breeding and extensive exhibiting and advertising, probably did most to bring this stock of hogs in its early days, to wide and favorable public attention.—From Coburn's "Swine in America."

Abundant hair on swine, lively and somewhat fine and soft, growing out of a pliable skin, which is neither thick nor papery, and free from mangy conditions, tells the story of robust health, vigor, thrift and active circulation. The ideal hog should not be sleepy and sluggish, nor, on the other hand, restless and uneasy. Free action and a bright, sprightly manner are signs of good digestion and good health. If he is a comfortable, good-natured, friendly creature, wide-awake, disposed to visit with his owner instead of running away from him, and has the other points of excellence mentioned, he can scarcely fail to be a joy to his possessor and approximate, in the eyes of many, a thing of beauty.—From Coburn's "Swine in America."

In many phases of swine husbandry the question of location or climate has an important bearing. Where mild weather is apt to be the rule in late fall and early spring, breeding for two litters a year will obviously be considered in a different light than in a section much further north. The breeder in Canada or on the Atlantic coast will modify many matters regarding breed or feeds that are accepted gospel in the corn belt. Locally, the extent and kind of pasture at the breeder's disposal, like his other facilities and resources, will, to a greater or less extent, influence his practices.—From Coburn's "Swine in America."

Utah alfalfa growers have declared war on the alfalfa leaf weevil; this pest has almost ruined the alfalfa interests of the state. The last Congress appropriated $25,000 to study methods of destroying it.

One ranch of the Kern County Land Company is now supporting 700 head of cattle on a half section of land. This is considerably better than two head to the acre.

Live Stock Inspector Gordon of Kings county says that the reports of dogs and other animals dying of rabies are untrue and that poison has been the sole cause.

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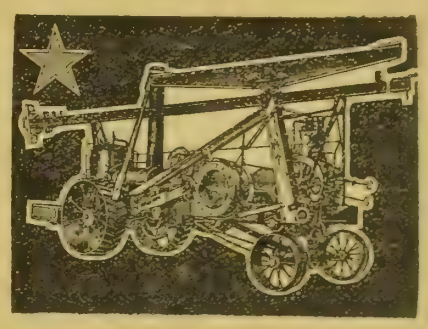

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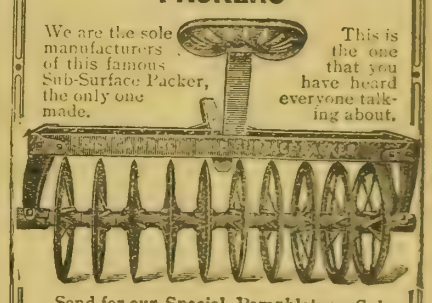

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Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all corespondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,422 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, April 20, 1911

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BETTER OUR HOME CONDITIONS.

In a farmers institute held in Central Illinois last month, at a session devoted to women's work on the farm, the statement was made that many farms which are well supplied with labor-saving implements for men's work show the woman's workroom, the kitchen, meagerly supplied. Many of the homes are small and cramped, while the barn is large, with every possible convenience; some have no sink, and the well from which all water must be carried is a long distance off; often there is no woodshed, even no woodpile; seldom a kitchen range; the one sure feature of the woman's work being that she has "board, clothes and a steady job." The session was devoted to the necessity of scientific knowledge and more conveniences for the farm mother. The city and the village are forced to insist on hygienic conditions to preserve life, but on the farm the necessity is not so apparent, and the matter is allowed to drift along without hygienic precautions or conveniences. We do not believe California homes are as illy furnished as the majority of Eastern farm homes, for as a rule a different class is found here, and home life is made more of, but we believe there is opportunity for improvement even in California rural home life.

ADULTERATED ORANGES.

The U. S. Department of Agriculture has issued food inspection decision 133 in which adulterated oranges are defined. It is interesting reading for some of our early orange shippers. Under this act "an article of food is adulterated 'if it be mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed.' It is the opinion of the board that oranges treated as mentioned above are colored in a manner whereby inferiority is concealed and are, therefore, adulterated. These oranges having been shipped of a green, immature citrus fruit are thus held to be artificially colored, and the evidence shows that the change in color has not added to the sugar or acid content, neither has it made the fruit any more wholesome, while fruit remaining on the tree during the same period had increased its sugar content." The decision further adds that the use of such immature oranges is apt to result in serious disturbances of the digestive systems of children.

It is unfortunate that it takes a decision of the Department of Agriculture to instill common commercial honesty into our business methods, but that it is better than to continue shipping green oranges.

THE MAN BEHIND.

A meeting of orange growers was held at Tampa, Florida, a few days ago at which an address was made by Mr. Stubenrauch on the subject of decay of oranges under shipment. The address followed much the same lines as similar addresses by Mr. Powell, Mr. Stubenranch and others in this state, in a general way impressing the fact that greater care must be used by both picking and packing crews. During the address a grower asked the question as to what kind of clipper did the best work. Mr. Stubenrauch answered, "The clipper does not matter so much as the man behind it. Good work is done by all kinds of clippers and poor work with some good clippers." Later the speaker added that he had seen four or five per cent of cliper cuts with an implement which was supposed not to be able to make any cuts, so the matter of less decay, whether in California or Florida, comes back to the intelligence and carefulness of grower, teamster, grader, packer, and, in fact, everyone who has to do with the handling of the fruit.

WARNING.

We are informed by subscribers that agents of a mail order monthly publication are soliciting subscriptions, assigning as a reason that the Cultivator has been absorbed by the aforesaid publication; that subscribers to their paper will secure all that would otherwise appear in the Cultivator. These misrepresentations are made by irresponsible agents and we will appreciate any information our subscribers may send to us as to these statements. So far as we have learned such statements have been made in the neighborhood of Pomona, Lordsburg, Claremont, Uplands and along the foothills as far east as Highland in Southern California. The regular traveling agents of the Cultivator Publishing Company carry printed blank receipts and letters of authority signed by the Cultivator Publishing Company. The Cultivator has not been absorbed by any other publication, as stated by these solicitors and certainly we would not make any arrangement with any other monthly or weekly publication. The Rural Californian is the only monthly publication connected in any way with the California Cultivator.

POWER SITES IN NATIONAL RESERVES.

The forest service has recently adopted as one of its rules that fifty-year power site permits may be granted. Heretofore permits were revocable, but the new form of permit, while subject to various restrictions and regulations, plainly gives the company receiving it assurance of continuance. This protects capital and encourages the advancement of the country, and we do not see wherein exception can be taken to it. Under this regulation the rates to be paid to the government for these power sites are ten cents per horsepower the first year and ten cents per horsepower added each year thereafter up to ten years, when it remains at $1.00 per horsepower. It is estimated by engineers of the forest service that in California there are 300,000 horsepower undeveloped in the reserves.

RAISIN DAY.

Saturday, April 29th, is the day fixed for observation of Raisin Day, and it is hoped by the committee in charge that people will enter into it even more enthusiastically than similar days in the past. The committee has given out information in effect that a pound of California raisins represents a food value equal to six pounds of apples, five pounds of bananas, four and one-fourth pounds of potatoes, one pound of bread, four pounds of milk, almost five pounds of fish, and is even better than one and one-third pounds of beef. Besides their actual nutritive value, their medicinal value is great. Statements like these attract attention to this most healthful food which can but help the industry, and we believe proved helpful to those who are induced to eat more raisins.

Orange county boasts the largest onion ranch west of the Mississippi. It belongs to Mr. George Hall, and has sixty acres. Mr. G. A. Murdock is also one of the heaviest producers of onions in that county. Mr. Murdock shipped last year 140 tons of onion sets. This year's shipments will be greater.

Orange county papers are advising bean growers to refrain from contracting their crops in advance. Unless the grower is compelled to have an advance on his crop he should surely take this advice. The orange grower has proved this out to his satisfaction; even selling f. o. b. was proved to be a delusion and a snare; on a firm market the fruit was accepted and nothing more heard from it, but with a declining market it suddenly became "decayed" or some good reason appeared for its rejection. This forced the loss on the producer and gave the buyer all the advantage of the profit. Under the present selling delivered plan the grower takes his medicine on the declining market, but has the satisfaction of knowing that the advancing market redounds to his own profit. Let the bean men be as wise.

Every week many letters are received by the query department showing that subscribers have not read their papers carefully enough to notice that the question asked was answered fully in a recent issue. A complete article on a subject one week is no surety against receiving a request to answer that same question a week or two later. This necessitates much duplicating, which could be prevented if readers would file their papers—and save them much time in waiting for the information wanted. It is worth while to bear in mind that the semi-annual indexes make articles easily available long after the date of issue.

A reduction of the freight rate on citrus fruits from $1.40 to $1.15 is what the deciduous fruit growers have been working for for many years. It has finally been granted by representatives of the transcontinental lines who had the matter presented to them by a committee representing the State Fruit Growers Conventions, which has been working on the problem for years. The new rate will apply only to car lots and 26,000 pounds is the minimum shipment. The reduced rate will make a difference of $80,000 annually in favor of the deciduous growers.

Mr. George Robertson, formerly statistician of Fresno county, has been appointed to the newly created office of state statistician which is to be in connection with the state board of agriculture. Mr. Robertson will move to Sacramento to take up his new work for which he is eminently fitted, and which we doubt not he will take pleasure in perfecting.

Complaint comes from the Florida orange groves that the drouth is costing the growers a large amount of money. It has compelled earlier marketing of the fruit than anticipated, as many orchardists had aimed to hold until the heavy rush of California navels was off, but the drouth compels immediate picking to prevent shriveling of the fruit.

San Diego has a new enterprise in a sterilizing company which has a process of applying steam to ordinary stable and dairy manure, thus heating it to a degree which absolutely kills weed seeds, insects and fungus infestations. It is said to even increase the nutritive value of the fertilizer, while eradicating all pests.

Already the dried fruit producers of Orange county are planning a campaign for more perfect organization. A boost was given to the market last year by the action of this same organization, and we trust it may be the leader in the forming of other state associations, or a number of similar associations which will affiliate.

Agricultural News Notes of the Pacific Coast

Northern California

June 16 and 17 are dates selected for Oroville's Water Carnival.

The cherry crop of Solano county will be exceptionally late this season.

The annual picnic of University Farm at Davis is to take place on Saturday, May 6th.

Four hundred acres have been planted to cherries in one body at Wilton, Sacramento county.

A petition for the formation of an independent drainage district near Tudor, Sutter county, has been filed.

The peach crop of Butte county promises to be large and the present indications are that prices will be good.

With its first railroad in operation, Alturas, Modoc county, hopes for an outlet for its fruits, especially apples, which are grown to perfection.

The Plant Introduction Garden at Chico, Butte county, is sending out several tons of spineless cactus settings for experimental planting.

Farmers of Benicia, Solano county, are suing the Selby Smelting & Lead Co. for $14,000 for damage to live stock and family's health because of fumes.

At a meeting of the Petaluma Egg Exchange the members decided to suspend business and turn over their affairs to the Sonoma Fruit and Produce Company.

Butte county's horticultural commissioner reports that owing to severe storms the early part of the winter the crop of seedling oranges is forty per cent short.

The state board of health is making an investigation as to the ground squirrels of Butte county, especially with reference to their being infested with bubonic plague.

Owners of 13,000 acres of land in northern Glenn and southern Tehama counties will form an irrigation district under the Wright Act to secure water for their lands.

A combination has been formed of fruit shippers and growers under the name of Pacific Fruit Exchange, to be an independent marketing agency for the grower. It is capitalized at $500,000.

Central Creamery Company at Ferndale, Humboldt county, is pushing work on the big new dry milk plant which is the fourth of its kind in the United States; it will be ready for operation in a short time.

Citrus growers from Southern California made a trip of inspection over the orchards of Butte county and other sections of the Sacramento valley. It is reported that extended purchases of land may be made.

A mammoth dredger is on its way from the East to build levees to protect 60,000 acres of land reclaimed and colonized by the Natomas Consolidated. The lands are above Sacramento between the Bear and American rivers.

Spraying outfits of Butte county are busy on red spider, but unfortunately the attack was much earlier than usual owing to warm weather the latter part of March which hastened their maturity, and this has caused material loss to many fruit growers.

Central California

Hanford, Kings county, shipped a full car of eggs to Los Angeles one day last week.

The Fresno County Union has named a committee to investigate system of better roads for that county.

A Fresno fruit growers company has made arrangements to build and operate a large fruit packing house at Kerman.

The public school raisin day contest brought competing essays from 240 schools, many of which were east of the Rockies.

Peach men near Hanford, Kings county, sprayed extensively for peach leaf curl, which has heretofore been a serious pest.

Some of the lower orchards of the Pajaro Valley have been badly damaged because of silt deposited during the recent storm.

A Carnival and Products Exposition is planned for Merced May 16-20. The plan is to make it rival any similar exhibit made in Central California.

The Apple Annual Association of Watsonville is discussing the advisability of holding a flower show in connection with the next Apple Annual.

Kings County Bee Keepers Association held a meeting at Hanford last week, the principal subject of discussion being purchase of cans and cases.

The Pacific Coast Nurseryman's Association is to convene in San Jose, June 21st. George C. Roeding of Fresno is President of the association.

The Santa Cruz Poultry Association is establishing a buying agency through which members propose to secure all their poultry supplies and feed.

County Horticultural Commissioner Sharpe of Kings county reports some prune orchards showing severe early drop. On the whole he thinks a fair crop may be secured.

One bunch of 40,000 orange trees has been inspected at Porterville before forwarding to Terra Bella where they are to be planted. That district will plant about 2000 acres this season.

The state horticultural commissioner has appointed the county horticultural commissioners of 37 counties of the state to be quarantine guardians in their respective counties.

A committee of egg producers at Watsonville, Santa Cruz county, is investigating claims of an egg preservative which is promised to maintain eggs in good condition for a year or more.

The superior court of San Joaquin county has sustained the validity of the organization of the South San Joaquin Irrigation District. This act will validate bonds to the extent of $1,875,000.

County Horticultural Commissioner W. H. Volck, of Santa Cruz county, is sending out a great fund of information on various pests, and remedies for them. His last bulletin is on the canker worm pest.

The 12th annual Blossom Festival at Saratoga, Santa Clara county, was even more successful than any of its predecessors. It is estimated that 10,000 people from various parts of California were in attendance.

Southern California

A Riverside orchardist is using his automobile to do his spring plowing.

Corona, Riverside county, has secured the establishment of an alfalfa mill.

Calexico, Imperial county, offers free irrigating water to all property owners who will plant street trees.

Bee Inspector Wagner of Imperial county states that conditions for an unusually good crop of honey are excellent.

Ten thousand pounds of cotton seed have been shipped from El Centro into the Palo Verde Valley in eastern Riverside county.

Work is moving rapidly on irrigation ditches and general improvement of the irrigation system at Blythe, Palo Verde Valley.

The Mentone Heights Orange Company of San Bernardino county has decided to set 100 acres of oranges and lemons this spring.

A tract of 3500 acres in the Coachella Valley has been purchased by 300 Swedes who will operate it on a community or socialistic plan.

A meeting of alfalfa men was held at Arlington last Friday night to continue the formation of the Alfalfa Growers Selling Association.

Irrigators of Riverside and Orange counties have a force of men diverting over 20,000 inches of water of the Santa Ana river to gravel lands.

The bean growers of Sawtelle, Los Angeles county, anticipate the greatest bean output ever; last season's shipment aggregated 100 carloads.

Hay growers at San Jacinto, Riverside county, are starting their mowers on the earliest and biggest hay crop that section has ever raised.

The Pala Indians have just been alloted their lands, each Indian receiving 3¾ acres of irrigated land and 6 acres of grain land. There were 416 allotments.

Orange county lima bean growers are looking with cold indifference at the offers of $3.55 per hundred. Some independent buyers are especially anxious and have offered as high as $4.50 to $4.60.

The federal live stock inspector located in Imperial Valley fears that many tuberculous cows have been shipped into that section. The county supervisors are considering rigid rules regarding tuberculin tests.

Lemon growers note with some amusement the effort of the importers to create sentiment in favor of free lemons by pasting on boxes of imported fruit: "If lemons were free, this box would cost you $1.25 less."

The Chuckawalla Development Company has begun its final surveys for the intake and storage reservoirs. Twenty men are employed in this surveying corps. This system will carry water to nearly a quarter of a million acres in eastern Riverside county.

The Ventura County Dried Fruit Association has been incorporated with a capital stock of $50,000. The following are the directors for the first year: John Dent, William T. Neel, John W. Burson, F. E. Bagnall, A. L. Shively, A. Everett, Joseph Hobart, H. Warring and Allan Fraser.

The Coast

Portland will hold a Rose Festival June 5-10.

Sheep shearing at Walla Walla, Washington, began last week.

Colorado estimates an output of 10,000 cars of apples this year.

The Horse show at Salem, Oregon, was held last Friday and Saturday.

Extensive plantings of flax will be made on farms around Helena, Montana.

Muskmelons produced in Sinaloa, Mexico, are selling in Los Angeles at $1.00 each.

The second week of April saw land near Spokane, Washington, freeze so hard that plowing was stopped.

Horsemen of Pullman, Washington, are concerned over a serious disease causing much loss of young colts.

A train of 25 carloads of wheat of last year's crop was taken out of the Palouse country one day last week.

Big sales of reapers and mowers are being made by dealers at Hermiston, Oregon, to handle the greatly increased grain and hay crops.

The fifth annual Whitman County Horse Show at Colfax, Washington, last week brought out the finest exhibit of horses ever made in that section.

The United States Indian Service is favoring the building of the Wapato irrigation canal which will cover 140,000 acres of the Yakima Indian Reservation.

Farmers at Pullman, Washington, have made so general a fight on the ground squirrel pest that some farmers claim they do not see one in a day's ride.

A movement is under way to build a short-cut road from Prescott, Arizona, to Mint Valley, to connect with one of the best fruit growing sections in the state.

The creamery at Clear Creek, Oregon, reports an income of $663,000 and an average price paid for butterfat of 34 cents. The average price for butter was 21½ cents.

Walla Walla, Washington, was visited by the worst storm of the season last week; it will probably kill every peach, apricot and cherry in the valley, but grain farmers will be benefited.

The first wool sale of the year at Portland, Oregon, was made last week, when 100,000 pounds changed hands at prices from 9½ to 13 cents. The opening prices last year were 12½ to 16 cents.

The most valuable natural resources of the Island of Mindanao, P. I., are from the forests; some of the products are, gum, copal, guttapercha, tanbark, rattan. The most striking are orchids, many most rare ones being produced there. About 60 per cent of the area of the island is still in the native forest.

Farmers of Nez Perce county, Idaho, are embarrassed by rulings of the state board of equalization for a system by which they are compelled to pay the exorbitant tax of five to six dollars per acre per year. Other farmers renting land adjoining pay the usual rental of only $3.00 an acre. If the law is enforced it is claimed it will confiscate thousands of acres.

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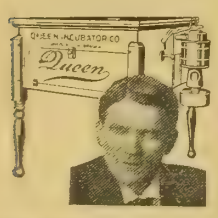

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Practical Poultry Culture

TRAP NESTS.

In the Cultivator of nearly two years ago the following article on trap nests appeared, and now we have requests for copies of the article, which is out of print. We ask indulgence of other readers while we reprint for the benefit of those who have not preserved former copy. The article was a reprint of a bulletin of the Maine Station.

In all the experimental work with laying hens at the Maine Station use is made of trap nests. During the past year a new type of trap nest has been devised which is proving extremely satisfactory. The features in which this nest is superior to the type formerly used at the station are (1) certainty and precision of operation; (2) greater simplicity of construction, with less tendency to get out of order and work badly; (3) saving of labor in resetting the nest after use.

The nest is a box-like structure, without front, end, or cover, 28 inches long, 13 inches wide, and 16 inches deep, inside measure. A division board with a circular opening 7½ inches in diameter is placed across the box 12 inches from the rear end and 15 inches from the front end. Instead of having the partition between the two parts of the nest made with a circular hole, it is possible to have simply a straight board partition extending up 6 inches from the bottom, as shown in figure 1. The rear section is the nest proper.

The front portion of the nest has no fixed bottom. Instead there is a movable bottom or treadle which is hinged at the back end (figure 1). To this treadle is hinged the door of the nest. The treadle is made of ½-inch pine stuff, with 1½-inch hardwood cleats at each end (figures 2 and 3) to hold the screws which fasten the hinges. It is 12 inches wide and 12¼ inches long. Across its upper face just behind the hinges holding the door is nailed a pine strip 4 inches wide, beveled on both sides, as shown in figures 2 and 3. The door of the nest is not made solid, but is an open frame (figures 1 and 3), to the inner side of which is fastened (with staples) a rectangular piece of ⅛-inch mesh galvanized screening (dimensions 8 by 9 inches). The sides of the door are strips of ¾-inch beech stuff 12 inches long and 1½ inches wide, halved at the ends to join to the top and bottom of the door. The top of the door is a strip of hardwood 13 inches long and 1½ inches wide, halved in 2¾ inches from each end. The projecting ends of this top strip serve as stops for the door when it closes (figure 1). The bottom of the door is a hardwood strip 10¼ inches by 4 inches. The side strips are fitted into the ends of this bottom strip in such a way as to project slightly (about 1-32 inch) above the front surface of that strip, for a reason which will be apparent.

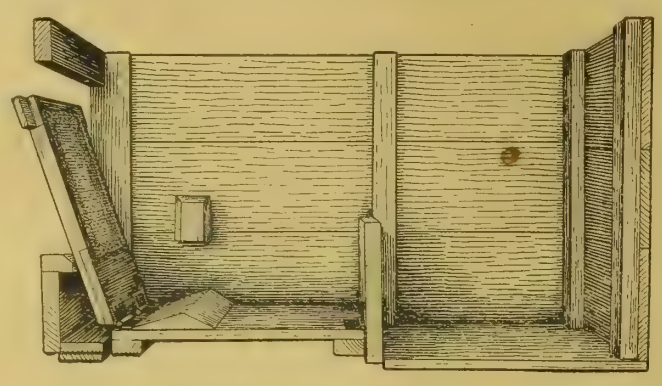

Fig. 3.

When the nest is open the door extends horizontally in front, as shown in figure 2. In this position the side strips of the door rest on a strip of beech 1½ inches wide, beveled on the inner corner, which extends across the front of the nest. This beech strip is nailed to the top of a board 4 inches wide, which forms the front of the nest box proper. To the bottom of this is nailed a strip 2 inches wide, into which are set two 4-inch spikes from which the heads have been cut (compare figure 2). The treadle rests on these spikes when the nest is closed. The hinges used in fastening the treadle and door are narrow 3-inch galvanized butts with brass pins, made to work very easily. It is necessary to use hinges which will not rust.

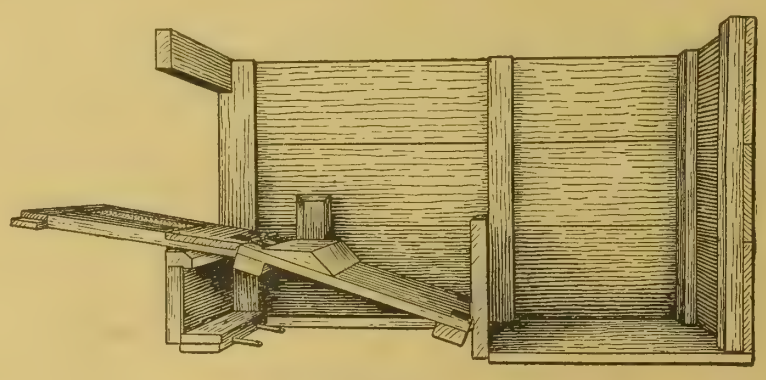

Fig. 2.

The manner in which the nest operates will be clear from an examination of figures 2 and 3, which show a sample nest with one side removed to show the inside. A hen about to lay steps up on the door and walks in toward the dark back of the nest. When she passes the point where the door is hinged to the treadle her weight on the treadle causes it to drop. This at the same time pulls the door up behind her, as shown in figure

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3. It is then impossible for the hen to get out of the nest till the attendant lifts the door and treadle and resets it. It will be seen that the nest is extremely simple. It has no locks or triggers to get out of order. Yet by proper balancing of door and treadle it can be so delicately adjusted that a weight of less than half a pound on the treadle will spring the trap. All bearing surfaces are made of beech because of the well-known property of this wood to take on a highly polished surface with wear. The nests in use have the doors of hardwood, in order to get greater durability. Where trap nests are constantly in use, flimsy construction is not economical in the long run. For temporary use the nest door could be constructed of soft wood.

The trap nests are not made with covers because they are used in tiers and slide in and out like drawers. They can be carried away for cleaning when necessary. Four nests in a pen accommodate twenty hens, by the attendant going through the pens once

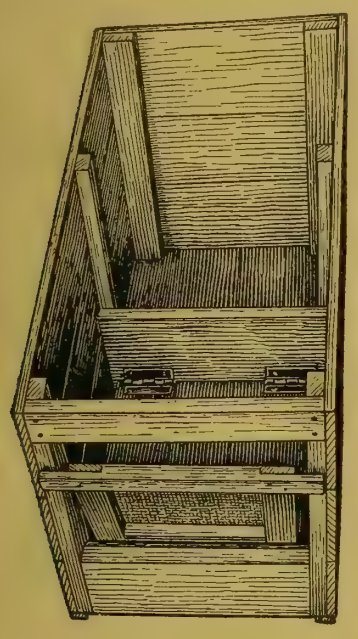

Fig. 1.

an hour, or a little oftener, during that part of the day when the hens are busiest. Earlier and later in the day his visits are not so frequent. The hens must all have leg bands in order to identify them; a number of different kinds are on the market. The double box with the nest in the rear is necessary. When a hen has laid an egg and desires to leave the nest, she steps out into the front space and remains there until she is released. With only one section she would be likely to crush her egg by stepping upon it, and thus learn the pernicious habit of egg eating.

To remove a hen, the nest is pulled part way out, and as it has no cover she is readily caught, the number on her leg band is noted, and the proper entry made on the record sheet. After having been taken off a few times the hens do not object to being handled, most of them remaining quiet, apparently expecting to be picked up.

Before commencing the use of trap nests it was thought that some hens might be irritated by the trapping operation and object to the noise incident to it, but such does not seem to be the case. Trap nests have been used at the Maine Station for Leghorns, Brahmas, Wyandottes and Plymouth Rocks.

The amount of time required in caring for the trap nests can only be estimated, since the attendant's time is divided with other duties. The time varies from one day to another and with the number of nests in use. By noting the total time used each day in caring for the nests when the hens were laying most heavily, it has been estimated that one active person devoting his entire time to trap nests could take care of 400 to 500 nests used by 2,000 to 2,500 hens. When commencing the year's work he would need assistance in banding the birds, but after that was done he could care for the nests without assistance until midsummer, when the egg yields would probably be diminished and a part of his time could be spared for other duties.

ANOTHER GOOD EGG RECORD.

I read with much interest the article from Mr. E. B. Stone in recent Cultivator, giving egg record and feed for hens. I would say it is a fine record. I have not kept a record for so long but can give results so far. My hens began laying about February 1st. During February my first pen of five hens laid 105 eggs; to date in March (17th) 52 eggs, and the second pen May hatched pullets, laid in February (three hens) 152 eggs, in March to 17th, 122 eggs. I suppose others have much better records, but if they keep this up long enough it will make a very satisfactory record to me.

I feed soaked barley in morning and Egyptian corn at night. Then feed in hopper as dry mash equal parts of bran and shorts with one-sixth part added of meat scrap. This they can run to all the time. The grain I feed according to the appetite of hens.—G. L. Hawley, Madera.

Every breeder should study the standard and become familiar with their breed. This is the only way to breed up your strain. One can not discard poor breeding fowls unless one knows the faults of the birds. It is very important that you know your own breed if you expect to stay in the poultry business.

A mixture of sulphur, lard and coal oil, applied warm with a brush, is a sure cure for scaly legs. Apply twice at intervals of a week, being sure at the same time that all insect life is killed on perches.

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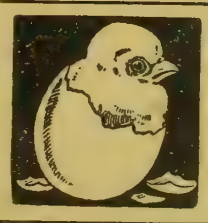

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KING COTTON

(Continued from Page 483.)

ico, 852, and Imperial, 802. With the coming season this will be increased, as the area planted is estimated at 50,000 acres. Also it is hoped that there may be an increase in painstaking care. As may be noted in the above quotation, while 15,000 acres were planted, there were about 10,000 which had "reasonably proper care." Such a proportion is out of all reason and shows the proneness of humans to enter into enterprises which promise well without due consideration or preparation. The buying of good seed, putting it into good ground and applying good water, and then not following these various steps intelligently to the end, is worse than a blunder. It has been stated that land values in the Imperial are too high for "shotgun" methods of culture.

Besides the immediate industry of cotton growing and ginning, an oil mill has become one of the money-saving adjuncts. The labor question seems to have solved itself between American pickers and an occasional Mexican or Indian. A few colored pickers have been induced to come from Southern localities, but their help has not been found necessary.

MEXICO AS A COTTON PRODUCER.

Mexico has long been a producer of cotton, but the primitive methods and lack of any effort on the part of the people to extend the planted area have so far made Mexico count but little in the world's production of cotton. All of this promises to change, however, as American farmers now in Mexico are making a specialty of cotton and proving that this staple can be produced economically and at a very satisfactory profit.

The most important development in the growing of cotton in Mexico, fostered by Americans, is that now in progress in the Yaqui Valley, in the state of Sonora. Here there is a large and prosperous colony of American farmers, nearly all of whom are Californians. Experiments have been conducted on an extensive scale for two years in the growing of a number of varieties of cotton, and the results have been more than satisfactory. This season the American farmers in the Yaqui Valley are planting about 2,000 acres of cotton. The larger part of the seed for this planting was shipped into Mexico from the Imperial Valley. As experimental plantings in the Yaqui Valley showed from 1½ to 2½ bales to the acre, the farmers there are confident of averaging not less than one bale to the acre. A cotton gin is now being erected near the town of Yaqui. If this season's work proves profitable, there will be no less than 10,000 acres of cotton in the valley next year.

Cotton in the Yaqui Valley will be grown almost entirely under irrigation, as is done in the Imperial Valley. Cotton is planted in the Yaqui from April 15 to June 1, and is irrigated until the summer rains in July and August. Usually these rains are sufficient in volume to mature a cotton crop. During the picking season, however, there is no rain, and the cotton may not only be handled in a leisurely manner, but it will be safe from the injury that frequently results in the South because of heavy rains during the picking season.

The American farmers in the Yaqui Valley claim a great advantage over the cotton growers of the United States in the low price of their labor. It has been demonstrated that the Mexican cotton picker handles about as much cotton in a day as the negro picker of the South. The advantage lies in the fact that the Mexican laborer is paid only from 50 to 75 cents per day in American money. In the cultivation of the crop and in all other work attendant upon its production, Mexican labor is used, and this evidently will result in a further advantage to the American farmer now in the Yaqui Valley.

In the matter of price, these Yaqui Valley farmers expect to do as well or better than the cotton growers of the South, as Japanese cotton buyers have already agreed to take the entire crop. The growers will have to ship the cotton only seventy-five miles by rail to the Port of Guaymas, where it can be put on ships for the Orient, or for any other of the world's markets.

SOME COTTON MILLS IN IMPERIAL VALLEY.

BRAWLEY.

CALEXICO.

HOLTVILLE.

EL CENTRO.

A Red Bluff stock raiser claims that section of Tehama county has a material advantage over most other sections because of excellent grass pasture for beef cattle; a bunch of steers were recently sold at an average price of $63.25 per head.

San Jacinto, Riverside county, has promise of an exceptionally good crop of honey.

READY FOR MARKET AT THE IMPERIAL GIN.

Irrigation and Forestry

BUYING EASTERN FOREST LAND.

The Department of Agriculture announces through a circular which is just coming from the press, that it is ready to begin operations looking to the purchase of land by the National Forest Reservation Commission created under the Weeks Law.

This law was passed with special reference to the creation of National Forests in the Appalachian and White Mountains. Under it the secretary of agriculture is to examine, locate, and recommend to the commission for purchase such lands as in his judg ment may be necessary for regulating the flow of navigable streams. The circular which is now being printed is intended to give information to the public as to where and what kinds of land are wanted. Owners of land the purchase of which will be considered by the government, are expected on the basis of this information to make known to the Forest Service, which will conduct the work for the Department of Agriculture, their desire to sell.

The law is not restricted to particular regions, except that lands may be bought only in the states whose legislatures have consented to the acquisition of land by the United States for the purpose of preserving the navigability of streams. The states which have already taken the necessary action are Maine, New Hampshire, Maryland, Virginia, West Virginia, North Carolina, Tennessee, South Carolina and Georgia.

The first lands to be examined for purchase will be in the Appalachian and White Mountains, which because of their altitude, steepness, and lack of protection are in a class by themselves. The area which is believed to need protection is much larger than the government can purchase. Much difference exists, however, between different parts of the region. Careful examinations which have been going on for the last ten years have proved that the conditions which affect stream flow to an extreme extent are to be found in relatively limited areas, which are scattered more or less widely. By careful selection it is believed that much can be done for the permanent improvement of the watersheds with the purchase of a relatively small part of the land.

Timbered lands may be bought either with the timber standing on them or with reservation by the owner of the right to cut the timber under certain rules to provide for perpetuation of the forest. These rules will form a part of the agreement for the purchase of the land. Since, however, the government can not pay high prices, it is not regarded as probable that much land bearing a heavy stand of merchantable timber can be bought. Culled and cut-over lands may be bought, as well as land covered with brush which is useful for watershed protection, burned land, and abandoned farm land, whether cleared or partially or wholly covered by young timber growth. Good agricultural lands will not be considered. Owners may reserve the right to remove valuable mineral deposits which are known to exist.

Proposals will be received for small as well as for large tracts, although small tracts can be examined only where the purchase of a considerable total of land in the same neighborhood is under consideration. With regard to the price which can be paid, Secretary Wilson indicates that the policy of the commission will be to make the money available go as far as possible. "For the most part," he says, "we shall have to buy cut-over lands or lands without much merchantable timber. I want to make it plain at the start that I shall recommend this class of land only when it is offered very cheap. Proffers of land at exorbitant prices will not be considered. I am frank to say that I hope to see a great deal of public spirit manifested by land owners. I expect some lands to be offered at merely nominal prices in order to aid the government in getting well started upon this wise and necessary policy.

"The lands acquired by the government will be held as national forests. They will be protected from fire and the growth of the timber will be improved as much as possible. The lands will not be game preserves, but will continue to be open to the public for hunting and fishing in accordance with the laws of the state in which they are situated. All their resources will be available for the public under reasonable conditions. Another point which I wish to emphasize is that we are not going to take from people their homes in order to put the lands into national forests."

WELL-DRILLING LORE.

The deepest well in the United States is near West Elizabeth, Pa. Its bottom is 5575 feet beneath the surface. The deepest well in the world is in Germany and is 6572 feet deep. A more remarkable well, perhaps, reaching a depth of 3600 feet, was drilled for petroleum in western China by primitive methods and by means of such crude appliances as a cable made of twisted strands of rattan.

These facts and much other interesting information concerning underground supplies of water and oil and methods of getting at them are given in a report entitled "Well-Drilling Methods," by Isaiah Bowman, just published by the United States Geological Survey as Water-Supply Paper 257. The report is comprehensive and well illustrated, covering 130 pages and containing plates and figures, and may be considered one of the semi-popular publications of the survey.

Sandstone Wells Among the Best.

All rocks contain some water, but some formations, such as the granites, carry only an inappreciable amount. Sandstone, on the other hand, has an absorptive capacity of a gallon or more of water per cubic foot of rock and is the best water bearer of the solid rocks. Wells sunk in sandstone are usually drilled and the water derived from that rock is seldom polluted. To those who are contemplating sinking wells or increasing their water supply from underground sources this report, taken in connection with another report recently published by the survey, "Underground Waters for Farm Use," will be of interest.

Chinese Are Pioneer Well-Drillers.

Water-Supply Paper 257 traces the history of well drilling from its earliest practice in China down to date and contains descriptions of the many methods of drilling now in use in the

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We have Killefer Cyclone Weeders of all sizes on hand. This is a most effective tool for keeping down the growth of weeds after rains or irrigating on orchard, beet, bean or grain land. Guaranteed to do twice the work with the same team of any other tool. As the knives overlap each other, it is impossible to leave anything in their course.

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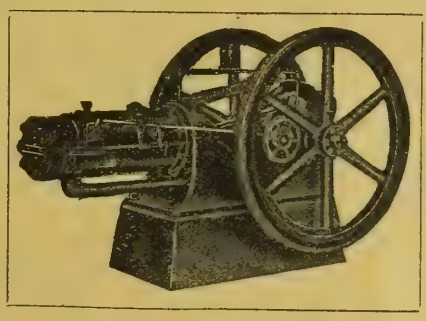

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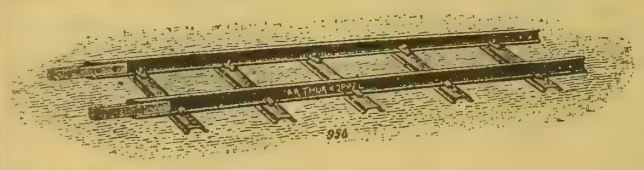

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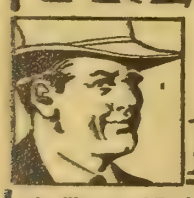

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ARNOTT & CO., 118 South Los Angeles St., LOS ANGELES, CALIF.

United States, including not only drilling for water but for oil and other resources. The credit of reducing well drilling to a science belongs to the Chinese, but in this, as in many other things, the Chinese engineers have made but slight improvement during the last century, which has witnessed so remarkable an advance in mechanical development in the United States.

Many Kinds of Well-Drilling Rigs.

Mr. Bowman regards the use of well casing as the greatest improvement yet devised for oil drilling and notes that holes can now be sunk safely and rapidly to a depth of 5000 feet. He describes the various tools and rigs required for different kinds of drilling, ranging from those required for the shallow hand-driven well of perhaps 20 feet to those used in drilling wells of maximum depth.

Methods of Recovering Lost Tools.

"How can work proceed when a drilling tool is lost in a deep well?" is a question which may often be asked by any person unfamiliar with methods of well drilling. The recovery of lost or broken drilling tools is, in fact, one of the most difficult features of well drilling. Simply to ascertain the nature of an accident which has occurred half a mile below the surface in a hole perhaps only six inches in diameter requires some skill. Many devices have been perfected for capturing lost tools, and the necessity for first learning the shape of the upper end of the tool and the position in which it lies in order to proceed to recover it has even led to the invention of a small camera which can be lowered to the bottom of the hole to take a photograph showing the conditions. Electricity is, of course, the agent employed in operating the device.

WATER POWERS OF THE CASCADES.

The perfection of methods for transmitting electric power over long distances—200 or even 300 miles—which has been attained during the last few years and the reported rapidity with which water power properties all over the United States are being acquired by corporations and individuals have brought sharply to public attention the great asset which the people of the country have in the undeveloped water powers of the public domain.

No area in the United States, it is believed by engineers, presents more favorable opportunities for the development of water power than that traversed by the Cascade range, a large proportion of which is still owned by the government. The general elevation of the summit of this great plateau is from 6000 to 8000 feet, and many of its lofty peaks extend into the region of eternal snow. Among these peaks are Mount Baker, Mount Rainier, Mount Jefferson, and Mount Shasta, all over 10,000 feet and two of them between 14,000 and 15,000 feet high. The streams draining the Cascade range have steep slopes and are fed during the low-water period by the many snowbanks and glaciers that mantle the high peaks or by the liberal supplies of ground water that exist in this region. The precipitation on the area is abundant, although its distribution is by no means uniform. The streams possess the features requisite for water power development—rapid fall, abundant water, and comparative uniformity of flow—and the almost unlimited resources of timber, mines and soil, as yet hardly touched, afford a promising market for these water powers and fix for them a high potential value.

The United States Geological Survey recently published, as Water Supply Paper 253, a report on the water powers of the Cascade Range in Southern Washington, by John C. Stevens. This is the first of a proposed series to be issued, one each year, dealing with the water powers of the streams flowing from the Cascade Range in Washington and Oregon. The evident interest in the subject of the report resulted in the almost immediate exhaustion of the edition, and it has just been reprinted and can now be obtained by application to the director of the survey at Washington.

Important Power Streams.

The streams considered in this report are Klickitat, White Salmon, Little White Salmon, Lewis, and Toutle rivers, and other streams in the drainage basins of these rivers, all of which were surveyed under the direction of Mr. Stevens by engineers employed by the United States Geological Survey and by the State of Washington, acting in co-operation.

These streams are all tributaries of the Columbia. The most important of them, considered as a source of power, is Klickitat River, which will furnish 154,000 horsepower at low water. The survey of the Klickitat covered 73 miles and included a total fall of 3255 feet. The White Salmon, Lewis, Toutle and Little White Salmon take rank as sources of water power in the order named.

Enormous Water Powers Involved.

The entire system of streams surveyed will afford about 395,000 horsepower. The total water power available in the Columbia River Basin has been estimated at 10,500,000 horsepower, so that the region covered by this first report will furnish only 4 per cent of the enormous aggregate, yet even this small percentage is five times the amount of water power already developed in the state of Washington.

The report contains descriptions of the rivers named and of their important tributaries, with tables showing stream discharge, the results of an extensive system of stream measurements, location of water power sites, and the amount of power available at each site, annual mean and minimum discharge of representative streams of the northwest Pacific coast, and rainfall at numerous places in Washington and Oregon, also a summary of the water laws of Washington.

A valuable portion of the report is a series of plans and profiles showing the course and gradient of each stream surveyed.

WATER SUPPLY OF THE GREAT BASIN.

The Geological Survey's census of the water resources of the United States is contained in a series of its reports called "water-supply papers," the latest issue of which, No. 270, is devoted to the waters of the Great Basin, comprising western Utah, nearly all of Nevada, and parts of Idaho, Oregon and California. The report describes the general features of the basin and gives the discharge of the most important streams of the region as shown by measurements made at numerous stations during the year 1909.

Water Used Chiefly for Irrigation.

In this arid region water is precious and is applied mainly to irrigation. The Truckee-Carson and Strawberry Valley projects of the United States Reclamation Service and a number of private projects are designed to utilize the waters of some of the streams measured. Three of the streams—City, Parleys and Emigration creeks—furnish most of Salt Lake City's water supply.

Water Powers Unutilized.

The flow of some of the streams has been used to generate electric power, and there are many unutilized sites for good power plants. The report notes that more than 100,000 horsepower is available without storage in Owens River basin alone. Three power plants installed on Truckee River generate about 2,500 horsepower each.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Gophered Trees.

How should I treat orange trees that have been gophered?—Subscriber, Corona.

We have seen trees that were gophered for several inches above and below the surface of the soil, which were found soon after the mischief was done. Around them was packed a quantity of moist soil, kept moist for several days. Grafting wax applied soon after the injury may be equally as effective. As noted, these

Bridge-grafting of a girdled trunk.

treatments are for a fresh wound which will granulate and form new bark especially if the wound occurs when there is full sap, and the tree afterward will scarcely show its injury. The case observed fortunately occurred at growing season; in dormant season the healing could not take place and the bark may die before the growing season comes. If the wound is so deep that the inner bark, or even the sap wood is gnawed away, or if the wound has thoroughly dried, it is impossible to induce granulation and build up the bark. Then the only salvation is to carry the sap from the root to above the wound by bridge grafting. We have seen this done where the sap was carried in this way to maintain tne life of the tree while the bark grew both from above and below until union was formed. This is a delicate operation, but with care successful.

Root Knot.

How can I prevent black rot in my orchard? The trees are old and when I remove them and plant young trees instead, they grow slowly and many die. The trees are peaches and apricots.—N. E., Kingsburg.

"Black rot" is a trouble affecting fruit of peaches and apricots, but is not worth considering in California. We wrote to the inquirer and asked for specimen of bark. He replied by sending parts of bark and a good healthy root knot. To be sure of our diagnosis, however, this was sent to the Southern California Pathological Laboratory and Mr. Clayton O. Smith answers that it is plainly a case of crown gall or root knot, a bacterial disease causing these knots about roots and crown of tree. Nothing has been found that will free the soil from this trouble and similar trees planted in the same ground are sure to be affected in the same way. If the ground can be cleared of trees and given clean culture to garden or some other crops for a few years, it will again be possible to plant peach root in it.

Black Spot of the Orange.

I note in the Cultivator of March 9th your answer to T. J. L. of Alhambra in regard to black spot of the orange. You quote Dr. J. Eliot Coit in effect that the trouble is caused by a fungus, when in reality it is caused by an insect which attacks the fruit early in the season, probably April or May, and the destroying of the fruit after it drops would have no bearing on the case whatever. If anyone doubts this statement, I can prove that I am right.—V. L. Martin, Glendora.

Our subscriber will surely have to produce some remarkably strong proof to convince our readers that Dr. Coit's statement is incorrect. The determination of the fungus condition of this disease is so definite that there can be no question whatever about it, and while Mr. Martin may have observed some injury by insects which has caused dropping, he has failed to make careful examination of this fungus.

Rolling Onions.

This being our first year in California, we have formed the habit of depending upon the California Cultivator for much information and it has become our most efficient guide in every department, and we now come to you for advice. When should the tops of onions be rolled so as to make the bulbs form, and how can they be most successfully dried to prepare for the market?—W. C. H., Spring Valley, San Diego county.

The modern onion grower does not rely upon the process of rolling the tops to "make the bulb form." If the bulb does not form in the natural way, no amount of rolling will avail. "Thick necks" are caused from improperly grown seed, usually. Thousands of pounds of onion seed are annually sold that would better never have been put on the market. Very often we might lay the blame on the buyer, who so frequently demands that the seed shall be cheap. It costs money to grow good onion seed and such seed is never low priced. It took Gilbertson, the noted onion grower of Iowa, a quarter of a century to produce the beautifully colored, shapely, long-keeping onion he now grows.

The climate of California makes it comparatively easy to cure and prepare the onions for market. When the crop has ceased to grow and the bulbs have formed, they are pulled and allowed to remain on the ground for about a day, when they are put on small piles and covered with straw or weeds, or any material that will shade them from the direct rays of the sun. They can then be sacked and marketed at the pleasure of the grower. It is well to sort them at the time of sacking, making at least two grades. In trimming the bulb at the time of sacking, do not cut either stem or root too close to the bulb, but sufficient should be taken off to give a neat appearance. Leave on all the hull.—Q. A. L.

Hog Cholera.

In which states is there hog cholera or swine plague? How many animals die of that disease in this country, and is there any successful remedy?—Subscriber, New York.

The office of the Bureau of Animal

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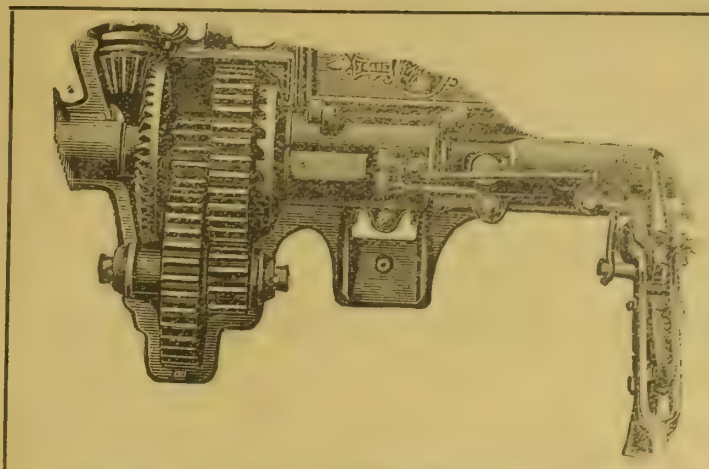

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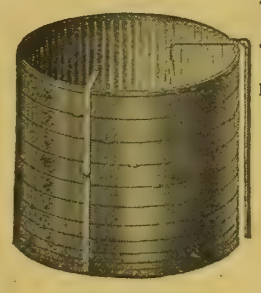

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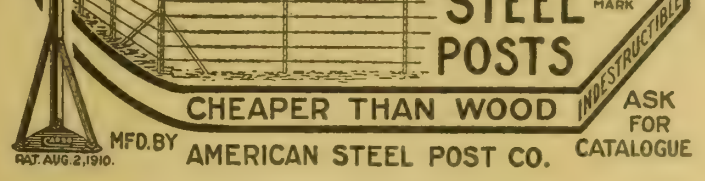

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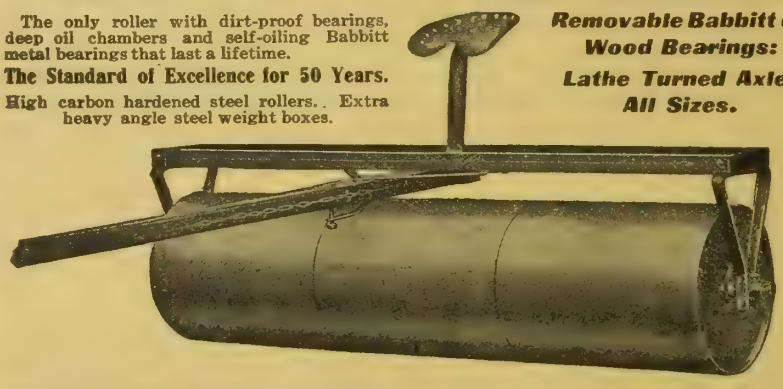

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Industry informs us that the number condemned in packing houses over the country is a matter of record and can be secured from the central office of the bureau at Washington, but the number which die on the farms has never even been estimated. The nearest to anything definite which can be secured on that point is: "In many of the states of the Union the financial loss of each exceeds a million dollars a year." The disease was first introduced into Ohio in 1833 and for many years was confined to that state and the middle western states; it has now spread so that there is no section of the country exempt.

There is a treatment or preventive rather, which is almost perfect in intelligent hands; it consists of the injection of a serum invented by an investigator connected with the Bureau of Animal Industry, M. Dorset. The process is patented but given by the department for the free use of all. This treatment is described in Bulletin 379. The effect of the serum is limited as it lasts for only a few months, usually not exceeding six. The animal may be made immune for life by inoculation with blood from a diseased animal, or where others in the herd are affected, this is sufficient. Of course in addition to the injection of serum, cleanliness and other factors are essential.

Trapnests.

Can anyone give me plan for constructing trapnests?—Subscriber, Goshen.

The inquirer is referred to reprint of an article in a former Cultivator which appears with illustrations in the poultry department this week. We will ask our subscribers for plans which they have found efficient.

Crops Between Rows.

I want to settle on six acres of first-class citrus land, and I need to do this on account of the health of one of my children, and then I wish to make a home of it. Now, what I want to know is this: What, if anything, could I grow between the rows for the first two years if I plant the same to oranges? This place will have car line connection with Los Angeles, and will be about sixteen miles away. It is a vital problem that has its health side and its economic side, and I wish that you would give me some suggestions in your valuable paper. The idea is to raise something to help make the living until I can get the orchard in bearing. I have the land clear and will have only about $2,500 when I arrive. Hoping for a reply in your columns, I remain, Subscriber, Penfield, Mich.

This is a good question and states conditions which should bring success to our Michigan subscriber when he arrives in California. We assume that on the land he is to construct a home, purchase implements and what little stock he may need, and live until the place produces sufficient for the support of his family. If he is the right kind of a man and has the right kind of a family, there is promise for complete success with these conditions. All we know regarding the location of the land is that it is sixteen miles from Los Angeles. As there are lands in that radius of all imaginable kinds and conditions, we can only give the merest general suggestions. It seems that it is all to be planted to oranges, though we trust a family orchard will be given a little nook, for that is part of the living and means a consequent reduction in outgo. As to planting between rows, we have seen instances where it succeeded admirably, though in general we would say there is better promise for the orange grove which has not that handicap. But with care in restoring fertility and in keeping clean culture as far as possible from the trees, it will succeed. Above all, there must be sufficient water so that the garden or other intercrop does not thrive at the expense of the permanent trees. If the ground is of a sandy loam nature and suitable for potatoes, and also located where one can get an extra early crop, especially if it could be marketable at this time, there is good money in potatoes. Strawberries, raspberries and other small fruits have also been employed in situations of this kind. Of course, the whole range of garden products might be mentioned, and which one would be best could only be determined by an examination of the land and a good look through the markets to be supplied. Perhaps the best crop of all to raise between trees, and one which benefits instead of impoverishing, is poultry. With proper attention to detail and willingness to work in season and out of season with them, poultry is most profitable. The determining factor should be past experience of the inquirer. What has been his work, and how much tiring labor is he able to do? Some crops require more manual labor than others. Definite answer can only be made when particular conditions are studied out.

Blister Mite.

I send leaves of Bartlett pears. What is the trouble with them? The trees were affected last year, one so badly that the blossoms fell without setting. It is yet too early to tell as to whether it will be as bad this year, but practically all the trees are more or less affected.—H. E. C., Hemet.

These leaves are affected with a reddish-brown fungus-appearing spot. It is not, however, a fungus, as is shown by the following answer by Prof. Ralph E. Smith of the Southern California Pathological Laboratory:

"The pear leaves sent by your subscriber are affected by an insect called the blister mite. This is a very minute insect which imbeds itself in the tissue of the leaf, causing the little swellings seen on the under side. It is not often necessary to apply any special treatment for this insect, but where it is likely to be very abundant it is said to be controllable by spraying with whale oil soap or kerosene emulsion previous to its appearance."

Beetles Boring Orange Twigs.

I am sending beetles which infest my orange trees. The point of attack is usually where two limbs join, an excavation being bored vertically into the limb. What is it, and is it going to be a serious pest, and how may I eradicate it? Later notice gum exuding from some of the branches. Also has the yellowed condition of leaves enclosed been caused by this beetle? There are but very few of the beetles on any one tree.—Rancher, Riverside.

This subject was referred to Mr. E. O. Essig, horticultural commissioner of Ventura county, and he writes that he is unable to give any information, the pest being entirely new to him. The subscriber has been asked to for-

ward at once specimens to the department at Washington. The yellow leaves and exuding gum come from other causes, the yellowing especially being due to chlorosis. We hope to give fuller information later.

Later Prof. C. F. Baker of Pomona College writes:

"The beetle you sent is a Polycaon, belonging in the Ptinidae. Fall records three species from Southern California, P. stoutii which is very common here and which Fall found once in numbers under bark of Eucalyptus; P. confertus which has been found boring in grape, and P. megalops which is very rare, and only taken a few times. This which you send does not appear to be stoutii. So it may be confertus, which we do not have in the collection here. You may be sure it is a Polycaon. We will get the species later. This case of boring into the orange is probably not the regular habit of the species—they are likely to bore into anything."

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway. Los Angeles.

Will and Division of Property.

A widower, with children, owning land, marries a widow with children, and makes a will before marriage, giving his wife ten acres and half the eggs and agrees to attend to the chickens, but the will is not recorded. Should he die before the wife what could she claim, or if she should leave him, what would be her property rights?—Subscriber.

The will might be changed or revoked at any time before the husband's death. The wife would be entitled, in the event of his death without a will, to one-half of the community property, that is, of the property acquired during their marriage, and one-third of the husband's separate property, that is, any property that he owned at the time of the marriage, together with such as is accumulation of that property, and any that he has received since marriage by gift, devise or descent. If she should leave her husband she would have the same property rights until the question of property should be settled by the divorce courts or by agreement. In the event of no divorce, or other proceeding to determine her interest, she would get the same as above.—E. L. P.

Unrecorded Deeds.

If a father deeds land to his children and wife in parcels as he wants them to have it, he (the father) holding those deeds in secret until his death, at which time they will, of course, be made public and recorded, is such a procedure legal? Please state the best way to fix landed property so as to keep it out of the courts after the death of the owner.—Subscriber.

The plan suggested might work without causing any trouble. The law regards such deeds as in the nature of wills, and any one interested might compel them to be probated the same as a will. There is no sure way to keep property out of the probate court, except to dispose of it absolutely before death. Of course, many times the probating is avoided by such proceeding as you suggested, but it is not a certain way, and very frequently is not advisable.—E. L. P.

Homesteading by Woman not Divorced.

If a woman is parted from her husband can she homestead here in California without getting a divorce?—Subscriber.

If a woman has been abandoned by her husband and she is the head of a family, she may make a homestead entry.—E. L. P.

Legality of Will.

Is it necessary for the husband to be present when his wife makes a will in his favor, and even does not know of it until after her death? If she leaves use of all her property to him during his lifetime, then to revert to his mother, giving nothing to her own mother or heirs, can her mother or heirs get anything? Is it legal without a witness?—Subscriber.

It is not necessary that the husband be present when the wife makes her will. In this state, a woman can execute legal documents as freely as a man. She can will her property to whomever she pleases, so long as she makes it plain to whom she wants it to go, and can even disinherit her children, if her will plainly indicates that that was her intention. It would be impossible to say whether or not the will is legal without an opportunity to know under what circumstances it was executed. A will may be legal although it is not witnessed, if it is entirely written, dated and signed by the party making it. If it is not so made, it must be witnessed by two witnesses who are requested to witness it by the party making it. The witnesses must sign it in the presence of the testator who declares to them that it is his will, and they must each sign it in the presence of the other and of the testator, and he must sign in the presence of the witnesses.—E. L. P.

Damage from Cutting Dike.

A ridge of land on property caused water to back up on neighboring land. During the recent storms this was backed up until neighbors came and cut a ditch through the ridge which is on our property. The water escaping through this opening cut a deep ravine and seriously injured the crops. Is there a case for damages? We have been injured to the extent of $700.—Subscriber.

You have an action for damages against the parties who cut the dike and let the water out across your land. You have also a right to repair the breach so that the water will not again run over your property. This answer assumes that the ridge on your land is a natural ridge, or if an artificial ridge, that it has been maintained for a sufficient length of time to give you the right to have it remain. Also assumes that the course which the water took is not a natural course along which the lake has been accustomed to drain.—E. L. P.

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Eye Inflamed.

A profuse and almost constant flow of watery fluid runs from her (kind of animal not stated) eyes, and, when dried, leaves a white substance which attracts the flies. She has lost the sight in one eye. Do you know of any remedy?—Subscriber, El Centro.

Venturing the presumption that the animal in question is a cow afflicted with inflammation of the front part of the eyeball (probably infectious keratitis), the following remedy is suggested: Iodoform ten grains, calomel ten grains, boric acid one drachm, and finely pulverized sugar half ounce; mix thoroughly and place a pinch in each eye morning and evening.

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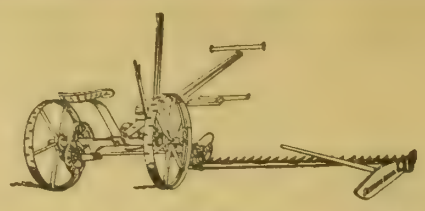

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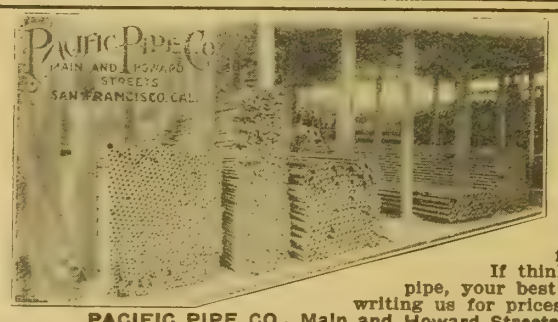

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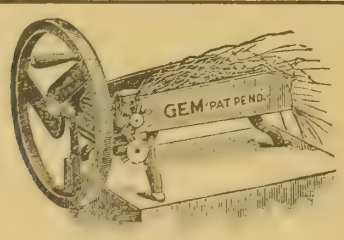

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SEED CORN

Department of Agriculture Selection No. 160. An early maturing yellow flint corn that has produced 78 bushels shelled per acre. Will produce a fair crop with a minimum of water if planted early. Sold only in the ear. Price $3.00 per 100 pounds, smaller lots five cents per pound.

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Anaheim, Cal.

Timely Ranch Suggestions

HINTS IN BEET CULTURE.

The American Beet Sugar Company of Oxnard sent to patrons of the factory a circular with hints in beet culture, from which we quote:

An average of all the measurements taken from the beet fields during the 1910 season shows that the average stand was only 31,487 beets to the acre, whereas the normal or ideal stand is 43,560 beets to the acre.

We beg to submit, therefore, a few short and timely hints, which should be valuable in securing a better stand of beets.

Numerous causes are accountable for this shortage; some of them are unavoidable and produced by the uncontrollable elements, but the majority can be attributed either to the thinning contractor or to the farmer himself.

Preparation of Seed Bed.

The most important point in order to secure a good stand is to thoroughly prepare the seed bed. After the field has been pulverized and harrowed, both in length and crosswise, pack the top soil well for about two to three inches in depth.

If rain is expected soon after planting, do not roll your land, as the rainfall will pack the surface soil sufficiently to insure uniform sprouting of the beet seed. Prepare your land as quickly as possible, and begin planting immediately after it is worked down, in order to avoid drying out of the seed bed, as beet seed requires considerable moisture to produce germination.

Planting.

The next important step in the cultivation of sugar beets is the planting. Early in the season the farmer should thoroughly examine his beet drill to see that it is in perfect working order when planting time arrives.

The time to plant depends upon the season, as well as on the rainfall and the nature of the soil.

Not less than twenty pounds of beet seed to the acre should be planted in order to secure a good and profitable stand under all conditions, because, should dry weather prevail, enough seed will generally germinate to make a satisfactory stand. Furthermore, should a crust be formed on the field after a heavy rain, one plant will help its neighbor to break through the crust. Therefore, sow at least twenty pounds of seed per acre.

We have noted from personal observations that many of the farmers in our district are inclined to plant the seed too deep. Beet seed should never be planted more than three-fourths to one and one-half inches deep, and care should be taken that the soil is well packed around the seed by the press wheels in order to draw the moisture necessary for germination.

The deeper the seed is planted—and especially so in heavy soil—the weaker the plants will be, provided they come up at all; therefore, avoid deep planting.

Thinning.

The next operation is the thinning. We consider this the most delicate and most important; in fact, the one upon which the results of the beet crop largely depend.

The farmer, after having decided upon the distance he wishes his beets to be thinned, should stipulate this distance in the written agreement with his thinning contractor, and he should closely superintend the work in order to satisfy himself that it is being properly performed.

The most favorable distribution of the beets in the field is as follows: If planted in eighteen-inch rows, by thinning them eight inches apart, or, if planted in sixteen-inch rows, by thinning them nine inches apart, which will give in either case a stand of 13,560 beets to the acre.

We, of course, cannot advise or recommend an arbitrary distance between beets, as much depends upon the productiveness of the land, and also on the evenness of the stand.

The average poor stand of the last year was due partly to the fact that the beets came up very unevenly, owing to the irregular distribution of moisture, but it was also due to the careless work of the thinners.

To sum up, we suggest, in order to improve the stand of beets and consequently the gross return of the farmer:

First—To plant at least twenty pounds of beet seed to the acre.

Second—To avoid planting too deep.

Third—To stipulate in the thinning contract the average distance between beets in the row.

Fourth—To carefully supervise the work of the thinners.

DRY LAND GRAIN RAISING.

Dr. G. W. Shaw, of the University of California, who was a delegate to the Trans-Missouri Dry Farming Congress, recently held at Spokane, Wash., at the series of Farmers' Institutes in the San Joaquin valley, took occasion to speak particularly of the work of the congress, and urged the farmers to get into closer touch with the work of that body.

The congress was organized four years ago with a membership of eighty persons. Today it has a membership of about 10,000 persons interested in the study of agricultural practice as related to non-irrigated lands. The membership is not limited to residents of this country, but includes many from foreign countries. At the session just closed, there were present official representatives from France, Russia, Algeria, Chile, Mexico, Australia, Alberta and Saskatchewan.

The fundamental aim of this congress is the reclamation of semi-arid lands of the world, and rendering them productive by scientific soil-culture, seed-breeding, conservation of moisture, and the study of requirements of success in every district of the world.

By recent action, the movement has been made international in character and is destined to have a far-reaching influence. Its reports have already been translated into many languages.

The work of the congress is doubly educational, for its mission is to educate the people and to educate the plants.

Dr. Shaw stated that it was much to be regretted that there was but one delegate present from California because the topics discussed were of such vital interest to those farming non-irrigated lands in this state. California has been following some of

the principles involved for forty years, yet the application of these principles has been quite generally bad, and a wider dissemination of the fundamentals of moisture and soil conservation would result in a material increase of production in the state, especially in the matter of grain production on a more restricted area.

For a number of years Dr. Shaw has been an insistent advocate of certain modifications on culture in grain-growing in California, his ideas having been developed from results obtained upon the experiment stations of the state under his supervision.

His convictions were much strengthened after investigating the work done in the Northwest, along similar lines.

Speaking of the essential modifications of the methods now in vogue among farmers, he states them as follows: First, a deeper preparation of the soil to serve as a greater reservoir for the storage of moisture. The present system has quite generally developed a plow-sole which quite effectually interferes with the penetration of moisture into the lower layers of the soil. This deep plowing is best done in the fall to allow the storage of a larger percentage of moisture.

Second, the maintenance of a clean summer fallow, with a fairly fine soil mulch during the summer.

It is very important for the conservation of moisture that this land be kept free from all weed growth during the summer.

Third, the selection of vigorous, plump seed, which preferably should be graded before planting, using only the larger-sized grains.

Fourth, the seed should invariably be treated with blue-stone or formalin to prevent the growth of smut. At present there is a loss of approximately $1,500,000 per year in the state from a neglect of this precaution alone.

Fifth, a press-wheel drill should be used for seeding instead of broadcasting.

On the stations of the university, the average difference in forty trials of broadcasting, as against drilling, has given a monetary difference of over $6.00 per acre in favor of drill-seeding.

Sixth, the grain should be harrowed after it is up, in the spring, for the sake of moisture conservation.

Seventh, after the crop is removed, the land should be disced by half lapping the disc for the purpose of preventing the loss of the residual moisture, and furnishing a fine material to be turned under at the time of plowing.

Eighth, for replenishing the humus supply and aiding in the permanent conservation of moisture, it is extremely important that, occasionally at least, winter rye should be seeded on the land intended to be summer fallowed at the time of the first rains and the green rye turned under deep at the time of plowing the summer fallow in the early spring. This increases the absorption power of the soil, renders plant food more available and encourages deeper rooting.

By following along these lines of culture systematically, the station has been able to raise the crop from eight or ten bushels obtained on old grain-land as handled by the time-honored, but faulty methods long practiced in California, to over forty-five bushels per acre.

By the improved system of culture advocated, there is no reason why the average yield of wheat in California should not equal or exceed twenty-five bushels per acre, instead of thirteen bushels, which is not the average yield.

COBURN'S BOOK.

Reference can hardly be made to Kansas agriculture without speaking of that veteran in agriculture in that state, Mr. F. D. Coburn. He has been at the head of the state board of agriculture and is reported as having twice declined the U. S. senatorship that he might remain with the industry which he loves. He has just issued the 17th biennial report, a book larger than the Department Year Book, and filled with matter of greatest value to all farmers and especially to those of the Northwest. It is full of engravings and put up in such shape that it would make an admirable pattern for our California state board of agriculture.

MAKE MORE OF THE SOCIAL LIFE.

A writer in The Grange in speaking of the true Grange ideal says: "The true Grange ideal expects its membership to be benefited socially as well as along other lines, so the lecturer who fails to provide some entertainment and social diversion fails as a successful lecturer. The serious business of the Grange is most vital, yet if we fail to make the farm and the Grange sufficiently interesting and attractive to hold the boys and girls of what avail are our labors."

No farmer's duty ends when he provides his family with the best facilities and the best livelihood possible to his means. For he must then consider his duty to his community, and in so doing he must realize the truth of the Biblical saying that "no man liveth unto himself and no man dieth unto himself." That means that no matter how hard we try we can't get away from each other and that if we strive to do so the penalty is stagnation for ourselves and those around us. The principle of co-operation began with the Garden of Eden and it is still on the job.—Chas. S. Barret in The Grange.

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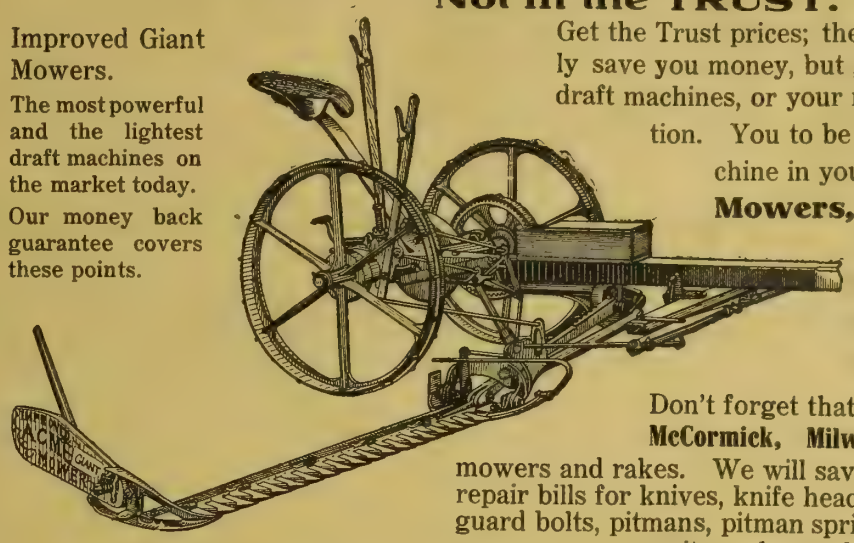

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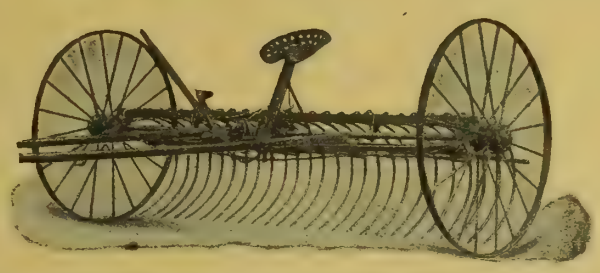

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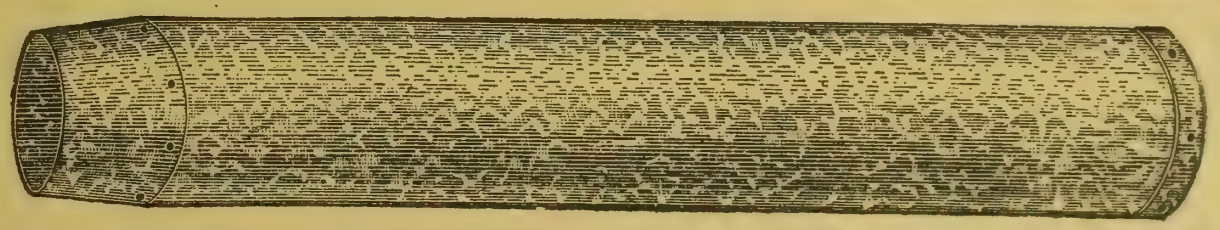

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Merchant Pipe for Steam, Gas, Water

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For Sale—Registered Yorkshire Boars. The Yorkshire is the greatest bacon hog in the world. Address Joe M. Regan, De Luz, San Diego Co., Cal.

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Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L443 Marden Bldg., Washington, D. C.

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8 ft. steel Star, tower, tank, tank house, pump complete, $39.00, or $42.50 on cars; 10 ft. steel Aermotor, steel tower, 3000 R.W. tank, 20 ft. stand, 100 ft. 2-inch galv. pipe at ½ new price; also many others. Several gasoline pumping plants.

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Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

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Pattiway, Cal., March 4, 1911.

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California Cultivator,
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Yours very truly,
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Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

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Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene, Waukena, Tulare Co., Cal.

Eggs from our famous winter laying strains of trap-nested bred to lay Rose and Single Comb Rhode Island Reds. $1.50 per 15, $6.00 per 100. A. L. Harmon, Glen View Poultry Yards, Pasadena, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Leghorn Baby Chicks—Don't try to raise cheap stock chicks. Our stock is all A1, on free range. Jan. and Feb. delivery 12½c, March 10c, April and May 9c. Livermore Hatchery, Livermore, Cal.

$3.00 Per Hundred—Eggs from heavy winter-laying White Leghorns. You get hatchable eggs from healthy stock. M. A. Young, Los Gatos, Cal.

White Wyandotte Eggs. Stock trap-nested ten years; bred from 200-egg birds. 15, $2.00; 100, $10.00. Hand and Hand, Inglewood.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

Houdan Eggs, $1.50 per 15, $9.00 per 100, $4.50 per 50. Baby chicks 20c. Mother hen $1.00. Pen headed by prize winner. Mrs. Hocking, Guasti, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Baby Chicks—White and Barred Rocks, White Leghorns and Black Minorcas. Eggs from my own hens, and incubated right. They will live and grow. J. W. Lyon, R. D. 1, Gardena, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

POULTRY

1889-1911—Barred Plymouth Rocks, Ocean Blue Strain. Birds of our breeding made a phenomenal record in the hands of our customers this season. Won first place at five of the largest Coast shows, besides many shape and color specials. Fourteen silver loving cups were won by this strain. We won in every class at the big Los Angeles Show—something no other exhibitor of Barred Plymouth Rocks can claim. Every female in pullet pen for this season is a winner either in pens or singles. Every male heading cockerel mated pens this season is a winner either singly or in pens. We are ready now for your egg orders. Same old price—$3 and $5. Mr. and Mrs. D. T. Wieland, Moneta, Cal. Take Redondo car via Moneta avenue. Get off at Illinois street, right on ranch.

White Orpington and White Wyandotte eggs for hatching. My winnings at Los Angeles 1911 were 1st cock, 1st hen, 1st and 2nd cockerel and 1st pullet on White Wyandottes. White Orpingtons, 1st, 3rd, 4th and 5th pullets, and 2nd and 4th hens. I breed my winners and am up to date in mating for results. I have no other business. Eggs sell at $3.00 and $5.00 per 15. No more stock until May 15th, when I will sell part of my breeders. Order direct from this ad and your order will receive my most careful attention. A. W. Huskins, 713 Waterloo St., Los Angeles, Cal.

Eggs from selected, trapnested stock. White Minorcas, beauties, layers of large white eggs, eggs $3.00 per 36. White Wyandottes, great winter layers. White Plymouth Rocks, Fishel's strain, prize winners, eggs from both $2.50 per 36, $6.00 per 100. White and Brown Leghorns, very select stock, $2.25 per 36, $4.50 per 100. Pearl Guineas, $2.00 per 15. Bronze Turkeys, 20c each; none better. I have about 500 per week of day-old White Rock chicks, Fishel's strain, for sale, $15 per 100, 17½c for less quantity. W. D. Rose, R. D. 6, Santa Ana, Cal.

Jubilee Orpingtons—Just received from Wm. H. Cook, England, a pen of Jubilee Orpingtons. Will have only a limited number of settings for sale. These are the best that England can produce. F. S. Washburn, Direct Importer, 240 Anita Street, San Jose, Cal.

Overcrowded; will sacrifice a few splendid White Rock roosters, 20 months old, fine breeders, $5.00 apiece while they last; also 6 hens, 20 months old, for $10.00. Write Dr. T. J. DeVaughn, 30 N. First St., Alhambra, Cal.

White Wyandotte Eggs for Sale—From good strong, large, vigorous stock. My birds are pure white and typical Wyandotte shape. Price per setting of 15, $2.00; per 100, $9.00. All eggs carefully packed for shipment. M. B. Patton, 1124 Brent Ave., So. Pasadena, Cal.

Rose Comb Black Minorca eggs and chicks from the largest and best mated flock in California. Eight-year line bred to pay and win. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

This is My Last Notice for the Season. Those who desire eggs from either "Kellerstrass" White Orpingtons or Buff Wyandottes should write at once and book orders. Orpington eggs 20c each, Wyandotte 10c straight. Good stock. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

Eggs for hatching, $1.00 per 15; $5.00 per 100. Day old chicks, $15.00 per 100. Barred Plymouth Rocks, R. I. Reds and Buff Orpingtons. Stamped envelope or cash with order. L. W. Neilsen, R. D. 2, Box A-1, Petaluma, Cal.

For Sale—Cornish Game Fowls. One fine trio $12. Also pen of four hens and cockerel $15. All choice imported stock. Setting eggs $2.50. Donald Searles, 422 S. Wilcox Ave., Hollywood, Cal. Phone 57277.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Day-Old Chicks for Sale—Barred Rocks, 12½c; White Leghorns, 10c. Baby ducks, White Pekins, 16c. Orders for April and May delivery taken. All good stock. S. Stone, Moneta, Cal.

Barred Rocks exclusively. Eggs $1.50 and $3.00 for 15. Hatched chicks 15c and 20c each. Fine young stock later. Correspondence solicited. G. L. Hawley, Madera, Cal.

Single Comb Brown Leghorn Eggs—$3.00 per hundred, $1.50 single setting. Mrs E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

White Plymouth Rock and Rhode Island Reds, thoroughbred eggs, $5.00 per 100, $1.00 for 15. Palm Fruit Co., Wasco, Cal

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. I. V. Peterson, Guernaville, Cal

Very Fine Strain Barred Rock, S. C. Black Minorca, R. I. Red. Chicks $14.00 per 100; eggs, $1.00 per setting of 15. All pure thoroughbred, guaranteed. R. B. Sherman Newcastle, Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.5 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. For choice Buff Minorca eggs. Mrs. A. V. Cox Box 302, San Luis Obispo, Cal

S. C. Brown Leghorn Baby Chicks, May 8th, $7.50 per 50 or $15 per 100. Mrs C. H. Vary, Pomona, Cal.

FARM LANDS FOR SALE.

Owens Valley offers to the farmer unusual opportunities for diversified farming. With the elevation of 4,000 feet, no fogs, abundance of mountain water running by gravity, a disintegrated granite soil, having been washed from the mountains for centuries, a growing condition is created, the results of which are almost unbelievable.

Alfalfa, as high as four tons to the cutting; timothy with 10-inch heads; from 350 to 500 bushels of potatoes to the acre; as fine Spitzenberg and Winesap apples as grow in Washington and Oregon; a hog, cattle and poultry country that we believe is superior to anything in the State, and, on top of this, the most delightful climate and wonderful scenery.

Surely any farmer figuring on making a change should at least investigate Owens Valley before deciding. Buying a farm is buying a home, and it may be that you will spend the rest of your days on the next farm you buy. Certainly it is worth very serious thought. We want to mail you booklets and pictures, which will tell you a complete story of Owens Valley. The James R. H. Wagner Co., 329 S. Hill St., Los Angeles. Room 10.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

Dairy Ranch For Sale—160 acres in San Joaquin Valley; 7-room house, stable, fenced and cross-fenced. Plenty of flowing water to irrigate the 160 acres. 80 acres in alfalfa, balance alfalfa land 12 miles from R. R. Good roads. $100 per acre, ½ cash. Will also sell the cows if desired. Inquire of Geo. W. Berry, of Berry's Market, Whittier, Cal.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Price $65 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

20 Acres, adjoining the Roeding and Wood Nursery land, 1½ miles S.E. of Exeter; best of soil, good location; fine for oranges or lemons. Pumping water at shallow depth, road on both sides, high school. Price $175 per acre, $2000 cash, balance 2 and 3 years, interest 7 per cent net. Fred M. Hart, Exeter, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

For Sale—Orange land in small tracts in Exeter district. Large tract of level, fenced, pasture land. Plenty water. Part cash, terms. Apply Fred M. Hart, Exeter, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—Fine alfalfa ranch, ½ mile from R.R. station, 86 acres, abundance of water. Only $300 per acre. $10,000 cash will handle this. Would consider a trade for good income property in Los Angeles. John W. Shepardson, 215 Katz Bldg., San Bernardino, Cal.

Pacific Coast Lands—Farm lands appraised for prospective investors. Reports on agricultural projects, soils, irrigation, drainage, etc. Paul Goodloe, 1049 Phelan Bldg., San Francisco, Cal.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Poults 50c. Bronze Turkey eggs $2.00 and $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J. Rhode Island Red and White Leghorn eggs and baby chicks.

White Holland Turkey Eggs from large, vigorous stock, 35c each. Poults, May 16th, 50c each. Also gobblers, $7.00. Mrs. Hocking, Guasti, Cal. Winner of 1st prize, Los Angeles, 1911.

For Sale—Thoroughbred Mammoth Bronze Turkey hens of large size and fine markings. Also eggs for hatching. Mrs. Nellie Hart, Holtville, Cal.

Mammoth White Holland Turkey eggs, $3.00 per dozen. R. L. Warren, National City, Cal., R. D. 1.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nursery, Pasadena, Cal.

Agricultural Implements—Vehicles.

Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

For Sale—One 5-passenger Winton auto, extra tires and inner tubes. Also one autocar runabout, fully equipped. M. Jacobs, 201 Howard St., San Francisco, Cal.

Business

BUYING WRONG AND BUYING RIGHT.

Nearly all tools look attractive in a show case. Their polish, their newness and their glitter attract the man who looks at them, and make him want to use them.

He stops, handles them, buys a few pieces and carries them to his shop or his home. He thinks of them as "just tools," and the initials stamped on the blade of a draw knife may mean a reliable concern as the maker or it may mean some obscure firm that has no responsibility.

A child can be safely sent for a tool and get the same quality his father would get. The Keen Kutter trade mark shows him that he is getting the right brand and that there can be no mistake. No knowledge of tools or of steel is required. Every Keen Kutter tool is like its mate, in quality.

A workman or a farmer equipped with a set of Keen Kutter tools is sure of having the best he can get anywhere at any price.

Even if Keen Kutter tools cost a very little more than you would pay for ordinary tools of unknown worth, you will get the difference in quality and service, and you will be sure that every piece is dependable and equal to any emergency.

The best way is to buy a Keen Kutter cabinet, fitted with the tools you need. The price for these cabinets range from $8.50 for the household size, to $125 for the carpenter's or cabinet maker's, complete equipment with a work bench and vises included.

Your hardware dealer has both Keen Kutter tools and cabinets, no doubt; but if he hasn't, he will gladly order them for you if you so request him. If not, write to the Simmons Hardware Company, St. Louis, Mo.

FARM OWNERS NUMBER.

The Thomas B. Jefferey Company of Kenosha, Wisconsin, will send on request its "Farm Owners Number." It is magnificently printed and filled with illustrations of Ramblers in many interesting sections, and of parts of the great works which produce the Rambler automobile. A careful consideration of the article entitled "Which Car for the Farm," commencing on page 611, and also the article entitled "The Woman and the Car," on page 613, we believe will prove interesting, especially to farmers who are trying to decide the kind of a car they would purchase. It is well worth the asking.

If looks as if Uncle Sam is winning another commercial race. This time the field of activity in which he is making the running is the manufacture of fabric for aeroplane wings; and it is through the success of the Goodyear Tire & Rubber Company at Akron, O., that the good old eagle is soaring higher and faster and safer than foreign rivals in the realm of aviation.

Aeroplanes equipped with wings or planes of Goodyear rubberized fabric are being used by the United States army, which has tested many "treated" cloths and mercerized silk. Several fabrics are reported to have been found satisfactory under certain favorable conditions, but a contraction and expansion of one inch in every eighteen inches was recorded for the mercerized silk fabric, which is regarded as vitally significant upon a perfect and reliable equipment that will neither stretch nor tighten and is impervious to the effects of heat, cold or moisture.

One of the biggest supply houses on the Pacific Coast catering to irrigators is the Smith-Booth-Usher Company of Los Angeles. This concern recently constructed at a cost of $100,000 a building with a floor area of 100,000 square feet, one-half of this being ground floor space. One of the features of the building is its loading facilities, enabling goods to go in and out at the same time. The switching track extends the entire length of the building, which is located at 228-238 Central avenue, and is for storage and manufacturing; it does not take the place of the salesroom on South Los Angeles street.

That best portion of a good man's life—
His little, nameless, unremembered acts
Of kindness and of love.—Wordsworth.

General Household Notes

APRIL DAYS.

When April days go dancing,
Along the road to May;
With here a flower and there a shower,
And never time to stay,

Then brooks are full of little waves,
That race and chase in glee,
And all the flooding rivers
Rush on to find the sea.

Then spring the brave green grasses
On every hill and plain,
A mighty host, in field and coast,
They laugh in sun and rain.

Then mornings wake in melody,
And mirth finds time to stay,
When April days go dancing
Along the road to May.

THE WIDOW CRAIGIN.

The narrow street was cleared and the ambulance had driven off, when John Moreland, completely unnerved and crying like a baby started up his car at the ring of the pallid faced conductor.

"It was the kid I've watched all summer," John sobbed. "She was the prettiest little thing you ever saw. I couldn't help it, officer. I worked as quick as I could, but she started like lightning to run across when the boy grabbed her kitten."

"Don't take it so hard," said the policeman, whose duty it is to go with the motorman to the end of his route. "Stop talking and run your car.' '

But John's nervous excitement had to find outlet in words.

"She used to have an eye out for me perched up there on her doorstep. I've grown that fond of her, and now —oh, Lord! I couldn't look. Do you think she was injured bad, officer?"

Half crazed with grief, talking to himself and to the officer by turns, John Moreland, kind hearted John, who wouldn't hurt a fly, ran his car to the barn and was laid off pending investigation of the accident that sent the Widow Craigin's only child to the hospital and caused heated discussion among the neighbors.

"It's like flying in the face of providence, Mrs. Craigin, not to sue," said one. "You can get damages enough from the road to live at ease for the rest of your life."

"We will all stand by you, Mrs. Craigin," said another. "The motorman was careless, fast enough. There's plenty that saw him and had their names and addresses taken that can tell the court that much."

"Indeed, they cannot and speak the truth," flashed back the Widow Craigin. "I was standing by the window and saw the whole thing myself. No human being could have saved the child, she darted that sudden. When the gentleman from the railroad office came to see me I told him fair and square they hadn't a more careful motorman on the road. There's nobody to make trouble but myself, and I'll sue for no money that wrongfully may put a man out of his job."

This in due time reaching the ears of John Moreland, strengthened his resolution to call on the mother and hear from the "little kid." One afternoon he started out, but courage failed him when he reached the house. As he stood irresolute the door opened and a pale little woman came quickly down the steps.

"John!"

"Mary!"

John started, almost speechless, then blurted in his embarrassment:

"A little girl was hurt—her mother I want—which floor might it be?"

"I am the little girl's mother, John."

The man staggered. His words came disjointly.

Not your child! Oh, Mary, that trouble should come to you through an act of mine. They say you spoke up for me, too. It's not to be expected you can ever forgive—"

"There's nothing to forgive," put in the Widow Craigin, quickly, "and I'm not the woman to do you a mean turn the second time. I've had cause enough to repent the way I treated you eight years ago, and if there is to be any forgiving, it's not—"

"Stop that," interrupted John, almost roughly. "Tell me about yourself. Is it here you live?"

"Yes. Since my husband died I've had the front room at the top and done sewing. It has been hard work keeping myself and the child. There was so little I could do for her the hot summer days, that when I saw you on the route three months ago I got her interested in watching for your car. When it was time for you she must always have her curls brushed and her face clean 'for her motorman,' as she said."

"But you, Mary—"

"I used to watch, too," said Mary, with a faint blush. "That is how I saw just what happened. It's visiting day at the hospital," she added, quickly changing the subject. "I'm on my way there now. Won't you come with me? The child is nearly well."

"Doesn't she hate me?" began John, his voice trembling with anxiety.

"That she does not. She has asked for her motorman most every day since she went in.

John, a great load lifted from his mind, started down the street beside the Widow Craigin.

"Look here, Mary," he said at length. "You are the only woman I ever cared for. I've lived straight and saved my money. I want you to marry me, and I'll take care of you and the child. Tomorrow they put me on another route that runs into the country. Somewhere we will find a tidy place with a bit of grass and a flower or two for the 'kid.' What do you say, Mary?"

There was a few minutes' silence, then:

"I say yes, most thankfully," answered Mary.

So together they walked on down the street, straight toward brighter days for the 'kid' in the hospital and for John and Mary.—Boston Post.

THE RESTORATION OF RAMONA'S MARRIAGE PLACE.

The historic marriage place of Ramona, heroine of the literary classic of the Southwest, has recently been restored. This link between the real and the storied romance of Southern California's early days is situated in the old Mexican village of "Old Town," the original San Diego. Lying just north of the present busy little city of San Diego, teeming with bustling anticipation of exposition, and railway and canal, its sleepy, half-ruined predecessor is well-nigh forgotten.

Yet not entirely so, for in the house of the priest Gaspara, which was chosen as the typical setting for one

Mayer SPECIAL MERIT SCHOOL SHOES

These shoes are built exceedingly strong. The leather is tough and the soles are selected from the best wear-resisting hides. They are the only school shoes made with two layers of leather over the tip.

"WEAR LIKE IRON"

MAYER SPECIAL MERIT SCHOOL SHOES

outlast average school shoes two to one and cost no more. They are good looking shoes, built to fit and comfortable to wear.

The Genuine Special Merit School Shoes have the Mayer Trade Mark stamped on the sole.

FREE—Send us the name of a dealer who does not handle Special Merit School Shoes, and we will send you free, postpaid, a handsome picture of George Washington, size 15x20.

We also make *Honorbilt* Shoes for men, *Leading Lady* Shoes, *Martha Washington* Comfort Shoes, *Yerma* Cushion Shoes and *Mayer Work* Shoes.

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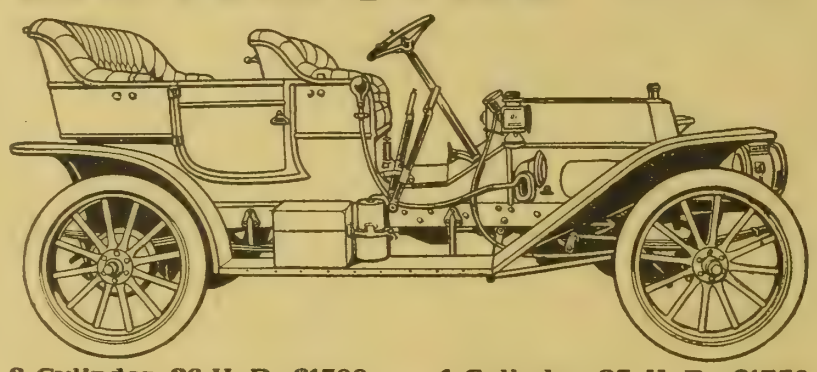
WESTERN BRANCH: Washington Shoe Mfg. Co.—Seattle, Wash.

DUROCAR The Car for the Farmer



2-Cylinder, 26 H. P., $1500 4-Cylinder, 35 H. P., $1750

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Three days to St. Louis and Chicago. The train for the busy man and the man of leisure.

Exclusively first-class.

Perfectly appointed.

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The "Californian"

A fast train over the same route for both first-class and tourist travel. Through tourist cars to St. Louis and Chicago.

Dining car service unexcelled.

You make no mistake in taking either of these trains.

The line of low altitudes.

Southern Pacific Rock Island

TICKET OFFICES

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555 South Spring Street.
Arcade Station, Fifth and Central Ave.

Pasadena: 148 East Colorado Street.

When writing advertisers, mention Cultivator.

of the most touching of the scenes in the tale of "Ramona," is now to be perpetuated the characteristic surroundings and pastoral life of the old Spanish grants.

The restoration was carried out under the direction of careful students of old Spanish and Mission architecture, and the building is practically a replica of the old construction. An example of the care taken toward this end is in the fact that only Mexican workmen were employed, as the American artisan is too exact in his work, and so the graceful curve and outline of wall and tiling which constitute the chief charm of the old adobe structure might have been lost. The adobe used in the construction is the native soil surrounding the building, and probably much is of the original material used in the crumbling walls.

The main building is practically unaltered, except for repairing the roof, and from this main building are now extended two wings, thus forming three sides of a square, enclosing the patio, a distinctive feature of this form of architecture. This is surrounded by a wide piazza, and paths lead to a fountain in the center. At the end of the wings and traversing the patio is a wide court, enclosed in an adobe wall, running out from the wings to form a complete enclosure. Here are to be the orchard and kitchen gardens, orange, olive, fig, pomegranate and almond trees intermingling with native and Mexican shrubbery.—D. E. Kessler, in Pacific Monthly.

DOROTHY'S BIRTHDAY GUESTS.

Dorothy was to have a birthday party, and had been promised that she could make out the list of guests herself.

Dorothy called in her very best friend, Caroline, to help her, and the two, with paper and pencil, devoted at least an hour to deciding who should be the ones favored with invitations. when the list was completed it was brought to the smiling mother for approval. Her eyes opened with astonishment, for it was about a yard long consisting of pieces of paper pasted together.

"Why, child!" she exclaimed, "what have you here?"

"Only five hundred names," said Dorothy, "and at the ball I read about in the paper the other day there were six hundred people. I guess I want to be as fashionable as other people."

The mother ran her eyes over the list. In included all Dorothy's play mates and most of her acquaintances, and then followed a list of such names as Ali Baba, Haroun Alraschid and the like.

"Where in the world did you get tnese names?" inquired the mother. "Who are these people?"

"Oh, I got them out of the 'Arabian Nights,'" said Dorothy. "But you don't need to be afraid. I don't believe mor'n half of 'em will come."

"Ah, yes, I remember now," said the mother. "I thought those names sounded familiar. Go on and invite them."

And then she added meditatively, with a look back into her own youth: "I wish they would come—all of them."

The following is supposed to be the latest conundrum: Why is a hand-organ like the setting sun? Because the Dago's with it.

Prospective Purchaser: "Is this mule fast?" Owner: "No, not entirely—his hind legs are loose."

DON'T THROW AWAY.

A tablespoonful of tomato. It will flavor the soup.

A tablespoonful of cooked rice. Use it in soup or custard.

A tablespoonful of lemon juice. It is nice in pudding sauce.

A tablespoonful of orange juice. Use it in a dressing for fruit salad.

A tablespoonful of oysters. Chop fine, and mix in your Hamburg steak.

A tablespoonful of jelly. Place in the bottom of a glass, and fill the glass with junket.

A tablespoonful of ginger syrup. Stir into a sugar sauce, and serve with apples cooked whole.

A tablespoonful of sausage meat. Add to stuffing for a beef heart. It accents the seasoning.

A tablespoonful of jam. Put in a small scooped-mold of rice, and the extent to which it adds in taste and appearance will surprise you.

A tablespoonful of cream cheese. Soften, if necessary, with a bit of butter, add a dash of paprika, roll into two small balls. Press a walnut meat on each side, and serve with a salad. —Table Talk.

RECIPES.

Ham Toast.

Remove the fat from some slices of cold boiled ham, chop fine. Put 2 tablespoons butter into a saucepan on the stove, add the chopped ham and ½ teacup sweet cream. Season with salt and pepper, and when hot, remove from the stove and stir in quickly 3 beaten eggs. Pour the mixture over thin slices of toast and serve at once.

Curing Dried Beef.

A tested recipe for curing dried beef is as follows: For every 20 pounds of beef mix thoroughly 1 pound fine salt, 1 teaspoon saltpeter and 1 pound brown sugar. Divide this into three equal parts and rub well into the beef on three successive days. Let it lie in the brine it makes, turning over every day. In a week it is ready to hang up. Hang it in a dry place, only until it is through dripping, then remove to a cool place, if possible. The cellarway will answer if nothing better is available. It molds on the outside in warm weather, but is easily trimmed off and the inside is just right. On the approach of spring put a close muslin paper bag over it.

English Walnut Cake.

The average nut cake is too dry, unless an extravagant amount of butter is used; but the following receipt will be found agreeably moist: Cream one cup of sugar and one-half cup of butter together, add two eggs and a half cup of milk, two cups of flour and one large teaspoonful of baking powder. Have ready a large cup of English walnuts chopped, not too finely, and a cup of raisins stoned. These should be well floured before adding, to prevent their sinking to the bottom. A little grated nutmeg may be used if desired.

Grapefruit.

Cut a grapefruit in half and remove the pulp. Mix the pulp with an equal quantity of celery and chop fine. Chill the fruit cavity thoroughly and fill with this mixture just before serving. Serve on a bed of violet leaves with a few blossoms tucked here and there.—Harper's Bazaar.

SCALLOPED APPLES.

Put a layer of pared sliced apples in the bottom of a buttered pudding dish and dust with a tablespoonful of sugar, a teaspoonful of flour, a sprinkling of cinnamon and a few bits of

Figure on Painting This Spring

A second short flax crop keeps linseed oil up, but the increase in price in pure white lead paint is not so great as you may fear.

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butter. Fill the dish in this manner, cover tightly and bake for an hour. Serve hot or cold, with cream. It may be covered with a sheet of thin pastry, if one wishes, and when reversed and toped off with whipped cream, makes a handsome and acceptable dessert.

USES FOR SALT.

A little salt stirred into whitewash makes it stick better.

Used as a toothpowder salt whitens the teeth and hardens the gums.

Salt will relieve a cold in the head if snuffed through the nose.

A teaspoonful of salt in a glass of hot water will relieve a sore throat if used as a gargle.

Wash your matting with tepid water, a cupful of salt to the bucket, once a month, and your carpet will last twice as long.

Sage tea with a little salt added is the best of hair tonics.

To remove iron rust from cloth put layer of salt on rusted parts, soak with lemon juice and place in sun to dry.

Coarse salt sprinkled in path or road will prevent weeds or grass growing.

When suffering from neuralgia put salt in a small bag, heat it well, and apply where the pain is centered.—Spokesman Review.

PAST HELP.

The man with the old clock under his arm laid it on the jeweler's showcase. "I wish you'd see what is the matter with this," he said.

The jeweler removed the dial, screwed his eyeglass into place and inspected the works of the ancient timepiece.

"Nothing is the matter with it—now; its sufferings are over."

"Well, how much do I owe you?" asked the man.

"Nothing," answered the jeweler. "This isn't a professional treatment. This is a Coroner's inquest."—Youth's Companion.

A MENDING DEVICE.

When a rip or tear appears in a dress do not patch or sew together, but use the following hint, which is a very good one: Cut a piece of mending tissue the size of the rip or tear, also a piece of material to match the garment, of the same size. Place the garment on the wrong side and over the rip or tear place first the piece of material, then the mending tissue and press with a hot iron.

THE CITY BOY.

God help the boy who never sees
The butterflies, the birds, the bees,
Nor hears the music of the breeze
When zephyrs soft are blowing;
Who cannot in sweet comfort lie
Where clover blooms are thick and high,
And hear the gentle murmur nigh
Of brooklets softly flowing.

God help the boy who does not know
Where all the woodland berries grow;
Who never sees the forest glow
When leaves are red and yellow;
Whose childish feet can never stray
Where Nature doth her charms display
For such a hapless boy, I say,
God help the little fellow!

From infancy children should be taught that older people can often eat things which are quite unwholesome for children, lighter desserts or fruits may be substituted for the rich pastry or pudding and a lesson in self-control be presented.

Teacher: "Why do comedies always end with a marriage?" Pupil: "Because that is where the tragedy begins."—Figaro.

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What does it do? Helps farmers to help themselves.
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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 19, 1911.

Butter.

With receipts of butter normal, the market is easy, with no change in quotations during the week.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	20
Firsts	19
Ladles	18
Country	14

Cheese.

Oregon Daisy	16½
Northern	14@16
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Eggs show a cent and a half decline, but with lighter receipts the market is exceptionally strong at this writing.

Paying price f. o. b. Los Angeles is:

Local ranch candled	22½
Case count buying price	18½
Northern	16½@20½
Eastern	20

Dealers pay for live poultry f. o. b. Los Angeles:

Hens, per lb	19
Broilers	27
Fryers	23
Roasters	19
Turkeys	23@25
Ducks	20
Geese	17
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7½
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.25@2.40
Salinas	2.85@3.00
Oregon	2.50
Lompoc	2.85@3.00
Idaho	2.25@2.35
Sweets, yellow, cental	8.00
New potatoes, lugs	2.00@2.50

Onions.

Wholesale quotations:

Oregons	3.00
Imperial, crates	2.00
White wax	2.25@2.50
Northern	3.00
Australian browns, Northern	4.00
Nevadas	3.00@3.25
Utah	3.00
Mexican Bermudas	2.25
Garlic	12

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	50@80
Asparagus, lb	5@7
Beets, sack	90
Brussels sprouts, lb	12
Bell peppers, lb	25
Green chilis	25
Cucumbers, doz	90@2.50
Cabbage, sack	90@1.00
Celery, crate	3.50@4.00
Cauliflower, crate	2.00
Carrots, sack	1.00
Egg plant, lb	10
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, doz	40
Lettuce, crate	1.00@1.25
Oyster plant, doz	40
Peas, lb	6@8
Parsley, doz bunches	30@40
Parsnips, doz bunches	45
Radishes, doz bunches	20@25
Rhubarb, Strawberry	1.00@1.25
Rhubarb, crimson winter	75@90
Spinach, doz	20@25
Squash, Hubbard	3½
Tomatoes, Mexican, crate	1.75
Turnips, sack	1.25

Citrus Fruits.

Navels	1.75@2.75
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.75
Tangerines	1.50@1.65

Fresh Fruits.

Strawberries are coming in plentifully and promise of a fair season is made.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Apples, Bellflowers	3.00
Spitzenbergs	2.50@3.00
Pearmains	2.00@2.25
Newtown Pippins	2.25@3.00
Bananas	4½
Loquats, lb	5@6
Pineapples	10
Strawberries	8@10

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	10½@13½
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.75
Black eyes	7.50
Pinks	6.00
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.30
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.75
Bran	1.50
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.50

San Francisco Market

SAN FRANCISCO, April 18, 1911.

Butter.

Butter is firmer, and both Friday and Saturday of last week saw a half cent advance in quotations. Receipts are 180,000 to 185,000 pounds daily.

Price to trade 2½c in advance of the following Produce Exchange quota-

California extras, lb	21½
California prime firsts	21
California firsts	20½
Seconds	18½

Cheese.

California flats, new	10@12
Cal. Y. America, fancy, new	12½@13
Oregon fancy	12½

Eggs and Poultry.

Eggs advanced on Monday, to the surprise of all. Market is now very active, with receipts at about 2,000 cases.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	20
Firsts	17
Seconds	16
Hens, doz	5.00@12.00
Fryers, doz	6.00@7.00
Ducks	6.00@10.00
Broilers	3.50@5.00
Roosters, doz	5.00@10.00
Turkeys	18@20
Geese	2.50@3.50
Pigeons	1.50@2.50
Squabs	2.50@3.00
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6½
Cows and heifers	4@5½
Calves, lb	5½@7
Hogs	5@7½
Milk lambs	6½@7
Wethers, No. 1	5¼@5½
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	2.00@2.15
Salinas Burbanks, cwt	2.50@2.75
Oregon Burbanks, cwt	2.25@2.50
Lompoc	2.50@2.75
Sweets, cental	5.00@6.00
New potatoes, lb	5@6

Onions.

Onions	3.00@3.25
Australian brown, crate	3.50@4.00
Bermuda seed	2.25@2.50
Garlic, lb	4@5

Vegetables.

Wholesale quotations:

Asparagus, box	75@1.25
Beans, string	15@35
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	50@1.25
Celery, crate	1.50@2.50
Beans, string	15@40
Chili peppers, lb	20@25
Egg plant, lb	8@12½
Lettuce, crate	75@2.00
Peas, lb	5@7
Rhubarb	50@75
Summer squash	1.50@1.75
Tomatoes, Mexican	1.50@1.75
Turnips	60@75

Citrus Fruits.

Navels, new	1.50@2.65
Grapefruit	75@2.50
Lemons	1.50@3.50
Limes, Mexican	5.50@6.00
Tangerines, halves	1.25@2.00

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	75@1.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.25@1.50
Spitzenberg	1.50@2.75
Bananas, Hawaiian	75@1.25
Strawberries, Southern, crt	2.00@2.50
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 11½@13c; Apricots, 10½@13c; do, Moorparks, 14c; Peaches, 6@7½c, with a premium o ⅛@¼c on Muirs; Prunes, bulk basis, 9¾@10c; Figs, 1911, 4@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6@6¼c; Choice, No. 16, 5⅞c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5c; do, 3-crown, 4¾c; do, 2-crown, 4½c. Dried Grapes, 2¾c. Seedless—Muscatels, 4@4⅛c; Sultanas, 4¾@5c; Thompsons, 5¼@5½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	13½
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	13
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.25@6.35
Pink	5.35@5.55
Black eyes	6.50@6.75
Small white	3.40@3.50
Large white	3.40@3.45
Kidneys	6.25
Garbanzos	2.75@3.00
Bayou	4.60@4.75
Horse beans	2.50@2.70
Red Mexicans	5.25@5.40
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	19@22
Hops, 1911 contracts	14@16
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week were 3,597 tons, as against 2,427 tons the preceding week. This shows quite an increase, and to our mind accounts for the dullness in the market for the past week. A large proportion of the hay received has been of an excellent quality, and this grade has shown considerable weakness. We believe had a little more judgment been used in making shipments to this market during the week, and receipts held at about the same figures as last week, the market would have improved rather than becoming easier as it has done.

Reports from country districts regarding the new crop are not as encouraging as they were last week, although we believe we will have a normal crop of hay throughout the state. Export trade has been fair during the week, two steamers having sailed for Hawaii which have taken considerable hay and barley.

Alfalfa has been in large supply, and is weak, owing to so much grass being available.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Barley, fancy	1.50
Barley, good to choice	1.47½@1.48¾
Barley, poor to fair	1.40@1.45
Oats, white	1.50@1.60
Rye, new crop	1.35@1.42½
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	25.00@26.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	30.00@31.50
Rolled oats, ton	27.50@29.00
Middlings	33.50@36.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.00@26.00
Mixed feed, ton	25.00@27.00
Shorts	25.00@26.00

Citrus Fruit Market

LOS ANGELES, April 19, 1911.

The manner in which the orange market is being handled and the great output moved off at satisfactory prices is as surprising as it is agreeable to the orange growers. An output of nearly 50,000 carloads of citrus fruits caused many to express concern as to whether the limit of production is not reached, and many freely expressed the fear of disastrous conditions this season, but navel shipments have reached a stage where it is practically assured that they will all be disposed of before June 1 and at a satisfactory average. To be sure, there has been some decay, which will continue, but the exceptional care now being observed is reducing this to a minimum. Precooling is also very general. Shipments so far this month have averaged below 200 cars daily, but even at this rate all can be handled before Valencias are thrown on the market. Of Valencias there will be between 8,000 and 9,000 carloads.

Conditions of the lemon market are also satisfactory, good stock commanding at this time $3.00 to $3.35 f. o. b. California. Stock is all first class, and promises for record prices when the warm weather strikes the East are freely made.

Shipments.

Shipments of oranges to date since November 1, 1910, 20,971; lemons, 2,488; total, 23,495. To same date last season: Oranges, 13,688; lemons, 2,027; total, 15,715.

LOS ANGELES, Wednesday, April 12.—Five cars sold here today.

Navels, brand, grade, district, etc. Avge.

Red Raven, Fy, Riverside, not shipped 1.57½
Monrovia Heights, Fy, Monrovia, not shipped 1.25
Robin, Sd, Monrovia, not shipped .. 1.00
Aster, Ch, Rialto, not shipped 1.47½
Good Buy, Sd, not shipped 1.22½
Covina Beauties, Ch, Covina, shipped April 11, precooled iced .. 1.15
Sweet Pea, Sd, Covina, shipped April 11, precooled, iced ..... .90
Heap Good, Fy, Or, Riverside, not shipped 1.40
Red Raven, Fy, Or, Riverside, not shipped 1.40
Heap Good, Fy, Or, Jaffas, not shipped 1.40
Squaw, Ruby Bloods, halves, not shipped ..... .70
Red Raven, Navels, half boxes, not shipped ..... .70

LOS ANGELES, Friday, April 14.—Two cars navels, two mixed cars, one car seedlings and one car lemons sold. Brand, grade, district, remarks:

NAVELS— Avge.

Heap Good, Fy, Or, Riverside, not shipped 1.55
Monrovia Heights, Fy, Or, Monrovia, shipped April 10, Chicago, iced 1.37½
Robin, Sd, Monrovia, shipped April 10, Chicago, iced 1.12½

BLOODS—

Heap Good, Fy, Or, Riverside, not shipped 1.30
Monrovia Hgts, Fy, Or, Monrovia .. 1.25

HALF BOXES—

Squaw, ruby, Fy, Or, Riverside, not shipped ..... .65

JAFFAS—

Heap Good, Fy, Or, Riverside, not shipped 1.30

SEEDLINGS—

Monrovia Hgts, Fy, Or, Monrovia .. 1.25
Robin, Sd, Monrovia 2.15
Robin, Sd, Monrovia 1.00

LEMONS—

Captain, San Diego, shipped 2.15

LOS ANGELES, Monday, April 17.—Two cars navels, 1 mixed car and 1 car lemons sold.

Brand, District, Grade, Remarks. Avge.

Heap Good, Fy, Navels, Riverside, not shipped 1.57½
Aster, Or, Navels, Rialto, shipped April 15, iced 1.52½
Good Buy, Sd, Navels, Rialto, shipped April 15, iced 1.27½
Heap Good, Fy, Or, Bloods, Riverside, shipped April 14, iced 1.20
Heap Good, Jaffas, Riverside, shipped April 14, iced 1.20
Squaw, Fy, Or, Bloods, Halves, shipped April 14, iced ..... .60
Captain, Lemons, San Diego, not shipped 2.15

NEW YORK, Monday, April 17.—Fifty-one cars navels, 4 bloods, 2 seedlings, 2 lemons sold. Market strong on oranges and lemons. Weather fair and seasonable.

NAVELS— Avge.

Orchard, Imp, Or, National O 3.10
Standard, Imp, Sd, National O 2.35
Standard, Sd, Imp, National O 2.30
Corona, Imp, National O Co 2.65
Regina, Ch, Growers F Co 2.60
Regent, iced, Sd, Growers FCo 2.40
Euclid, iced, Or, Growers F 3.40
Uplander, iced, Growers F 2.85
Old Mission, Ch, iced, Chapman 2.40
Golden Eagle, iced, Sd, Chapman .. 2.30
Regina, iced, Sd, Growers F Co 2.70
Naralimo, iced, Sparr F Co 2.55
Del Oro, iced, Sparr F Co 2.25
Naralimo, iced, Sparr F Co 2.60
Del Oro, iced, Sparr F Co 2.25
Pinnacle, iced, O K Ex 3.15
Majesty, iced, O K Ex 2.65
Lincoln, Imp, iced, A H Ex 2.85
Navajo, Imp, iced, A H Ex 2.40
Green Banner, iced, Sutherland F .. 2.75
Transcontinental, iced, S S Ex 2.30
Goldfinch, iced, C 1.90
Elephant, Or, Elep Orch 3.05
Elephant 2nds, Elep Orch 2.20
Camellia, Xf, Red, M O Dis 3.00
Caledonia, iced, Xc, Placentia M 2.30
Laverne Heights, iced 2.60
Lighthouse, iced, Randolph 2.25
Wildflower, iced, Randolph 2.25
Laverne Heights, iced 2.30
Half Moon, IMP, iced, Red GOA 2.85
Golden Gate, IMP iced Xc Red G .. 2.60
Half Moon, iced, Red G O A 2.60
Titus Ranch, iced, San Marino 2.70
El Toreador, iced, San Marino 2.50

BLOODS— Avge.

Regina, iced, Growers F 2.70
Regent, iced, Growers F 2.40
Blue Globe, iced, Riv Ex 2.45
Alhambra, iced, S T E Alh 2.35
Blue Globe, iced, Riv Ex, Riv 2.55
Squirrel, iced, A H Ex 2.20
Palm Tree, iced, A H Ex 2.00
Green Crown, iced, A C G Ex 2.15
Niagara, iced, Stewart F 2.60
Symbol, iced, Stewart 2.30

SEEDLINGS— Avge.

Slover Mtn, iced, Growers F 2.15
The Hub, iced 1.80
Victory, iced, Ear F 2.25

SWEETS— Avge.

Green Crown, iced, A C G Ex 2.00
Red Shield, iced, A C G Ex 2.20
S S, iced 1.80
Victory, iced, Or 2.35

Navels, halves—Naralimo, iced, 1.25; Mahala, iced, 1.50. Bloods, halves—Uplander, iced, 1.05; Regina, iced, 1.20; Regent, iced, 1.20; Iris, iced, 1.55; Violet, iced, 1.25; Blue Globe, iced, 1.20; Red Globe, iced, 1.05; Kenilworth, iced, 1.10; Volunteer, iced, 1.30; Blue Globe, iced, 1.40; Squirrel, iced, 1.15. St. Michaels, halves—Blue Globe, iced, 1.25. Tangerines, halves—Euclid, iced, 1.70; Regina, iced, 1.15; Bear, iced, 2.00; Quail, iced, 1.60; Lotus, iced, 1.65; Paul Neyron, iced, 1.15; Lotus, precooled, 1.60; Blue Globe, iced, 1.25; Red Globe, iced, 1.00; Golden Cross, precooled, 1.45; Red X, precooled, 1.45; Squirrel, iced, 1.10; Palm Tree, iced, 90c; Mahala, iced, 1.45. Lemons—Independent, Fy, iced, 3.35; Choice, iced, 2.70; Club, 2.70.

PITTSBURG, Monday, April 17.—Seventeen cars sold. Market steady on oranges and lemons. Cool.

NAVELS— Avge.

Hunter, ACG, Glendora 1.75
Del Diabolo, ECU, Escondido 2.30
Cougar, Covina Ex 1.75
Jasmine, DM, Duarte 2.35
Jasmine, DM, Duarte 2.35
Gavillan, Riv, Arl Sta 2.20
Mt Baldy, Riv Ex, Riv 2.15
Parrot, SA Ex 2.40
Violet, DM, Mon 2.10
Red Globe, Rix Ex, Riv 2.15
Outing, Riv Ex, Riv 2.15
Standard, Sd, National O 2.20
Del Oro, Ch, Sparr F Co 1.40
Hiddendale, ECU, Escondido 2.55
Ranchito, ST, Rivera 1.95
Sunlight, SS, Orange 1.95
La Paloma, Riv, Arl Sta 2.20
Braeside, Riv, Arl Sta 1.95
Owl, OK Ex 2.05
Hawk, SA, Ex 2.10
Jasmine, DM, Monrovia 2.20
Cal Orange, Riv, Ex, Riv 2.15
Orchard, Or, National O 2.70
Circus, Xc, Sparr F Co 1.60

GREENLEAF LEMONS—ST, Whittier, 3.00. SWEETS—Citrus, 1.90; Del Oro, 1.80. ST. MICHAELS, HALVES—Gavilan, 1.20. BLOODS, HALVES—Blue Globe, 1.25.

PHILADELPHIA, Monday, April 17.—Ten cars navels, 12 mixed cars, 1 blood, 1 sweet, 1 seedling and 2 lemons sold. Also 20 cars Florida Oranges sold 1.15 to 3.40, average 2.50. Grapefruit, 1.20 to 3.55, average, 2.65. Market stronger.

NAVELS— Avge.

Pointer, ACG, Glendora 2.25
Valley Beau, SA Ex 1.90
Trail, Imp, ACG, Lamanda Park 2.25
Pointer, ACG, Azusa 2.50
Swallow, OK Ex 2.20
Pointer, ACG, Glen 2.25
Sweetheart, AF, High 2.80
Lake Hemet, AF, Hemet 2.50
Vista Bonita, AF, Hemet 2.15
Floral, SV, Colton 2.25
Colombo, ST, Placentia 1.90
Eagle, AF, High 2.55
Native Sons, King F Co 2.60
Salt Lake, King F Co 2.40
Golden Flower, Xf, Red GOA 2.25
Conqueror, Ind F Co 2.05
Floral, SB, Colton 2.30
Salt Lake, King F Co 2.50
Cal Beauty 2.35
Pheasant, Xc, Ind F Co 2.25
Freedom, Ch, Ind F Co 1.65

LEMONS—Blue Jay, 2.25; Euclid, 3.20; Flower, 2.70; Plain, 2.20. BLOODS—Tiger, 2.30; Floral, 2.10; Pointer, 2.10; Pointer, 2.20; Heart of Gold, half box, 1.25; Colton Terrace, boxes, 2.10; Rancho, 2.05; Mother Colony, 2.10; Heart of Gold, 2.25; Yankee Doodle, 1.15; Cal Beauty, 2.30; Salt Lake, 2.20. HALVES—Floral, 1.10; Quail, 1.20; Heart of Gold, 1.25; Mother Colony, 1.05; Heart of Gold, 1.15; Magnolia, 1.10. JAFFAS—Hunter, 2.00. TANGERINES HALVES—Stag, 95c; Heart of Gold, 95c; Tiger, 1.05; Floral, 95c. SEEDLINGS—Vista Bonita, 2.15; Lake Hemet, 2.00; Luna, 1.75. SWEETS—Vista Bonita, 2.15; Lake Hemet, 1.85; Solano, 1.95.

BOSTON, Monday, April 17.—Twenty-four cars sold. Clear and cool. Market strong and higher on oranges; slightly higher lemons.

NAVELS— Avge.

Planet, SS, Orange 2.70
George Washington, SS, Tustin 2.55
Robusta, AH, Pach 2.80
Tallyho, SB, Rialto 2.85
Eagle, AF, High 2.75
Princess, QXXC, Corona 2.70
Camel, QC, Corona 2.70
Red X, OK, Ex 2.80
Robusta, AH, Pach 2.80
Euclid, Or, Growers F 3.10
Orchard, Or, National O 2.95
Elephant, Or, Elephant Orch 2.85
Diamond A 2.75
Elk, R Henderson 2.70
Standard, Sd, National O 2.55
Diamond B 2.45
Hemet Heights 2.35
Cove, Sd, E Peycke 2.05
Excelsior, Ch, Earl F 1.95

LEMONS—E High A, 3.05; Diamond B, 3.00; Pet, S Ex, 3.55; Arab, 3.00; Pup, 2.75; Pet, 3.45; Arab, 2.90; Pup, 2.70. BLOOD HALVES—Heart of Gold, 1.20.

CHICAGO, Monday, April 17.—There are moderate offerings of lemons. Trade is fairly active and the market firm. Boxes, California fancy 300s, 3.35@3.50; 300s, 3.00@3.25; off sizes, 3.00.

Oranges—Fancy California navels are firm. Boxes, California navels, sound or made sound, extra fancy, all sizes, 3.00; fancy, 2.75; extra choice, 2.50@2.65; choice, 2.25@2.50. Cars in original condition depending on condition, 1.25@2.75.

CINCINNATI, Monday, April 17.—Cool. Market very strong on oranges, advancing on lemons. Five cars navels, one Florida, one lemon sold. Florida Valencias, 2.70 to 3.25.

NAVELS— Avge.

Teal, Covina, Ex, Covina 2.45
Don Quixote, ST, E Alh 2.15
Pointer, ACG, Azusa 2.40
California, ST, Co Farm 2.25
Alhambra, ST, E Alh 2.35
California, ST, E Alh 2.00
Hunter, ACG, Azusa 2.40
Parrot, SA, Ex 2.60

LEMONS—Pet, SA Ex, 3.55; Arab, 3.40; Pup, 3.20. BLOODS—Parrot, 2.70. HALVES—Parrot, 1.50.

CLEVELAND, Monday, April 17.—Five cars navels, one lemon, four mixed cars sold. Market unchanged on oranges, higher lemons. Cold, clear.

NAVELS— Avge.

Fiesta, Riv Ex, Pach 2.15
Billikin, Riv Pach 1.95
Yankee Doodle, AF, High 2.00
Royal Knight, RH, Red 2.85
Red Globe, Riv Ex, Riv 2.00
Outing, Riv, Ex, Riv 1.90
Hawk, SA Ex 2.05
Robusta, AH Pach 2.80
Hobo, AH Pach 2.20
Billikin, Riv, Pach 1.95
Parrot, SA Ex 2.00
Robusta D, AH Pach 2.75
Hobo D, AH Pach 2.20

LEMONS—Pet, SA Ex, 3.65; Arab, 3.65; Greyhound, 3.60. BLOODS—Billikin, 1.80; Mother Colony, 2.10. HALVES—Mother Colony, 1.10; Ben Hur, 1.05. SEEDLINGS—Mother Colony, 2.10.

ST. LOUIS, Monday, April 17—Clear and warm. Market is advancing. Thirteen cars oranges and two cars lemons sold.

NAVELS— Avge.

Belt, RH, E High 2.50
Butterfly, Covina Ex 2.05
Cougar, Covina Ex 2.10
Newsboy, RH, Red 2.35
Hunter, ACG, Charter Oak 2.20
Carnation, Xc, G & Speich 2.70
Premium, Or, Benchley F Co 2.45
Royal Pack, Ch, Randolph F Co 1.65
Parrot, SA Ex 2.50
Teal, Covina Ex 1.85
Parrot, SA Ex 2.45
Pointer, ACG, Charter Oak 2.35
Possum, ACG, Charter Oak 2.35
Daisy, Ch, G & Speich 2.30
Superior, Ch, Benchley 2.25
Cove, Sd, E Peycke 1.25

LEMONS—Mission, ST, Santa Barbara, 2.75; Festival, 2.70; Blondina, 2.15; Bonanza, 2.75; National, 2.70. BLOODS—Parrot, 2.05. HALVES—Parrot, 1.15; Stag, 1.55. TANGERINES HALVES—Stag, 1.25.

ADVANTAGES OF GOOD COMBS.

(Continued from Page 490.)

in uncapping when extracting, and extracting, and breakage of combs in the extractor.

The reduction of the brood capacity resulting from crooked combs amounts in bad cases to one-quarter of the total comb surface of the brood nest. Only when combs are quite straight is the whole of the comb surface available for the raising of brood. The normal spacing of brood frames is 1⅜ inch from center to center. The distance has been arrived at as the average of many measurements of the worker combs of bees built in a state of nature. Left to their own devices, as in box hives, bees will rarely build their combs in straight lines, but, whatever their shape, there is always a space just sufficient for the purpose between opposite faces of brood combs.

It is different in the case of combs in frames. The placing of crooked combs between straight ones or bent the reverse way, brings the surfaces in places so close together that one side cannot be occupied by brood or, if containing brood already, it will be removed by the bees to produce the required space. Large patches of vacant cells are thereby created, spreading the raising of brood over a larger surface, or restricting development of the colony in early spring owing to insufficient animal heat for the larger space. Apart from the blanks referred to, there are, in combs built on buckled foundation, a considerable number of cells which cannot be used for worker brood. The cells on the convex side of the curve of the comb are too large, while on the concave they are too small.

The greatest drawback of crooked combs, however, is the difficulty of, and waste of time in, uncapping the combs for the extrator. A straight comb can be uncapped with one cut of a 12-inch honey knife, while a crooked one requires a number of cuts at different levels. During this operation the structure of the comb is more or less damaged and the comb weakened, resulting in fractures in the comb baskets of the extractor. Combs are in use for many years. I have some twenty years old. It is therefore good economy to get them as nearly perfect as possible in the first instance and save the time wasted in handling bad combs. The labor of the bees is also put to the best use in the raising of brood.—Journal of Agriculture, N. E. W.

Thomas A. Edison says——

"The coming farmer will be a man on a seat beside a push button and some levers."

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SAN LEANDRO, CALIFORNIA

California Cultivator

An Illustrated Weekly devoted to Horticulture and Agriculture

LOS ANGELES · APRIL 27, 1911 · SAN FRANCISCO

A FINE IRRIGATING SYSTEM IN SUNNY STANISLAUS

Upper Photo, Sluice Gate; Middle, A Dairy Herd at Patterson; Lower, Street Scene, Patterson, Stanislaus County.

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California Cultivator

Vol. XXXVI. No. 17. LOS ANGELES: THURSDAY, APRIL 27, 1911 One Dollar the Year

Standardize the Fruits, Standardize the Grower

Address before the Fruit Growers Convention at Stockton by Marshall De Motte, of Corning, Tehama County.

The conditions under which most of the business of the world is transacted have come to us through years of gradual growth and development, and success has been attained and the laws governing success formulated by a process of natural elimination and survival, so from the standpoint of experience theory can be evolved and practice told with clearness and precision, but regardless of the fact that fruit has been marketed for more years than have carpet tacks, and that it has been proven with tacks and all other staple merchandise that a dependable package is essential, yet it has been left for the last few years to develop the first inclination toward a strictly dependable package of fruit. I am sure that this condition exists simply because the theory of public utility, commercial desirability and financial benefit to be derived from having a dependable pack has never before been deduced. It has been a proverbial misnomer that the farmer is practical, but the Yankee farmer who packed his apples with a fine face and the rest of the barrel culls was as impractical as the ostrich who stuck his head in the sand to get out of sight. Though from his own standpoint each might laugh at the other, we can laugh at both. The Yankee farmer with his apple pack was own father to the Western orchardist who until within a comparatively few months has pursued a similar course.

Then along came a bunch of Oregon apple men. I am not sure that they were the first to standardize, but they got the limelight very early. These Oregon men apparently undertook to show the world two things; one that they grew good apples, and the other that they grew enough good apples to fill a whole box with apples equally good; and in this they advertised their locality, that they might sell their land. I take it that it was for no moral or altruistic reason, simply business. But it took the world by storm, and did several things besides the above mentioned two, for people everywhere gave them the credit of an honest purpose, and the world praised them for their honesty, while they praised their apples and their valley until it began to look as though they were the only people who could do such things. Have you ever heard that as good an apple, or better, can be raised in New York or Michigan than in Oregon? We have all heard such a statement, and no one who has had an opportunity to judge questions its truth. I am told that a few growers "way down East" are awakening to the possibility, not of growing better apples, but of standardizing their pack, that they may get into the market. If they do this, we know that success will come to them where failure has been with them in the past.

The Psychological Moment.

Consider, for a moment, the fruit industry as we faced it a year or two ago, before we got a standardized state horticultural commissioner. It was not a question of fruit, for methods for the production of both quantity and quality have been taught to our growers so that even quality can ask for little more. It is not a question of honesty, for honesty is individual, and you cannot make all men honest, not even by rules or laws. But it was a question of first realizing our need, and then of adopting some means of getting our fruit packed and on the market that would place it in the class of dependable commodities and worthy of the best price the market could pay. Common practice has long since taught the makers of most staples the necessity of putting out a dependable pack, and common practice would doubtless eventually have pounded this necessity into us fruit men, but it was taking too much time. Organization, we are finding, will do it much more quickly.

Nails and Fruit.

Farmers are generally called honest, but if the ordinary fruit packing of former years be considered as a study in honesty, then there has generally been more honesty in the packing of a five-cent paper of tacks than a whole carload of fruit. When you go to the store to get a keg of three-penny nails for your fruit boxes, you find the same size nail in the bottom of the keg, and net weight. Now, you know that twenty-penny nails are cheaper. Why does not the maker of the nails put a few twenties in the bottom of the keg? If he buys fruit, he is likely to find it packed that way. The low-browed son of Europe who filled that keg is not more honest than your packing crew, and he packed as he did, not because of his honesty, but because of the rules under which he worked, and an equally dependable package of fruit will come only when your rules and the public demand have placed fruit in a similar trade position.

Mechanical Honesty.

This whole business must be taken off the plane of moral honesty, because not all men are morally honest, and put on the plane of business expediency, or as I said on another occasion, not moral honesty, but mechanical honesty, that is, doing the thing right and always the same because that is the way and the only profitable way to do it. You must so drill this into the people who do your packing that they will know no other way, thus educating the public till they refuse to do business with men who do otherwise.

It has taken years to get fruit growing up to the present state of perfection and it may be that the delay in undertaking general standardization has been the natural awaiting the time when men could raise fine fruit and go at it to do the same thing season after season. One year's work in standardization furnishes ample warrant for our expectation that speedily the fruit trade will be on a par with tacks and nails and sugar and such things, and that we will be doing by others as we expect them to do by us. We have started, let us go forward.

The Eye Sells the Fruit.

To be sure selling tacks is different from selling fruit. A man buys tacks because he needs them, but he buys fruit because he wants fruit, and for this reason the utmost care should be used in preparing it for the market. Very generally it is said that the eye sells the fruit and this appeal to the eye of the consumer must be the means of compelling the need of our merchandise. But just think how many eyes must play salesmen in the transaction before the fruit comes to the eye of the final consumer, and each eye that has a part in the sale must be single in its purpose of achieving the highest end, the greatest profit. So, to get the best results and realizing that the eye sells the fruit, we must guard against the eye of greed on the part of the grower who would neglect the well-known and tried methods of cultivation and produce quantity at the expense of quality and attempt to force this on the market. We must guard against the eye of deception in the packer who would try to make such fruit look better than it is. We should labor with the railroads who manifest the eye of avarice and seek to get out of the business, not their just share, but all that the business will stand. We must guard against the eye of cupidity on the part of our selling agent, but what can the man whose eye is evil, be he grower of poor fruit or packer of deceptive packages, say to the crooked agent who is simply another branch of the same ill-kept stock. Get ourselves right and we will be able to demand and get right from others. After the fruit has passed through all its stages under eyes single to its perfect growing, packing, shipping and selling it will meet the final delighted eye of the consumer and our reward will come. It cannot be that this condition can be reached other than through standardization.

Standardization.

We must standardize from the ground up, that is, we must standardize from the locality up, or from the state horticultural commission down. The fortunate experience of the past year has left little for me to say on standardization of our state horticultural commission. The same high standard should be set for every county and deputy commissioner. This business is too important and serious to be allowed to drift into politics. It is our business and it will be our fault if we ever submit to political influence in this particular work.

Standardize Nursery Men.

The nursery man and his stock need to be standardized. A few years ago pedigreed nursery stock was unknown, a standard could not be set and chance ruled results, but it is known and appreciated now that nursery stock can and therefore must be standardized and we will soon find a way to test a man's stock by known standards and make him live up to name and variety in harmony with his claimed pedigree. Our farm school is at work on fruit tree standards and pedigrees now.

Standardized Localities.

A third and important step in this course must be the standardization of localities. In the old communities this has been gradually done, but the vast new tracts that are being put on the market for colonization should be thoroughly studied for standardization.

The real estate man who claims that his land will grow anything but hair on a bald head must find and admit that this is but a small fraction of a truth. To grow, and to grow profitably are two radically different things. Each soil, each altitude and each locality has its preferences and these things must be studied to standardize. I am sure of this because I live in a community that has passed through its period of standardization. In 1892, eighteen years ago, the Maywood Colony, the oldest successful colony in the northern part of the state, was organized at Corning, and soon after the Richfield Colony was started at the same place. The ignorance of the early settlers, who came for the most part from the East, was fully matched by the ignorance of the local people as to what would thrive and as to cultural methods. Remember that when these colonies were started there was no local data and that many of the old settlers claimed that fruit would not grow there at all. Time has been the school room; failures, successes and experiences the studies that have graduated this community in standardization, and today her diploma reads olive, Elberta peach, almond. These three crops do best there and should be stuck to for commercial planting regardless of the fact that almost every other kind of fruit from oranges and lemons down, does well. Special plots of land for certain reasons may be specially suited for certain other crops but the locality as a whole should be carefully standardized to get the best results for all. To this end each town should have a permanent local exhibit of its

(Continued on Page 522.)

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Citrus and Tropical Fruits

A WIDENING HORTICULTURAL HORIZON.

By F. W. Popenoe, Pasadena.

With a climate adapted to the growth of a majority of the plants of the temperate and tropical zones, California has an almost unlimited field upon which to draw for new and interesting products. Every year a number of new plants are added to the already large list of those that can be successfully grown here, and yet our horticultural resources have scarcely been touched. The tropics and subtropics of the whole world is the field to which we can look for interesting and valuable things to be grown here. Vast numbers of plants which are commonly found in cultivation in tropical countries have never been given a trial in California, and beyond this there are still extensive regions to be explored. Among the plants already introduced which have proven their adaptability to this climate are several which give promise of coming into general demand in the near future. Some of these are already beginning to attract the attention which their value merits and will soon be counted among the commercial fruits of California.

At present the Avocado is claiming the attention of many horticulturists. This salad fruit promises to rank with the orange as a commercial product, indeed even to outstrip it. Being of a tropical nature, its culture is restricted to California and Florida, and the demand for the fruit is rapidly increasing as it becomes known, so that it is sure to be one of the most profitable that can be grown in the localities to which it is suited. The Avocado possesses a high food value and for that reason will be considered not as a luxury but as a food product. The avocado industry is already established in Florida and the next few years will see its establishment here along the same lines. The California nurserymen are now directing their efforts toward the securing of choice varieties from Mexico which are adapted to this climate, and once these are established it will not be long before the culture of this fruit becomes an important matter.

The mango is one of the most important tropical fruits, and has been aptly termed "the apple of the tropics." In its finer varieties it is one of the most delicious fruits grown. The fruits are commonly red or yellow in color, weighing from a few ounces up to three pounds or more, and the juicy yellow pulp is most fragrant and delicious. It is cultivated in all tropical countries, and in India has been under careful cultivation for centuries. Countless varieties have there originated, of which over two hundred are now catalogued, and it seems practically certain that of the innumerable varieties, suited to a wide range of climatic conditions, some will be found suited to the conditions which obtain here. At Saharanpur, in the northern provinces of India, where a collection of over fifty varieties is successfully grown, the climate is somewhat similar to ours, there being a distinct wet and dry season, and the winters are cool. The superintendent of the botanic gardens there states "undoubtedly a high temperature is necessary for the ripening of the mango, and moreover a dry one is preferred. The fruits ripen here from May to July, and they thus have the hottest and dryest time of the year in which to ripen. Generally there is during May a hot dry wind which no doubt acts on the acids of the fruit." Professor C. F. Baker of Pomona college, an economic botanist of wide experience in tropical countries and a scientist of more than national repute, predicts a great future for the mango in California, and believes the establishment of a mango industry is only a matter of testing as many varieties as it is possible to obtain and finding those which are suited to this climate. The mango has never been given a thorough trial in California, in fact it has scarcely had any trial at all, the few trees which have been planted being seedlings of Mexican fruits from locations widely different in climatic conditions from ours. These trees have, however, withstood the climate for as much as 25 years in one case at least, and made considerable growth and produced fruits of fair size.

A plant which promises to far surpass the strawberry guava as a popular favorite is feijoa sellowiana from South America, introduced into California in 1901 by Dr. F. Franceschi of Santa Barbara, whose untiring efforts for the last fifteen years or more have added many valuable and beautiful plants to California gardens. It is closely related to the guava and resembles it in habit and character. The green, egg-shaped fruits are of most delicious pineapple flavor, and are always appreciated by every one. It is perfectly hardy here, and indeed is found to be hardy in England, and it will probably rank as a commercial fruit in the near future, as it stands shipping perfectly. The shrub is most ornamental, and taken all in all, the Feijoa (pronounced Fay-zho-a, accenting the middle syllable) far surpasses the guava in points of value.

The white sapote (Casimiroa edulis) is a Mexican fruit which has been grown here to a very limited extent for many years, it being brought from Mexico by the Franciscan fathers and claiming the honor of being the first tropical fruit introduced into California. It succeeds perfectly, and the fruits which resemble in appearance an apple or a quince, are of most delicious peach-like taste. When its propagation is better understood, so that the finer varieties can be perpetuated, it will doubtless become common all over California.

The Cherimoya (Anona cherimolia) is fairly well known here already. It is easily grown and the fruits are sold at very remunerative prices in the local markets. The better varieties are of good size and delicious flavor and as these are now propagated by budding this fruit bids fair to become popular here and of considerable commercial importance.

A tree which will undoubtedly become important is the Queensland nut (Macadamia ternifolia). It is very ornamental, having dark green, holly-like leaves, and is quite hardy. The nuts are similar to filberts, but about one inch in diameter and have a much thicker shell. They are of very fine flavor, similar but superior to the Brazil nut, and are said to sell in the London markets for $2.50 a pound. Although the tree is a slow grower and does not come into bearing until

seven or eight years old, it produces regular and prolific crops after that time and is certain to be a very profitable tree.

Numerous species of guavas (Psidium), many of them introduced by Dr. Franceschi, are proving well adapted to this climate and will be found valuable additions to our list of fruiting plants. These fruits are widely used in tropical countries for making jellies and jams, and will be grown here for the same purpose.

Several species of eugenias, such as E. Jambos, the Rose Apple, a fruit resembling an apricot but deliciously rose scented, are a success and will become popular in time, although it is doubtful if they will reach a commercial importance.

The papaya or papaw (Carica papaya), is very highly esteemed in tropical countries, has been successfully fruited in the open at Hollywood for a number of years. While the fruits produced have been small and scarcely palatable, by the introduction of varieties better suited to this climate this fruit might become a valuable acquisition. It seems more tolerant of cold than excessive moisture, and for this reason might be found better suited to the dry interior valleys than to the coast country.

There are numerous other fruits which are little known as yet, and the list of fruiting plants which will succeed in California is constantly being added to, so that many which are not known here at present will in time prove their citizenship, and thus through the efforts of those interested in the introduction of economic and fruiting plants, our horticultural wealth will all the time be increasing.

ALKALI FROM NITRATE OF SODA.

Referring again to the letters of Drs. King and Hilgard on the possibility of charging soils with black alkali through excessive use of nitrate of soda, we have asked for expressions from orchardists and have the letters given below. We may add also that we have heard of applications of nitrate of soda to the extent of 35 pounds at one time to young orange trees with no apparent ill effect. Mr. Carroll B. Smith of Redlands feels that the case made by Drs. King and Hilgard is worthy of serious consideration. However, it will be noticed that in his letter he admits that he is still using nitrate of soda in his orchard.

Carroll B. Smith, Redlands.

As regards the discussion relative to nitrate of soda producing black alkali as stated by Drs. King and Hilgard in their letters read at the recent San Bernardino Fruit Growers Association, you must remember that these warnings have special reference to the future, say, 40 or 50 years or more, and are based on the experience of older countries, notably England. And the contention of these gentlemen, while their authority alone would be sufficient, is also strongly supported by A. D. Hall, director of the Rothamsted Station, England, and many others.

It cannot be denied that the use of soda has been wonderfully beneficial to our groves as regards crop production and general health and vigor of trees, especially where the spring application is necessarily late, and I am using it myself, yet this does not affect the contention of the gentlemen mentioned. It is a timely warning which 50 years from now may be an interesting bit of history.

Prof. J. H. Norton, Chemist in Charge, Citrus Experiment Sta., Riverside.

During the last six months I find the following articles published in the Cultivator: Oct. 13, "The Great Soil Convention;" Nov. 17, "Nitrate of Soda;" Jan. 19, "Nitrate of Soda as a Fertilizer for Citrus Trees," "The Rational and Irrational Use of Nitrate of Soda;" Feb. 9, "Nitrate of Soda Again," and Mar. 16, "Citrus Fruit Growers Convention." Each of these articles dealing more or less with the objections to the use of nitrate of soda as a fertilizer under our Southern California conditions, and at your request would like to add another opinion or rather review these articles.

This whole discussion was precipitated by Dr. King bringing up the fact, which by the way is nothing new, that the residue left by the use of nitrate of soda formed sodium carbonate or black alkali in the soil. The harmful effects of black alkali as well as its formation from the use of nitrate of soda is conceded. Then the only point which admits of discussion is the possibility of the accumulation of enough black alkali under local conditions to do the dreaded injury to our soils.

A case came under my observation last summer in which about one per cent of the nursery trees in a young nursery had died and on inspection it was found that the trouble was just beneath the surface of the soil. This was a heavy adobe soil with only a trace of alkali in it. The nursery had gone a long time between irrigations with very, very little cultivation and the result was that all of the little alkali had accumulated within one inch of the surface of the soil. This being the case the alkali solution at this point was strong enough to attack the young plant in about one per cent of the cases and girdle it just beneath the surface of the soil. If this case represents Southern California conditions then it would be highly objectionable to use even a trace of nitrate of soda. Referring to the closing paragraph of Dr. Hilgard's letter in recent Cultivator he says that the adobe soil is the exception and the light and pervious soil is the rule in this state. The cultivation of the above nursery was nothing like representative of this section, so the case cited is the rankest extreme. Another extreme case I have in mind is where I used 25 pounds per tree of nitrate of soda at one application without any specially marked benefit and no injury whatever. This soil was of a very loose sandy nature well cultivated and well irrigated.

Then the question is at what particular point between these two cases does the particular soil we have in mind lie. The nearer we approach the above type of soil, the poorer the cultivation and the poorer the irrigation, then the more danger there is in the use of nitrate of soda.

All this discussion has been too general except that of Dr. Hilgard and he has pointed out how leaching of alkali from the majority of our soils undoubtedly takes place and now is the very time to determine this question for the particular soil you have in mind. The recent rains have penetrated many soils to the depth of ten or twelve feet and in that case the alkali has gone down also and in soils open enough for this penetration to take place a return of the alkali is hardly probable. It is surprising how many of our soils, in spite of

(Continued on Page 532.)

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STORAGE IN TRANSIT.

The apple season of 1910 and 1911 will always be remembered as remarkable for the extremely high prices paid for barrelled apples, which have been the highest in the history of the apple industry, and the extremely low prices for box apples, which have been the lowest in the history of the apple industry.

The demand at all times has been dull and dragging on boxes, and strong and active on barrels. This in spite of the fact that the quality of box apples has always been superior to barrelled apples.

What is the reason of this paradox? Can it be possible that the more scientific and careful the growing and packing of apples become, the less they are appreciated? Has the expert packing of apples, which has reached its highest development in the apple-producing sections of the Pacific Slope, only had the result of making the public prefer the rough-and-ready, slap-dash packing of barrelled apples, especially when it is known that the great majority of these barrelled apples contain, with the exception of those on the face or top of the barrel, apples suitable only for cooking? No, there is a sensible reason for the fact that box apples have not been wanted and have ruled at low prices. The reason lies in the method of distribution of the two classes of apples. The barrels have been shipped to every market in the country, large and small. There has been a strong demand for them in England and Germany. Western New York fruit houses have had a steady demand and drain on them from the West and the South and from the East and from the lands across the sea. There was about an equal quantity of apples packed in barrels and boxes; the barrels are being consumed in a thousand places, the box crop practically was marketed in two places—Chicago and New York. Of course, there was some small amount of boxes shipped abroad, especially California Newtons, and some few cities like Philadelphia and Boston had a small amount of boxes, but the markets of New York and Boston were at all times over-supplied. The newspapers are filled with flashing advertisements on the part of a few dealers stating the hundreds of thousands of boxes that their firm would have the distinction of handling. One Chicago house blazoned forth to the world that they had disposed of a thousand cars. The impression was given that the quantity was so unlimited on the part of every large dealer in Chicago and New York that every smaller dealer shut out the temptation of investing in them.

This absolute lack of intelligent distribution came about through the rigid rules of the railroads regarding freight rates on box apples. One dollar per hundred is the rate on a carload of box apples, whether shipped to Denver, Chicago or New York, and when stored at one point or the other it cannot be reshipped without paying another freight rate. If a storage in transit privilege should be allowed on shipments of box apples, there would at once develop a system of distribution which would scatter the crop of box apples all over the country; it would place them in consumption where they were most wanted. The crop of box apples, amounting to twenty million boxes, is transported in a month and a half, but it requires nine months to consume it, even though it should be scattered in every city, large or small.

By the storage in transit privilege is meant the privilege to ship the car to any warehouse that is desired, and later on, when the owner desires to market that car of apples, to ship it to its ultimate destination and pay for the total services the through rate from the initial point of shipment to the ultimate destination, and a switching charge in addition, because that is the only extra service in addition to the through haul that the railroad has rendered in granting this privilege. It is impossible for the owner of a considerable amount of box apples, whether he is a grower or the Association of Growers or a merchant who has invested his money in their output, to tell what market during the coming nine months after the crop is gathered will be a desirable market for his apples. He can tell less because it is a new industry and only cities of the larger size have developed the use of box apples.

With the very great increase in the production of the far western orchards, amounting last year to twenty million boxes, it is essential for the prosperity of the growers in the far West, or any person who desires any part in that industry, whether railroads or warehousemen or merchants, to do a lot of missionary work in scattering the crop and introducing it to the cities of smaller size and the European markets. A lot of this missionary work has been done already, and the crop would flow to cities of the second class as well as the first class if the railroads would see to it that a flexible method of distribution was permitted by granting the storage in transit privilege. The greatest benefit would go to the railroads between Chicago and New York. In that district half of the wealth of the country lies, and half the crop of box apples should be there distributed. With the exception of one railroad, the Erie, the other transcontinental lines from Chicago to the East have next to nothing of this traffic. The storage in transit privilege would give to them a very large share of this traffic. It is of the utmost importance, therefore, that all growers and growers associations and all apple dealers should bring this information to the attention of the head officials of railroads—it will help them more than it will help the general industry.

In addition, it is a matter of importance to all persons interested in the apple industry, whether in barrels or boxes, because if the box industry is placed upon a healthy and profitable basis the capital available for investment in apples will flow toward that part of the industry and leave the barrelled apples open to a natural competition, but not to the excessive competition that now exists.

Yet grieve thou not, nor think thy thy youth is gone,
Nor dream that glorious season e'er could die.
Thy pleasant youth, a little while while withdrawn,
Waits on the horizon of a brighter sky. —Bryant.

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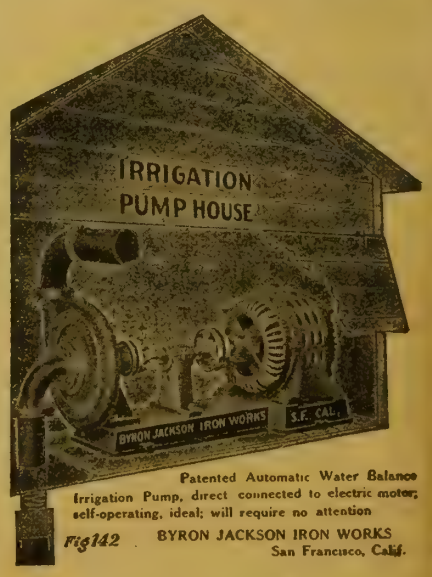

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RAISIN HISTORY.

In the old days, the far days, when the world was younger and simpler, raisins, figs and honey were the only sweets. Sugar, even in Roman times, was a rare drug, prescribed for medicine. Sweet foods and drinks were made with honey and raisins. The sweet wine, which the Roman matrons were permitted to drink, in the sober times of the republic, was a sort of a syrup of raisins steeped in wine. The Greeks had a similar syrup, prepared somehow with smoke. In all the Mediterranean countries, raisins were one of the earliest and most universal articles of food. The gift of Abigail to David was "two hundred loaves, and two bottles of wine, and five sheep ready dressed and five measures of parched corn, and an hundred clusters of raisins and two hundred cakes of figs." When David, pursuing the Amalekites, came on a famished Egyptian slave left behind too weak to talk, they "gave him bread, and he did eat; and they made him drink water; and they gave him a piece of a cake of figs, and two clusters of raisins; and when he had eaten, his spirit came again to him." One of the prohibitions of those who had taken the vow of a Nazarite, during the time of their separation, was that they should not "eat moist grapes, nor dried." During all the Middle Ages, raisins were one of the articles of commerce, across Europe, when almost all other commerce was stopped. Raisins were part of the food served by the early Russian Czars to their drujina, or followers. During the darkest of the Dark Ages, some commerce still survived, in the most precious things—pearls, silks, wine, women and raisins. England has been, for more than a thousand years, the principal raisin importer of the world, deriving her raisins from Spain, Smyrna, Calabria, the Lipari Islands, the South of France, and, recently, from Africa, Australia and South America.

The oldest way of making raisins is simply to leave them on the vines until the clusters are dried. Those are Shakespeare's "raisins o' the sun." A quicker way is to cut the stalk part way through, to hasten drying. More commonly, they were cut and laid on the ground. "Dipping" has always been common—in Spain and France, dipping in a lye solution; in Asia Minor, dipping in hot water on which floated a film of olive oil. The finest raisins have always been served in clusters; the commoner sorts were always more or less separated from their stems.

These were the raisins which were the world's luxury, until California produced better raisins, more cheaply, for the world's food. California produced for the first time clean raisins, dried on wooden trays. California first equalized the moisture and graded the size of raisins. California first marketed stemmed raisins really stemless, and finally seeded raisins really seedless. California first offered a surfeited world already cloyed with sweets, raisins palatable to even its jaded taste. And now California raisin day publicity is teaching the world a hundred new ways to serve raisins, and a hundred new reasons for eating them.

The only foods older or more universal than raisins are meat and bread. From the beginning of time, raisins have marked the center and the spread of civilization. They were the first luxury, and have been the chief delicacy of mankind. Of all staple things, only wheat and beef surpass them. And of all staples, no others are so strictly limited in their field of production.—Fresno Republican.

APRICOT OUTPUT.

Continuing the observation made last week regarding the coming apricot crop we quote below the opinions of other growers. We may also add that many sections of the Sacramento and San Joaquin Valleys were visited on April 13th by severe frosts which did great damage. This was less apparent on apricots than on peaches and some other fruits. It now appears that the damage will not be so complete as at first feared, as careful examination in many sections shows full setting of fruit uninjured. Reports from the section about Santa Ana are that the warm weather of the last two weeks has produced a rapid growth which has put apricots out of all danger from foggy weather or rains, and a large crop is now practically assured.

Hilling Sweet Potatoes with Planet Jr., in New Jersey.

L. T. Webster, Carpinteria, Santa Barbara County.

It is hard to make an estimate but from present prospects they are below normal and not one-half of last year. We had a cold rain the last part of March and stayed foggy for ten days. The old blossoms were still on the young cots and they rotted badly.

M. W. P. Wright, Moorpark, Ventura County.

In our little valley here a severe frost has materially hurt our fruit and we look for a very small yield.

H. O. Sorkness, Hemet, Riverside County.

We had a prospect of a good crop of cots here until last Saturday morning when we had a frost that hurt many of the orchards. Some of the more favorably located are not hurt so badly and will have a good crop, but a great per cent of the orchards are badly hurt. Some will not have more than one-fourth crop. What per cent of crop the entire valley will have is hard to say as yet.

A. S. Westmoreland, Valley Center, San Diego County.

The apricot crop of this valley will be very short, due largely to the heavy rains about April 1, when in full bloom. Many trees have shed their entire bloom, others not quite so bad, and can estimate the crop now at not more than one-sixth of a full crop. The weather has now cleared up, warm and pleasant, and we expect a heavy crop of peaches, prunes and plums.

F. E. Lowe, Oceano, San Luis Obispo County.

The apricot crop of the Arroyo Grande Valley and vicinity promises to be much better than last year, probably almost a full crop. It has been necessary to thin the cots in some orchards.

H. E. Twomley, Santa Paula, Ventura County.

In reply to your letter, will say that the crop in this section seems very spotted. Some report heavy crops, while others are nearly failures. The continued rain and foggy damp weather seemed to rot the cots on the trees before the dried calyx had shed off. As for myself, I expect a half crop. Last year I had twelve tons of dried fruit; this year I am looking for six tons and will hope for eight tons. Two years ago I had thirteen tons. I thank you for taking this means of informing the growers as to the existing conditions of the crop of the state, that we may know better what to expect.

Thomas W. Spier, Ventura, Ventura County.

It is rather early to say just what the apricot crop will be. Some growers to whom I have talked say the crop will be light, others expect a fair crop. From my own observation I should say the crop will be 65 per cent of normal, certainly not a full crop. Late rains, frost and heavy winds have hurt the crop. Later in the season I can give you more accurate data.

John Tuohy, Tulare, Tulare County.

Apricots will be a short crop.

A. Hancock, Bakersfield, Kern County.

Apricots will be light in this county. Don't think over half a crop.

SPRAYING FOR THE CODLING MOTH.

It is a recognized fact that if the fruit grower expects to get a good crop of apples he must prune, cultivate, irrigate and fertilize the orchard at the proper time. Yet, very frequently, after we have gone to the trouble and expense of performing all of these orchard operations, we fall down at the last moment, and permit from one-half to two-thirds of the crop to be destroyed right before our very eyes by insect pests. Spraying is now considered as necessary in orchard operations to produce a crop of sound apples as pruning or irrigating. There is no longer any doubt as to the good that spraying does. Just consider the vast sums of money that are being expended every year on the spraying of trees throughout the United States. Why do fruit growers do this? If the results at the end of the year did not show up favorably, can we believe that such large expenditures for fighting insect pests would be continued? Stop and think of it. Aside from this, it has been shown time and time again by numerous experiments conducted at the different experiment stations that spraying, properly done, is about the best way to keep under control our worst orchard pests. It is true, however, that the same number of sprayings will not give equally satisfactory results in all sections of the country. In the Eastern states two sprayings seem to be necessary, but in the Central states two to four sprayings are recommended; while farther west more sprayings are necessary to get satisfactory results. In New Mexico, due to the great difference in altitudes and climatic conditions, it is probable that the number of sprayings for best results will vary according to the locality. In the lower and warmer valleys, where the seasons are the longest and climatic conditions as a rule more favorable, it will be necessary to spray a number of times. The results of the spraying experiments are most encouraging, considering that the season was not a favorable one for this work. In these experiments seventy trees, averaging in size 10 feet by 17 feet, were sprayed with arsenate of lead at the rate of three pounds to every fifty gallons of water. The trees were sprayed six times, on the following dates: April 21, May 14, June 7, July 6, July 30 and August 26. The amount of spraying mixture used in the six sprayings was approximately 1,450 gallons, which cost $13.50 for the arsenate of lead. A gasoline power sprayer and three men were used in the spraying of these trees. The total time for the six sprayings, including the filling of the tank—which, as a rule, took longer than to empty it—was 22.3 hours, or at the rate of 3.38 hours per spraying. On October 15, 1910, 7,780 apples were gathered from eight Arkansas Black and eight Mammoth Black Twig trees. Out of this number there were 6,405 sound apples, or 81 per cent, and 1,375 wormy, or 18.95 per cent. From two Arkansas Black and two Mammoth Black Twig trees which were not sprayed, 418 apples were gathered. One hundred and thirty-six, or 32.95 per cent, were sound, and 282, or 67 per cent, were wormy. Compare the results from the sprayed and unsprayed trees, and see whether or not spraying did any good. Eighty-one per cent of the crop gathered from the sprayed trees was good, while on the unsprayed trees 67 per cent of the crop gathered was wormy. Even in the windfalls the percentage of sound apples was in favor of the sprayed trees. The same number of sprayed trees had 34 per cent of the windfalls sound and 65 per cent wormy; while the trees not sprayed had 2.8 per cent sound and 97.2 per cent wormy. It is believed that if everybody in the locality would spray at the same time, even larger percentages of sound fruit than are here reported could be secured. Arsenate of lead at the rate of three pounds to fifty gallons of water was the insecticide used in these experiments. In many other sections two pounds instead of three are used. In these experiments the plan has been to spray once every twenty-five days. The first spraying should be done just as the blossoms fall. Special pains must be taken at this time to get the poison into the calyx cup of all the little apples. A high pressure—from 100 to 200 pounds—is necessary for the best work, though 80 pounds will do. Spraying will pay, but to get the best results every apple grower should be alive to this important question. If the trees are not sprayed, they make excellent propagating places for the moths.—Fabian Garcia, New Mexico Experiment Station.

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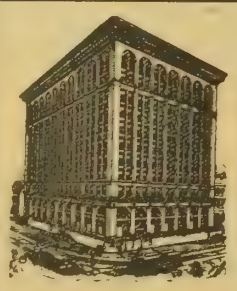

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THE BEAN WEEVIL (BRUCHUS OBTESTUS SAY.)

By E. O. Essig.

The adult weevil is about one-eighth of an inch long. The color is a grayish brown with a velvety greenish cast. The head is bent at right angles to the body downward. The wing coverings or elytra are shorter than the abdomen and are sometimes marked with gray spots in addition to the above color. These spots are more distinct after the beetle has been dead for some time, but are not noticeable in the living forms.

Life History and Work.

The eggs are laid on the outside or within the bean pods In the latter case they are inserted through a hole made in the pod by the jaws of the female or they may be inserted through the natural opening of the pod. Yellow pods just ripening with fully developed beans are the most favored food. As soon as the eggs hatch, the young immediately enters the bean by making a fresh burrow of its own or by entering one previously made. In case it does enter an old burrow it soon leaves it, when once within, and makes a new one.

When full grown, each larva burrows near to the outer skin of the bean and transforms. It is then easily located by the circular semi-transparent spot which covers the burrow. As the pupa develops and becomes darker its color shows through the spot, giving it a dark appearance, and makes it easier to locate. As soon as the last moult is over, the adult weevil gnaws through the outer skin and emerges to breed and deposit eggs and bring forth another brood. The weevils continue to breed within the bean pod, if the crop is allowed to stay over time in the field, or in the storage sacks or bins if the crop is harvested. As many as twenty individuals have emerged from a single bean. The number of generations is difficult to ascertain in California, because of the mild winters, and all stages may be found at any time, so it does not take long to entirely ruin a stored crop if care is not taken to keep them out.

Planting Infested Seed.

Weeviled beans are not suitable for seed, as the weevils that come from them attack the green beans in the field in the fall. A large number of the infested beans will not germinate at all, and those which do will produce inferior plants. Do not plant such seed.

Remedy.

As soon as the crop is ripe it should be harvested. If left in the field for but a week over time it will be found to contain millions of the larval form of the weevils. As soon as the crop is in the bins for storage, treat with carbon bisulfid, by placing a quantity of this liquid in a pan on the top of the bin. The gas, being heavier than air, penetrates to all parts of the bin. Seed treated in this way will prevent spread of the weevil, but plants produced by them will be inferior. In treating, use one pound of carbon bisulfid to every 1,000 cubic feet. Do not allow the liquid to come in contact with the seed.

In infested fields it is also advisable to plant a few rows early to serve as catch crops. When the beans are nearly ripe pull the vines and destroy them. This will destroy a great many of the weevils and save the later and important crop. It is also advisable to make late plantings as catch crops.

Other Bean Insects.

The insects referred to by the Madera subscriber are probably flea beetles, plant lice or aphids and the common cucumber beetles. They may be handled as follows:

Flea Beetles.

Small jumping beetles which feed upon the foliage and often do great damage to young plants.

Remedy: Spray with arsenate of lead in the following proportions:

Lead arsenate	8 lbs
Water	200 gals.

Plant Lice or Aphids.

These are probably the insects referred to as gnats by the subscriber. They are small two-winged or wingless, soft-bodied insests which gather in great numbers on the tender shoots of plants.

Remedy: Spray with kerosene emulsion, carbolic acid emulsion, or with tobacco extract.

Kerosene emulsion:

Kerosene	1 gal.
Soap (soft)	½ lb.
Water	15 gals.

(Mix when water is hot and soap all dissolved.)

Carbolic acid emulsion:

Whale oil soap	4 lbs.
Carbolic acid (crude)	½ gal.
Hot water to mix	4 gals.

Dilute 1 to 20 of water.

Tobacco extract:

Black leaf extract	1 gal.
Water	50 gals.

Spotted Cucumber Beetle.

Adult insect is about the size of the common red lady-bird beetle (one-quarter inch in length). Yellowish green in color, with twelve black spots on its back. Works on a great number of plants.

Striped Cucumber Beetle.

Adult about the same size as the spotted form. Is greenish yellow in color, with three black stripes running nearly the full length of the wing covers.

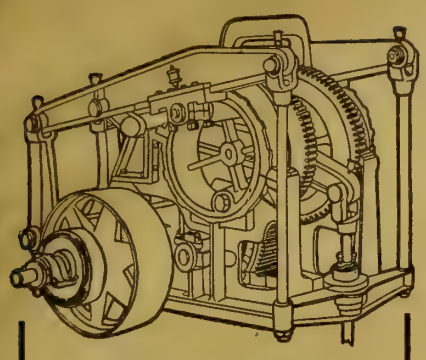
As a preventive, spray with Bordeaux mixture, or with tobacco extract and a little carbolic acid.

As a poison, spray with arsenate of lead as recommended above.

THE MAN WHO CHANGED THE VALLEY.

"It was Burt, the drayman from Carson City," writes S. Glen Andrus in Sunset Magazine for May, "who with a working capital of $1,000 gave the ranch kings of Northern California and the capitalists of the East the economic lesson of their lives. With his $1,000 savings Burt made his first payment on his little farm, built his house and barn with his own hands, and began to farm it as farming should be done. With only seven acres of land for cultivation, Burt sowed three acres to alfalfa, and around the home he planted a small orchard; between the trees he planted berries and vegetables; under every tree he placed a bee-hive, so that the bees might pollenize his trees while storing for him their golden honey. He kept on planting and sowing things until every foot of land was made to do double and treble service. Still he had land left sufficient to devote to a chicken yard, a pigstye and a cow pen. In the year 1910 Burt took from his seven acres a total of $2,063, and with his aggregate savings he purchased forty acres more of river-bottom land.

The story of Mr. Burt's little ranch appeared in the Cultivator last October, when it was described as the winner of the Sacramento Valley Irrigation Company's prize for the best cared for and most typical productive ranch in the holdings of that great corporation.



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Home Grounds Beautiful

CHRYSANTHEMUMS.

By Howard & Smith, Los Angeles.

Where it is desired to produce exhibition blooms of the largest size, it is advisable to begin operations early in the season. The beds in which they are to be grown should be spaded over to a depth of fifteen inches, and have a liberal dressing of well-rotted manure thoroughly worked through the soil. Begin the work of getting ready a month in advance of the planting time, putting on the manure after the first breaking up of the bed; give a thorough soaking when this is done, and when sufficiently dry turn over again.

This procedure thoroughly incorporates the manure and sweetens the soil, which is a factor of great importance in the production of fine blooms.

Arrangement of Beds.

The best width for a bed is three feet, with a length to suit the requirements of the garden. A path two and one-half feet wide between the plots is advisable. Rake the beds to perfect grade, and construct a narrow ridge five inches high along the sides and end. With this done, we have what is practically a basin for the plants.

Planting.

With the beds prepared as above noted, draw two lines from end to end, ten inches from the ridges at the sides; this leaves the lines sixteen inches apart through the middle of the bed. Along those lines insert the plants one foot apart.

Planting may be done any time from April 1 to June 15. As a rule, however, the early plants give the best results.

Watering.

If the beds are prepared as noted above, there is practically a basin to hold the water. Of this chrysanthemums require plenty, and it should be administered by flooding the bed; lack of water causes hard stems and consequent poor blooms. There is more danger of too little rather than too much water in our dry climate.

Aim to keep the plants growing freely at all times. Keep the beds moist without being soggy.

Staking.

As soon as the plants are set out, insert a stout post at each end of the row, and thoroughly brace same. Between these posts and along the row of plants stretch strong light wires; the first, one foot above the ground, and others to the number of four, one foot apart above the first. At every five feet between the end posts drive a one by two inch by six foot stake, and staple the wires to same at the point they cross. This wire and wood framework should be five feet high; the end posts seven feet long, with two feet buried in the ground to sustain the tension of the wire. With the intermediate posts one foot in the ground is sufficient. As the plants grow during the season, carefully tie them with raffia to the wires.

By arranging the plants in long, narrow beds and supporting as above, they are easy to get at for disbudding, cultivation, etc., and high winds are not liable to break them off.

Pinching.

If allowed to grow unchecked, the plants would reach a height of several feet by fall. To keep them in bounds they should be cut back once or twice during the summer, but not later than August 10. Early set plants may be stopped in June and again in August. For late planted stock one pinching back will suffice.

Assuming that the plants have been pinched back to eighteen inches in August, an abundance of young shoots will start at once; when these have attained a length of three or four inches select four or five of the strongest and remove the balance.

It is to be remembered that each of the shoots left is to be the flower stem crowned with a large single bloom in the fall. If more and smaller blooms are desired, more shoots may be left, but the blooms will not have the size or quality where fewer are selected. As the new shoots grow very rapidly, keep them well tied up, removing all new side shoots which may appear in the axils of the leaves. By October these shoots should be nearly four feet high and ready for the final operation.

Disbudding.

We have here an operation upon which depends the success of the crop, and one in which the good judgment of the grower is constantly called upon.

In warm seasons the buds, especially in the early varieties, often make their appearance by September 1. As soon as they are large enough to handle, select the strongest and remove the balance. It is not always advisable, however, to leave the large one at the terminus of the shoot; this often brings a coarse bloom, and too early. A second bud lower down, although of smaller size, will produce an equally large bloom, but later in the season. After the bud has been selected, keep all side growths pinched out, the idea being to divert the entire flow of sap to the one bud.

Manure.

Chrysanthemums are gross feeders. A liberal mulch of well-rotted manure every two or three months during the growing period aids greatly in the production of fine foliage, heavy stems and large blooms; it checks the evaporation and keeps the soil cool and moist.

Commercial fertilizers, such as bone meal or blood and bone, are useful in accelerating the growth, but care must be used not to overdo; an ounce or two to the plant dusted over the soil and raked in every two or three weeks during the summer is sufficient. An overdose will destroy the root action.

Discontinue all solid forms of fertilizer when the buds appear, giving only manure in liquid form; stop this when the petals begin to appear, using water only.

There are two methods by which you may decide if a potted plant needs water—by sound, and by touch. When you tap the pot, and hear a hollow sound, and when you touch the surface of the soil, and find it dusty, you may know your plants need watering.

If any sort of growth appears on the outside of flower pots, mold or mildew, scour the pots with some of the good scouring powders, mixed with sand. Rinse well, taking care that no part of the plant is allowed to touch the washing powders.

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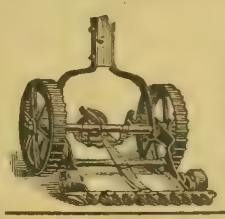

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GROWERS AND PACKERS OF STANDARDIZED FRUIT.

(Continued from Page 515.)

standards, that is, its most successful and profitable horticultural and agricultural products.

Standardized Growers.

Does it sound far fetched to speak of standardizing the growers? This is particularly recommended to the new communities where the many men are of many minds and seem to be firm in the belief that they can transplant the methods they used in the East to their Western homes. For instance, to one of the upper Sacramento Valley towns there came recently a man who announced that he would raise mushrooms for the market. If this had occurred fifteen years ago he would have had to spend this money on a failure to satisfy himself, but the place is standardized and he was shown what did best there, and so he did not try mushrooms. Now this was primary work in his standardization. We all have to go through the course in cultural methods that have been so carefully worked out and ably discussed at these meetings and in the columns of our most excellent horticultural press, and should possess ourselves of a full supply of University of California and United States Bulletins. A man so equipped will become standardized, that is, his output will be standard fruit and he will be so instilled with high standard that he will be satisfied with nothing else.

Standardized Packers.

How can a standardized pack be maintained unless the packers themselves are standardized? It will not do to simply bind them with rules; they must be so simply in earnest in this matter that they will introduce into their methods such system of grading and sorting that the element of judgment and field for the operation of moral honesty shall be reduced to the minimum and that no employe will have power to grossly violate the rules of standardization. Only then will fruit packing be done with the accuracy, perfection and mechanical honesty shown in packing nails and other staple merchandise.

Trade Marks.

With the consideration of the packing of standard fruit should come that of the mark of standardization. While it would be gratifying, and to some it might seem sufficient, should the eastern market come to recognize that our standard fruit was all of one grade and of known high value so that the box need only be marked "Grown in California, Standardized," to insure the best price in the market, still such a mark would rob each locality of its credit and the praise due to certain local conditions. It might tend to deprive us of local competition which is a healthy thing when rightly handled. "Grown in California" might not put Tokay grapes grown in Fresno on a par with Lodi grapes of the same name, or Elberta peaches grown on river bottom land on a par in point of color, size and flavor with this glorious fruit as it grows where I live. So it seems fitting for the sake of the locality and the home spirit that each district should have its own label of standardization and that this should be a registered trade mark. I am firm in the belief that if our various associations will adopt such labels they will find in a few years that their most valuable asset will be their trade mark. This label should be distinguished by something characteristic, local if possible. The highest thing in our part of the state is old Mount Shasta, and so as typical of our highest ideals in fruit we use in our label of standardization on a picture of Shasta the slogan "Shasta Quality." This does not interfere with private brands and is certainly a distinguishing mark. It is needless to say that such an association trade mark should be a good looker, something that will catch the eye at once and compel attention and one likely to remain in the mind. For this reason commonplace phrases should be avoided. If your association has not yet adopted a trade mark do not do so until the matter has been thoroughly studied, until you know what you want and have the right thing. Go slow, but go.

Standardize Railroads.

Standardization will naturally mean organization, and organization as it gains numbers and weight will mean influence, power. There may have been a time when there was no weight or influence comparable to the power wielded by your one railroad of those days, but with the coming of other roads and the breaking up of the old-time one-man power in California politics, we can see the time coming when organization will have not only weight and influence but actual power. In this way we should be able to standardize the railroads. By this I mean to bring them up to the standard of just treatment of the fruit trade from which they take all they can get, but to which they will give only what is forced from them. We do not hesitate to tell our packers what to pack because we know their business, and when we are strong enough we can so acquaint ourselves with the situation that what the railroads will grant from no other motive we can use our power to compel. If such a thing is right and it is possible to lower rates, it will soon be up to the roads to show us why we shall not have them.

Standardized Associations.

Right here let me express the hope that there may be formed at once a league of standardization associations to set in motion some of this work. Delay will simply mean to let slide along conditions that are notoriously bad. There is no time like the present while the iron is hot and before any action sets in our state political condition. Let us go to it and organize a state league of fruit growers associations on a basis of universal state-wide standardization.

Standardized Market.

The market with its selling agencies and consumers will give us little worry if we are right at our end. They want good fruit and the best we have is none too good. We must live down our past, but we can do that quickly if we do it together. There is no scapegoat upon whom the blame can be laid. So let us set our high standards, provide our trade marks and teach the dealers and consumers that all goods so marked are absolutely dependable, and I am sure that it will not be long before it will come to be known that the label on the end of the fruit boxes is as dependable as the brand on the head of a keg of nails. We cannot standardize the consumer. His ideas of fruit are drawn from his ideals. Your best will only excite him to want something better, but he will pay you top prices for top quality, only do not try to fool him any longer. Treat him as you would have him treat you and you will get down deep into his pocket.

Have I seemed to digress from my topic of "Growers and Packers of Standardized Fruit" and made it Standardized Growers and Packers of Fruit, and then taken the further liberty of introducing much about other allied interests? Well you know that back of the grower is the ground and that on top of the packer is the railroad and it is necessary to pry off the latter and dig the subject from the former. This I have tried to do by standardizing each part so that the whole might be presented as a single harmonious theme. And now in conclusion I take the liberty of pre senting to our state horticultural commission, the deputy commissioners in the counties, to chambers of commerce and fruit associations as they may be best qualified to do the work, the following suggestions:

First, to provide each community with an exhibit of those horticultural and agricultural products best suited to its locality so that the local standards may be known.

Second, to provide each community with a collection of insects, exhibits of plant and tree diseases, types of pruning, etc.; also for reference and circulation a full library of state and U. S. bulletins and some useful horticultural reference book; and where practicable to have introduced into the public schools courses in agriculture.

Third, that each fruit association should provide itself with a trade mark label of standardization.

Fourth, that a league of fruit associations be formed to deal with such problems as universal standards, railroad freight rates and icing charges.

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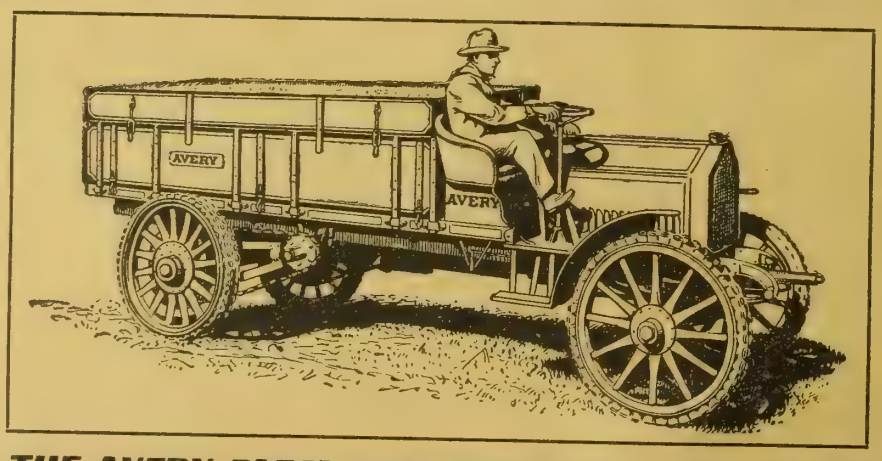

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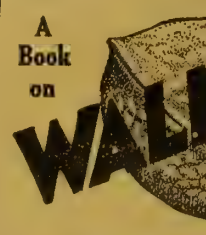

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ALFALFA.

By Mrs. M. E. Sherman.

Soils in California are not usually sour nor deficient in lime, and these two facts are not of much importance in considering the planting of an alfalfa field. The water table rising and falling in the irrigated portions of the state is often a detriment. I would hardly expect a good lasting stand of alfalfa on land where the water table was nearer than three feet from the surface at any season of the year. With water four feet from the surface the alfalfa does not require irrigation after the first season, while land that is eight or ten feet to water with surface irrigation, is best for alfalfa of all the land that we have in the state. The medium lands, not too sandy nor too heavy, give the best satisfaction in handling the crops. Now this is not saying that alfalfa will not grow on a large range of soils and with irrigation on soil much farther to water and also produce on soils that are more water filled. Alfalfa, like the human race, has had a variety of conditions to meet and has a wonderful adaptability to natural conditions. Under ideal conditions it is called a fifty year perennial, but there is little that reaches that age. The changeableness of the human mind in California would alone prevent it.

Poor Methods.

The poorest way to start to grow alfalfa is to sow it directly on shallow plowed grain land. Moisture must be stored in the land before the seed is sown if the stand is to be a good one. The young plants do not bear irrigation well until the soil is at least covered and shaded by their growth. Season has less to do with securing a good stand than the ways of the farmer. "I wonder what would happen if we did not have the weather to blame for our careless ways of farming. Now naturally one would suppose that land just broken would contain all the plant food intact and the alfalfa would grow well from the very start. What, however, are the conditions we see all around us here? The old vineyard or orchard has died out or has ceased to be profitable and up come the trees and vines and in goes alfalfa into soil that should be considered impoverished by long cropping. The soil, however, has been turned over and over, year after year, and has stored moisture and sunshine into its very heart. The alfalfa grows rapidly and the field looks like a picture, so even and perfect that one wishes he could remove it bodily to the dooryard for a lawn. Now if this is the condition that a perfect stand of alfalfa demands we must make it by proper plowing on the land to be planted.

Preparing.

The best preparation of the soil is to begin a year before and grow corn or some other crop that requires constant cultivation and irrigation. As soon as the corn is off start in and plow deeply, twenty-four inches is not too deep to try for. Of course, without constant watching you will not secure over twenty inches. Here the great thing is to secure a good tool. I use the old sulky plow, others are using the newer disc plows with six or eight good horses to do this work. Harrow smooth or cultivate out the roughness as quickly as possible. I mean by this do not wait until a great stretch of land is done before going over with the smoothing tools to secure fineness. This tearing up and smoothing over the lumps is the preliminary work before leveling and checking. It will cost about four dollars an acre to do it right. It is well to consider here that alfalfa is not a cheap crop to put into the soil and the true economy is in doing it well at first rather than trying to do too much in a slipshod way. At this time a light sowing of gypsum on the surface will work into the ground thoroughly, about four hundred pounds to the acre is ample. Then square off the land into plots and check it up. If possible by having the lines of the checks staked off with small stakes some of the dirt can be moved directly into the low check lines. The necessity of plowing all the land before checking must be considered as the checks or levees if placed on unplowed land will seep under. The land or hollows that are filled directly on an unplowed surface form spots that the alfalfa will die out on readily. It is a common error in this work to make the land all level at first and then try to check it afterwards. I have come to believe that the less dirt moved the better. The unaired soil comes up and the stand is less good than though it was unscraped.

Cost of Leveling.

The question is often asked what is the cost of leveling and checking a piece of land. A question like this can hardly be answered except by saying it depends on the place and the land. Labor in California is not as well distributed as it is in the older countries. I often find from visitors on the demonstration train runs that laborers are receiving much higher wages in Southern California than is necessary to pay with us. The men themselves tell me that in the valley a man does his regular day's work as a teamster and stops, while the conditions in the South on the smaller places are like those in the East, a certain amount of chores are done after supper and before breakfast. The housewife often does the cooking and the food is more dainty, but not so satisfying as the more hearty food the Chinese cook prepares for the heavy eaters. How they can eat! The outdoor work gives them appetites that require three heavy meals a day. As a rule the cost of leveling and checking alfalfa is about ten dollars an acre in this neighbodhood. After the land is checked, again plow all the scraped spots deeply and if much land has been removed from them put on before plowing a liberal coating of barnyard manure. I like to put on manure from alfalfa fed stock, as it inoculates the land thoroughly. The checks should be low and broad and then they can be sown with alfalfa and the mower will cut them as perfectly as it cuts any of the rest of the land. The land is loosened now ready to soak in the first

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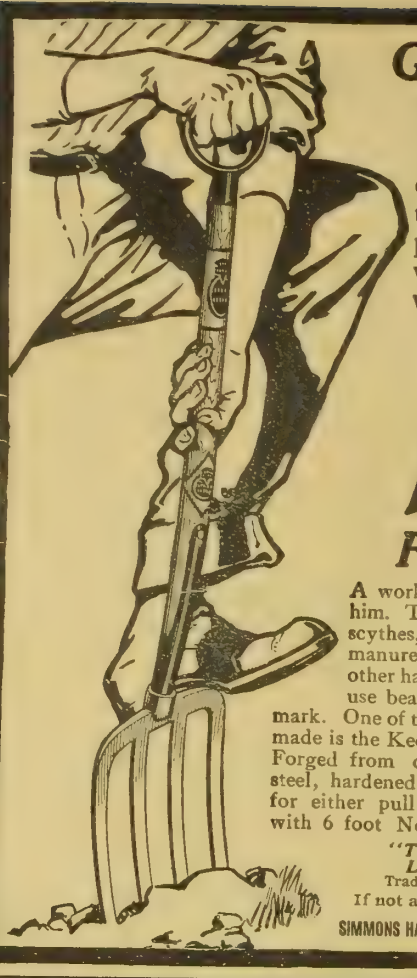

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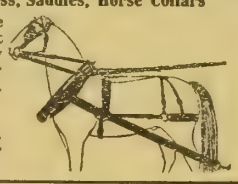

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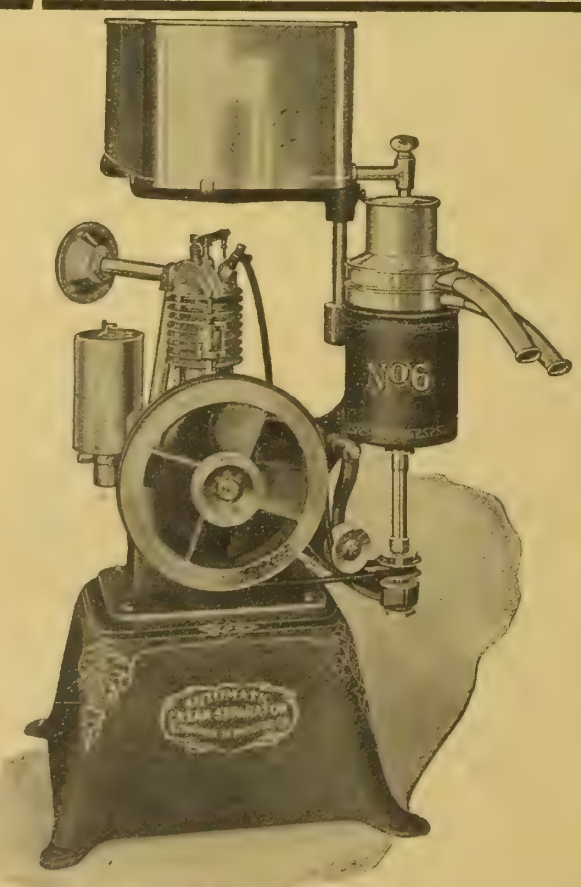

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rain and sprout all the weeds and foxtail seeds in it. When the weeds have started well, plow them under, say in January or earlier if possible. This plowing may be done with ordinary plows and it does not require very deep culture, enough to turn the grass and weeds under. If plowed early enough the second crop of weeds may be secured as well as the first. Weedy land is one of the problems that has to be met in the young alfalfa and often proves rather serious in controlling. If they can be disposed of by allowing them to sprout and turning them under, it is probably the best way to proceed. It is always easier to get rid of unwanted plants by following up their life history closely. At the time a plant is just growing toward the blossoming period it is more easily destroyed. Just at blossoming time all the strength has been thrown into the bloom and that is the period when the plant is weakest in its power to renew itself from its roots. This applies well to bronco grass and to "chuckalootie." Foxtail and cockleburr are not as readily controlled at this time. The foxtail does not advance rapidly enough and the cockleburr is a wise chap that does not carry his eggs all in one basket. The burr contains more than one seed cased in an oily protection that may sprout after several years in the ground.—M. E. Sherman.

PRIMER ON BOVINE TUBERCULOSIS.

A catechism on bovine tuberculosis is a suggestive title of a circular of information written by Dean H. L. Russell and Prof. E. G. Hastings and issued by the Agricultural Experiment Station of the University of Wisconsin. This circular presents over sixty questions gleaned from the inquiries received at the college with brief answers based upon the best scientific knowledge of tuberculosis, the tuberculin test and best methods of controlling tuberculosis in a diseased herd. By studying this circular carefully, the stockman and farmer will be prepared to pass an examination as a tuberculin tester without difficulty.

No space is given over to arguments in detail as to reasons for the answers since these would involve lengthy technical discussions of no value to the farmer. These answers prepared by two specialists of national reputation need no farther endorsement.

The following questions and answers give some idea of the scope and character of this circular, which is distributed upon request by the Agricultural Experiment Station at Madison.

What is tuberculosis? A transmissible disease caused by a specific kind of bacteria. The organisms leave the body of the diseased animal in various ways and enter the body of a second, healthy animal.

What animals have tuberculosis? All warm blooded and some cold blooded animals. In the northern portion of this country it is the most important disease of cattle. Of the domestic animals, cattle, hogs, and fowls are most often affected; sheep, horses, dogs and cats but rarely. Most of the wild animals in captivity die of tuberculosis.

Is one breed of cattle more susceptible to tuberculosis than another? Cattle of any breed, beef or dairy, acquire tuberculosis easily and quickly, when once brought in contact with diseased animals giving off tubercle bacilli. The reasons why more dairy than beef cattle have been found to be affected is because of the much greater interchange, the longer period for which they are retained, and the closer confinement to which they are subjected.

How is the disease introduced into the herd?

1. By the purchase of diseased animals.

2. By feeding mixed factory by-products, such as raw, creamery skim milk and whey.

3. By direct contact with an affected animal.

What per cent of domestic animals have tuberculosis? It varies widely in different countries and in different parts of the same country. From July, 1908, to July, 1910, over 90,000 animals, largely milch cows, were examined for tuberculosis in Wisconsin and about five per cent were found to be diseased.

What is the tuberculin test? If tuberculous cow has a small quantity of tuberculin introduced beneath the skin, a temporary fever will result, which can be detected by taking the temperature of the animal; a healthy animal shows no such fever.

Does the use of tuberculin injure animals? Tuberculin has no ill effect whatever on healthy animals, and no harmful effect on tuberculous animals. It does not, in the amounts used in testing, have any effect on the progress of the disease in the animal, nor can it in any way produce the disease. With many of our best herds it has been used regularly for 10 to 15 years with absolutely no injurious effects. The statements that the test causes abortion or other ailments are without foundation. The flow of milk is not changed to an appreciable extent, even in the case of tubercular animals.

How can a diseased herd be freed from tuberculosis? Test the whole herd. Remove all reacting animals. Retest all suspicious animals in three months, and the entire herd again in one year and annually thereafter. Disinfect the stable.

How can a herd be kept free from tuberculosis? Test annually or at

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.

least every two years, and retest all suspicious cases in three months. Test every animal introduced into the herd at the time of purchase, and again in three months. Use a farm separator or feed only skim milk and whey that have been heated.—Wisconsin Agriculturist.

THE BEST WAY TO DEHORN.

Cattle are most easily dehorned during calfhood, says a Canadian Bulletin. Caustic potash is the usual agent employed, while lye does a satisfactory job. The action of these agents when properly used is to destroy the life of the horn in its early stage, rendering the treated animal a smooth-headed beast, deprived not only of the instruments of defense, but to a large extent the inclination to bully its mates. Dehorning by potash or lye is done before the animal is ten days old or as soon as the button-like embryo can be located on the calf's poll. The hair surrounding the spot is clipped off and the parts moistened with soapy water. When using the potash in the stick form it should be wrapped in paper to protect the hand and an exposed end moistened and rubbed gently on the buttons in turn for about five minutes or until they become sensitive and red, but not to the extent of bleeding. Care must be taken that the dissolved potash does not run down the side of the head, or the skull may be seri ously burned and permanently disfigured. If carefully done a scab soon forms, healing follows and the spot becomes covered with hair from the surrounding part. With some calves the operation may be done at four or five days of age while in others it is necessary to defer the operation for a few days longer. If treatment has been neglected until the calf is two or three weeks old the horns may yet be killed with lye. The preparation of the lye is the same as for caustic potash. The powder is moistened and worked into a paste which is applied and rubbed well in with a knife blade or piece of wood. It is a safe practice to apply grease or oil to the skin around the horn to protect those parts from the action of the lye, but no oil should touch the part to be treated. The calf dehorned by either potash or lye should be kept from getting wet during three or four days following treatment so that the dissolved caustic will not run down and burn the skin. The calf will suffer some pain for an hour or two, but no other inconvenience is experienced. Treated calves should be tied separately so that they cannot lick each other.

Horned cattle not treated while calves may be readily dehorned by either an ordinary meat saw or dehorning clippers. The pain of such operation has been over-estimated and the mortality is practically nothing. The exact loss of flesh due to excitement, loss of blood and pain, is difficult to estimate, as very much depends upon the skill of the operator, and perhaps more still, upon the temperament of the animal operated upon; nervous, irritable animals, suffering a greater setback than quiet, sluggish ones. In any case the loss is seldom great.

It is not advisable to dehorn during fly time.

COLDS IN HORSES.

Changes in the weather cause the horse to contract a cold. Lack of care during the cold weather also adds to the causes, such as leaving the horse standing in a cold wind while warm and unblanketed.

The cold is usually manifested by a mucous discharge from either one or both nostrils, a staring coat, general depression, slightly off feed, bowels constipated and scanty, high colored urine. These symptoms become aggravated as the disease progresses. The mucous discharge takes on a more sticky appearance, and the cough is quite frequent when the horse is exercised.

The cold may extend into the throat, causing considerable soreness, as is shown by the horse protruding the head, tenderness from manipulations of the throat, and frequent coughing.

If the cold is neglected, it becomes chronic, and may last for months. In this condition the animal loses flesh, the coat remaining rough and good feed apparently doing the animal no good.

Preventive treatment is, of course, much easier than medicine. One should keep the horse out of draughts while warm. Blanket the animal during cold weather while in the stable. If obliged to work the horse during rainy weather or in severe storms, a canvas blanket to keep the horse dry is necessary.

Medicinal treatment consists of steaming the nose, using a pail of hot water to which is attached a sack, the other end being cut so as to allow the steam to enter the nose of the horse. A pint of raw linseed oil, to open the bowels, is beneficial. A hot poultice of linseed meal applied to the throat will relieve the tenderness there. When the patient begins to improve a course of better tonics is indicated.—C. L. Barnes, Colorado Agricultural College.

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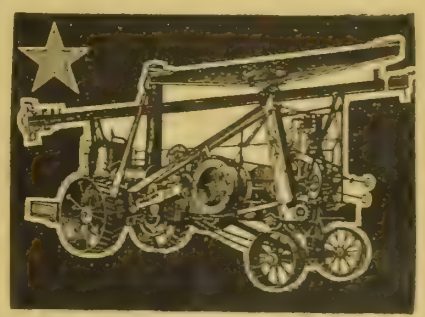

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R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, April 27, 1911

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ANSWERS TO QUERIES.

We have spoken of the effort sometimes required to secure information for inquirers who appeal to the question and answer department. We have referred to the necessity, or at least urged the advisability, of giving us the fullest particulars, that we may give the most intelligible and helpful answers, yet last week came one query in which eye trouble is mentioned, and the only clew to the kind of animal affected is expressed by the word "she.' This, of course, was an oversight on the part of the subscriber.

The object at this time is not so much to refer to this feature of the queries as to the very many appreciative letters received recently. Several subscribers have written regarding the help they have received from these answers, and we mention it not to suggest other similar letters, but that we are more than glad to render this service. This question department of the Cultivator always has been one of its strongest features, and we wish to make it still more so, and to that end ask our friends to use us.

A THOUSAND FOR A ROSE.

The management of the Panama-California Exposition at San Diego is pushing preparations for the great fair four years later. The grounds are already being planted, and the latest move is the offer of $1,000 for a new rose as a special ornamentation feature. Competition for the honor of supplying this new rose is open to any nurseryman or other in the United States. The name of the new rose shall be "San Diego," and there are three restrictions. The first is that the rose must be hardy, so that it can be easily grown outdoors. The second is that the competitors must be residents of the United States, and third, they must make known their intention to compete to the San Diego Floral Association. The management is putting forth every effort to make the grounds and their planting typical of everything that is best on the Pacific coast.

AGRICULTURE IN RURAL SCHOOLS.

The agricultural college of the Ohio State University has issued for some years what it calls an extension bulletin, a little six by nine monthly, for distribution to school children of that state, that aims to create interest in agriculture and, more, to direct original research. The issue for February gives place of honor to description of how work may be taken up in rural schools, with illustrations of various experiments and with boys' work in growing certain field crops, especially corn. The testing of seed is described at length. Photographs are shown of collections of harmful insects and of children who have made experiments. Poultry and fruit are also treated.

ROCK PHOSPHATE.

Florida produces more phosphate rock in proportion to its size than any other section of the world. Its principal rivals in production in the East are South Carolina and Tennessee, whose production is materially declining, while that of Florida has increased largely during the last six years. Regarding its output the state geologist reports "the phosphate rock output of this state for 1910 at approximately 2,029,797 tons. One peculiar fact about this great increase in the amount mined in Florida last year is that it is altogether in the pebble section; the output of hard rock having actually decreased during the year, owing to the depression in the phosphate market. Another peculiar fact is that the amount shipped during the year to domestic and foreign consignments exceeds the increased amount of that mined, and this excess of shipment over production was due to the shipments of hard rock exceeding the production of the year by nearly 100,000 tons." Other sections of the United States now give promise of becoming great phosphate producers. It is one of the serious problems confronting the farmer as to whether this element in our soils can be permanently supplied.

AGRICULTURE WINS.

We have referred heretofore to the fight of the farmers of Shasta and Tehama Counties against the smelter people, who have permitted the escape of poisonous gases which have made impossible profitable agriculture in that section. The fight was carried into the courts and an injunction secured against the smelters. More recently, orange growers at Colton, San Bernardino County, began an action against the California Portland Cement Company, which was operating a million-dollar cement plant near their groves. The action was started because of the great quantities of dust allowed to escape from the cement mill, which spread over the groves and coated each leaf until it was unable to perform its functions. This resulted in a lowering of the productivity of the orchards until orange growers saw only ruin before them unless the manufacture was stopped. The superior court of San Bernardino County granted an injunction, also awarded damages to each orchardist. It is understood that the matter will be carried to the supreme court, but as yet the victory lies with agriculture.

A canner has made the statement that if he could purchase green corn for canning in this state he could sell 100,000 cases every day. There are now imported from Eastern states over 200 carloads of canned corn annually. Much of this corn comes from the state of Maine, some from Indiana, but the question arises, may it not be produced within our own borders? It is not probable that it will be done in the near future, but ordinary field corn has been selected which is doing fairly well and proving profitable to some farmers. May the same not be said of canning corn, and may we not yet find success along this line?

The Council of North American Grain Exchanges of Chicago is taking an advance step in the matter of crop improvement; it has a crop improvement committee, the duty of which is to induce more careful selection and testing of grain seeds. One of its suggestions is that the education should begin with the younger boys and girls in the schools. We doubt not the pamphlet, "How to Obtain a Large Yield of Wheat" is full of information and will be sent for the asking.

The value of farm land in the state of Colorado has increased during the last decade over 300 per cent. During the decade the number of acres in the average farm decreased 24 per cent. The number of farms in the state is 45,839, an increase of 86 per cent.

Vineyardists of the state have seldom prepared for protecting their crops against the ravages of Jack Frost. In fact, California conditions are so nearly ideal that as a rule there is no need of such preparation, but this year proved the proverbial exception, and the raisin crop and wine grapes of the central and northern part of the state have been largely reduced. We are not informed as to whether the frost was so severe that the ordinary methods of frost protection would not have availed, but assume that ordinary preparation would have saved the crops. Frost protection is cheap insurance, and while seldom needed, its need is very urgent at times.

The winter wheat crop the country over promises somewhat better than last year. Last year's condition at this time was represented by 80.8 points; this year by 83.3; the spring of 1909 by 82.2. Conditions for the past ten years average 86.9 points. There is a slight improvement noticed in reports from December last up to the present time. This is favorable compared to the ten-year average for that shows a dwindling during the same months of 4.04 points. There is also a falling off in condition from December 1st up to this time of two points.

The appropriations granted by the last legislature in aid of agricultural research should add materially to the possibilities of this state. The pathological laboratory at Whittier is planning for investigations in celery blight and other problems which should greatly enhance the value of that product. Other matters will be handled by the central experiment station at Berkeley. These, with the cereal experiments in charge of Prof. Shaw, should greatly aid farmers in solution of the problems before them.

A meeting of a postal progress conference is being held at Washington this week, and the principal topic discussed is "An Extended Parcels Post." Residents of the United States pay 16 cents a pound up to four pounds. Europeans may have parcels mailed from any office in the United States to most offices of Europe at the rate of eight cents a pound up to eleven pounds. This discrimination against Americans by the Postal Department arouses demand for radical change and more competent business methods.

Bulletin Number 203 has to do with importance and improvement of the grain sorghums. The aim is to show the importance of such sorghums as milo, durra, kafir and kaloing. These are primarily grown for the grain they produce though the kafirs, of course, are largely grown for forage. How to secure more of both grain and forage is taken up at length in this bulletin.

At a recent fruit growers convention, in referring to the changes sometimes necessary in the industry the remark was made that we should "go slow, but go." Sometimes the change is not for the better, but the wise man opens his mind to see wherein he may at every turn in the process of production improve his product and benefit himself, so while it may be wise to go slowly at times, we should not be content with going so slowly that it is not possible to detect any motion.

Agricultural News Notes of the Pacific Coast

Northern California

Several tracts at Wheatland, Yuba County, are being subdivided.

Gridley, Butte County, gathered its first strawberries on Monday, April 10.

Egg producers and dealers of Santa Rosa are still determined to secure just returns in the general market.

The Napa County Paultry Association has fixed upon the dates of January 4 and 5, 1912, for its next poultry show.

Potato growing is increasing materially in Grass Valley, and some of the finest quality in the state is produced there.

A consignment of 14,000 baby chicks was made to the southern part of the state last week by the Bihn Hatchery of Petaluma.

The last state legislature set aside $8,000 to be used by the state experiment station in investigations of hog cholera serum.

A rice expert of the Department of Agriculture is investigating soils and conditions of San Joaquin County with reference to rice culture.

Prof. Shaw of the Experiment Station staff has been granted a $15,000 fund with which to make more extensive experiments with cereals.

A farmer at Redding, Shasta county, will plant 25 acres of southern sugar cane and thinks he can make a complete success of it in that section.

A committee of wine producers at St. Helena, Napa County, are making preparations for a vintage festival to be held during the first of August next.

Most cherry-growing sections of the northern part of the state report about 30 per cent of a crop; peach crop will be about average; prunes and figs heavy.

A tract of 13,000 acres near Corning, Tehama County, is being subdivided, and $10,000 expended in the construction of streets and boulevards.

The Wheatland Chamber of Commerce is discussing the matter of an experimental farm, the idea being to demonstrate the benefits of intensive farming.

One nurseryman at Gridley, Butte county, follows the plan of giving trees and ornamental shrubs free to the schools; also to the widows in the community.

A section of 10,000 arces of land in Yolo County is being reclaimed by the construction of levees. The improvement will cost $100,000. The section is called West Sacramento.

The Apple Growers Association of Sebastopol, Sonoma county, has consolidated with the Sebastopol Apple Growers Union. This brings practic ally 85 per cent of the growers under one management.

Since the suspension of the Sonoma County Poultry Association's contract with the Produce Company the Santa Rosa produce dealers have advanced quotations on first-grade eggs to regular San Francisco prices.

There are over 5,000 varieties of grains, grasses, trees and shrubs being developed at the government plant introduction gardens at Chico, Butte County. These are from practically all sections of the world.

Central California

The Kerman Melon Growers Association is about to disincorporate.

Several timber land claims have recently been filed in the Tehachapi hills.

Apple growers of Pajaro Valley are discussing the formation of a better method of marketing apples.

San Joaquin county reports grain in most excellent condition and big promise in both hay and grain.

It is claimed that over 100,000 orange trees have been set out in Kern County during the past six weeks.

Salinas potato growers were hit hard by the frosts, which greatly reduced the output of early potatoes.

Profiting by last year's experience, citrus growers at Lindsay have made a more persistent campaign on the orange thrips.

Fresno County, while not classed with the larger citrus-producing counties, is now sending out not far from 200 cars yearly.

County Horticultural Commissioner Garden of San Joaquin County has decided to make a strong fight against the potato eel worm.

Fresno County Farmers Union has decided to maintain a raisin statistics bureau, which will be in charge of a crop report committee.

The frosts of April 12 and 13 ruined many early planted potatoes and watermelons and did material injury to all fruit crops, especially grapes.

The Pajaro Valley reports but little of the apricot crop injured by the cold weather and rain. Ten per cent of damage is the most liberal estimate.

County Bee Inspector Hennekin of Monterey County reports the promise for a big honey season the very best. Black sage has taken on a very heavy growth.

The Raisin Day Committee has forwarded approximately 10,000 letters to growers and hotel people of the United States, urging general observance of April 29.

Poultry raisers of Watsonville, Santa Cruz County, are planning an excursion to Petaluma, Sebastopol, Santa Rosa and other poultry centers north of San Francisco.

The dairying interests of Tulare county have been insisting on the appointment of a dairy inspector and the board of supervisors has finally granted their request.

Stanislaus County claims an increase of 25 per cent over last year in her dairying industry. The biggest individual purchasers of cream in the state are in that county.

Raisin growers are now holding last year's output at four and one-half cents, and some sales nave been made on a four-cent basis. One packer has sold some fancy seeded at seven cents.

It was feared at first that the citrus crop of Tulare County might have been injured because of heavy bloom at time of recent frost, but it is now reported that the promise is for the heaviest crop ever.

Fresno Chamber of Commerce has taken up the fight against the Zante currant. The grounds of the fight are the filthy methods of preparation of this fruit, which is practically a competitor of the Sultana grape.

Southern California

Coachella Valley will ship forty to fifty cars of Bermuda onions through the California Vegetable Union.

The Whittier Pathological Station will make special study of celery blight during the coming season.

The horticultural inspector at Beaumont, San Bernardino County, reports the inspection of 30,000 apple trees.

Oceanside is growing its first beet crop, and if successful it may result in an effort to secure a sugar factory.

A vegetable growers association has been formed to handle the products of the Yorba Linda section in Orange County.

Deputy State Commissioner Maskew has been investigating an aphis pest of barley near Oceanside, San Diego County.

Alfalfa growers are continually adding their names to the co-operative marketing organization which is being perfected.

Mr. F. C. Penner, of Escondido, San Diego County, gathered from one acre of orange trees 830 boxes of marketable oranges.

Canners are offering $7.50 per ton for tomatoes at Anaheim, Orange County. This is 50 cents in advance of last year.

The California Vegetable Union of Los Angeles is shipping onions from Brawley, Imperial County section, in carload lots.

The recently organized poultry association of Escondido, San Diego County, will hold another meeting on Saturday, May 6.

Hemet, Riverside County, reports thousands of acres of barley four feet or more high, with mowing machines about ready to start.

The sugar beet ranches in the neighborhood of Huntington Beach are in most excellent condition, and every promise is made for a big output.

Imperial Valley promises to ship 2,500 cars of cantaloupes this season; each car contains about 375 crates, and the hope is for a $2.50 price.

An artesian well on the base line near San Bernardino was struck last week and is now showing a flow of 200 miner's inches. The well is 650 feet deep.

San Diego is planning a great celebration for July 19-22, at which the formal services of breaking ground for the Panama-California Exposition will be held.

The agitation which was taken up last week for the securing of the sugar beet factory at or near Perris, Riverside county, is being renewed, and eighty acres has been deeded to the company for its site.

Southern California is shipping strawberries as far north as Montana, Wyoming and Idaho. A reduction of 25 per cent by the express companies is responsible for the increased shipments.

The water conservation association which has been diverting over 20,000 inches of water from the Santa Ana River to gravel beds, from which it will later percolate into the stream and be used for irrigation purposes, has turned the water back into the river and ended the campaign for this season.

The Coast

La Crosse, Washington, reports largest acreage of wheat ever planted.

Extensive sales of pure-bred draft horses have been made to live stock raisers at Pullman, Washington.

Arizona live stock raisers report ranges in best of condition, with cattle being sold off closer than usual.

The Oregon Agricultural College at Corvallis has a force of six experts investigating fruit pests of the state.

Five acres of land in the Tieton irrigation district, in Washington, have been set aside for experiment station purposes.

Sheep shearing has been finished by farmers at North Yakima, Washington, and over 20,000 sheep have lost their coats.

A meeting of the stockholders of the National Wool, Warehouse and Storage Company was held in Salt Lake City last Friday.

Work is being pushed on the main canal which will carry water from the Laguna Dam to the siphon under the Colorado near Yuma.

Apple growers at Lewiston, Idaho, claim the use of fire pots in orchards saved thousands of acres during the frosty nights of April 12 and 13.

Wool buyers near Pendleton, Oregon, have fixed upon dates for wool sales for May 23 and June 9; at Pilot Rock the sales will be on May 26 and June 10.

One of the largest currant-producing sections on the coast is at South Bend, Washington, but early April frosts have practically wiped out the crop for this season.

The Inland Empire of Eastern Washington was visited by severe frost on the night of April 12; some fruit was killed, but frost protection measures saved much of it.

A meeting of Montana stock and sheep men was held at Miles City, Montana, last week. The meeting was the twenty-fifth annual of the Montana wool growers.

Large labor employers of the Hawaiian Islands are in arms because canners and others requiring labor in California are taking away many of their most efficient laborers.

Some farmers of the Northwest have determnied to compete for the $1,000 cup offered by the President of the Milwaukee & St. Paul for the best oats produced in the United States.

The reclamation service reports the season as most favorable to the Truckee-Carson project, in that the rainfall and the depth of the snow assure abundant water supply.

Meters are being placed upon the water supplied to some orchards near North Yakima, Washington, by which a test can be made of the amount of water required for each row in the orchard.

An irrigation expert from Colorado is being employed to outline an irrigation scheme for the John Day Valley near Canyon City, Oregon. The scheme proposes to bring 30,000 acres under the ditch.

The Southern Arizona Agricultural Fair Association at Wilcox has empowered a committee to proceed with the sinking of a well on the fair grounds to the depth of 2,000 feet, the cost per foot being $2.50.

More Inventions by Lee

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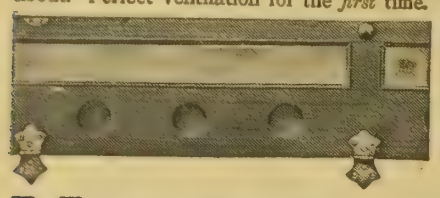

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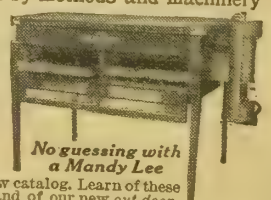

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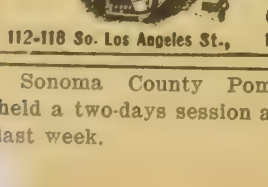

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Sonoma County Pomona Grange held a two-days session at Santa Rosa last week.

Practical Poultry Culture

BRINGING UP THE BABIES.

By Mrs. A. Basley.

"Do give us a talk on how to bring up the little chicks," pleads one of our sisters, "and don't be late this year for some of us need help."

Nothing is more interesting than a brood of little chicks unless it is a brood of little ducks. Nature has endowed young life with the propensity to grow, to develop and to mature. Little chicks if they are the progeny of healthy parents, have this propensity very strongly, they will grow if they have half a chance. They will grow if they have the proper food, the proper exercise and cleanliness, or I might call it the proper care.

The decalogue has more "Thou shalt nots" in it than commands to do certain things and I sometimes think instead of telling what to do to bring up chicks we might say "thou shalt not," so today I will suggest a few "don'ts" in the bringing up of the chicks.

Grandmother's ways were undoubtedly good, but grandmother was "terrible clean," and here is the difficulty with raising most of the chicks in this climate: Don't let the lice get your chicks or your little ducks that are being mothered by a hen. Head lice have caused the death of many a chick and many a duckling. Look for them and powder the little heads frequently with buhach or put a wee bit of lard on the top and under the chin, not much grease, for grease will make the chicks sick. A wee bit of carbolated vaseline does well, or some advise a drop of sassafras oil, but I prefer the California buhach powder. It is called pyrethrum in the East and is made from a certain daisy. It is perfectly harmless to animals, but is death to all insects. I have used this powder for many years on the smallest canary and the largest turkey, and it has never failed to destroy the insect vermin. Of course, there are other insect powders which are effective and possibly a little cheaper, but I use none other on little turkeys, as it is the safest of all.

"Don't" feed the babies until they are at least thirty-six hours old. Nature has provided them with food that lasts for three days and if other food is given to them it is contrary to nature and will certainly do them harm. The food that nature gives them is the yolk of the egg that has not been entirely consumed during incubation and is usually about one-fourth of the entire yolk. It is drawn up into the bowel cavity through the navel the last twenty-four hours of the chick's life in the shell. If other food is given before this yolk has had time to be assimilated it will either retard the absorption of this or in some cases it will entirely stop it and the yolk will remain in the bowel cavity and decay there, causing blood poisoning. If the yolk is only retarded in its digestion it will so disagree with the chick that it will appear listless or sleepy, will be "stuck up behind" or have diarrhoea, and if this does not kill it its growth will be retarded and it will never be as sturdy and healthy as it otherwise would have been, and just because its baby digestive organs had been overstrained by feeding it too early in life.

I give my chicks water from the first and also let them pick the coarse sand just before giving them their first feed which with me is almost always rolled oats such as we use for our own breakfast, or cracked wheat.

"Don't" feed the wrong feed. Grandmother fed chopped hard-boiled eggs and Johnny cake or soaked bread. You cannot improve much on that, but do not feed wet mashes, even if you think that grandmother did, for wet mashes are hard for even grown hens to digest. I you ever are in doubt consult nature, our great teacher. Nature never gives her young chickens, or partridges or grouse or pheasants wet mashes. She gives them insects, grubs, worms, green tender leaves and grass, and some seeds. If we could feed just like that it would be best for our chicks, but as we cannot we must get the best substitutes that we can. Let us see what those are. The best substitutes for insects our grandmother used were hard boiled eggs and curd of milk. What can we substitute for those if we have them not? We can buy the granulated milk, or the dried milk. I think those are the two names that the new material is called. I have been told that it is made from the residue of the milk after the sugar has been taken out for medicinal purposes. At any rate the milk dried or granulated is greatly liked by chickens and it seems to suit them well. Then another substitute is what is called "beef scrap" or "beef meal," this is made at the packing houses from the leavings, lungs, heads, ets., boiled down, dried and ground, and is used largely for chicken feed.

Extreme care must be employed in selecting beef scrap. Good beef scrap (or meat meal) should not have a foul odor, neither be lumpy, or full of vegetable fiber. If the beef scrap is lumpy and the lumps show white in the interior it should not be fed to either young or old fowls. If there are no lumps and the scrap smells reasonably sweet, pour a little scalding water on some of it and if it still smells sweet and meaty you can feed it safely. Good, pure meat scrap can be fed safely, but I have had sad experiences and so warn others to be careful what they feed.

Chicks need more green food than they usually get here in California. I have found that lettuce is the best green food for chicks and next to that green clover or alfalfa, but for quite little chicks nothing is much better than raw potatoes chopped fine, and they relish them greatly if an onion is chopped up with them; also beets chopped up are good and it will pay to take the trouble to chop these vegetables up for the babies. Fresh meat also is very good. I always used to get Hamburger steak three times a week for my chicks when I had large numbers of them and that was as good a substitute for insects as I could find.

The old-fashioned plan of giving chicks mashes has been superseded by the chick feed. This is composed of a great number of small grains and it is more like nature's own food than mashes. Chickfeed is now compounded by a number of our best poultry supply houses. The foundation of all the chick feeds is wheat and corn finely cracked, with a number of small

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grains added. The best of these is steel cut oats and rice; the others are simply to add variety. Oats and rice are foods that give vigor, that make bone and muscle and are extremely valuable in forming sturdy and large frames for the chicks. When I buy chick feed I take a cupful of it, spread it out on a newspaper and examine it and then decide what it needs, and add that. I never yet have failed to add steel cut or rolled oats to the feed, and sometimes rice.

Prize Winning White Orpington Hen at Los Angeles, 1911
Owned by A. W. Huskins, Los Angeles.

I feed for vigor and one of the best plans to get vigor is to coax the chicks to scratch. To do this I feed in chaff, or in alfalfa hay cut in half inch lengths in a clover cutter. This is spread over the floor of the brooder or in one corner of the run if they are out with a hen. It is surprising how much of the clover or alfalfa hay the little ones will eat and how they delight to scratch. Scratching will do a great deal for them; first it will develop their legs and thighs, it will broaden or lengthen their backs, it will develop their digestive organs so they will never have diseases, and it will make the egg organs or organs of reproduction vigorous and active so that when the chicks mature they will be ready to produce more eggs than their mothers. And lastly it will prevent the chicks from getting into mischief. Mischief? Having good deep chaff to scratch in will prevent the chicks from pecking each others feet, will prevent feather pulling and scrapping. Keep the chicks busily engaged in scratching to prevent leg weakness, knocked kneed, weak cockerels and to keep them all happy and busy. Try it and see for yourself.

"I never saw any one who fussed less about their chicks than you," said an expert who was staying some months with me. "Did you ever see any one have better luck?" said I. He shook his head and laughed. I had only lost one chick and that was killed by a cat, in those three months.

Exercise gives vigor. Vigor gives good digestion. Nature has fitted the chicken's digestive organs for digesting the food that nature gives and that is not ground up but is grains and seeds. If the organs that nature intends to grind up and digest the grains are not kept in use they become weakened and flabby. For this reason "don't" give mashes of wet and ground up food. Give the whole or cracked grains of the chick feed. Then the little gizzard will have to exercise and work and the chick will be vigorous. Some of the grains will be composed of the elements that are conducive to vigor and to making bone, flesh and muscle. The analysis of the different grains shows this. These grains should be the principal ones used in the chick food. The chick feed and rolled oats is my main feed until the chicks are six or eight weeks old, then I gradually add the food of the old hens.

My program is: breakfast at about six consisting of rolled breakfast oats or chickfeed, next green feed, lettuce or chopped up potatoes, then at noon chick feed, next green food and the last feed for supper is hard boiled eggs chopped fine shell and all mixed with dry bread crumbs and an onion chopped fine. Two eggs is enough for fifty chicks. If I have not bread crumbs enough I add Johnny cake, crumbled or rolled breakfast oats to the eggs and onion. I always send them to bed with their little crops full. The onion is a very good tonic for the liver and kidneys, for it prevents worms in the chicks and also prevents colds. I always try to give onion at least once a day.

When I feed the Hamburger steak I give it at supper time, and when I am feeding the granulated or dried milk I either mix it with the chick food or I put it in a small hopper or box and keep it before the chicks to help themselves.

I also give them sweet milk every day in a fountain and clean water several times a day. Fresh water will eliminate sickness. Warm water may not be exactly harmful, but it is a good medium or culture for germs. You can buy drinking fountains very cheaply at the poultry supply stores. I lately saw one made of a glass quart fruit jar with an aluminum little dish or saucer fitted on the cover, which I found excellent. I have also made drinking troughs from a tomato can by making a nail hole or cutting a V-shaped piece an inch deep in the

White Orpington Cockerel
Owned by A. W. Huskins, Los Angeles.

cans, filling the can with water as fast as the hole and then putting a saucer on it and quickly inverting the whole. The water will run into the saucer up to the hole just as fast as the chickens drink it. A bottle also can be filled with water and a wire bent and inserted in the neck in the form of a T to prevent it touching the saucer and the bottle can slip into a wire fastened to hold it to the fence post or side of the house. These are all home-made inventions if you cannot get the regular drinking fountains. The fountain for the milk should be scalded out every day and the water fountain frequently. A little care and cleanliness in these simple things spells "success," while a neglect of clean water is sure sooner or later to cause sickness and death.

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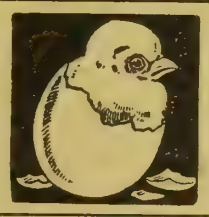

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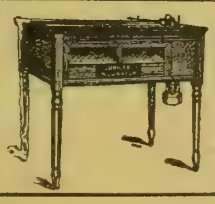

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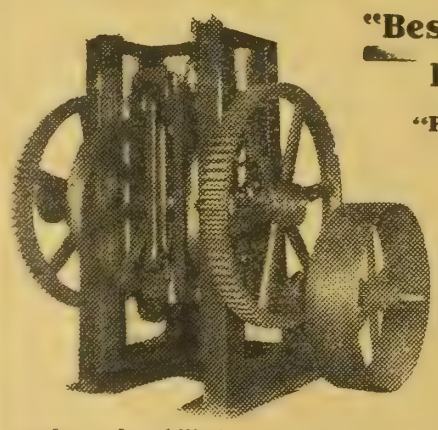

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LOS ANGELES

"Mamma," said little Ethel, who has been vainly trying to make the preliminary preparation with a needle and thread. "I do believe this needle is cross-eyed."—Good Housekeeping.

"I've noticed one thing in regard to children," said Mr. Shallow. "In all the families with which I have acquaintance, the first son is invariably a boy."—Vermont Watchman.

Irrigation and Forestry

IRRIGATION AND DAIRY INDUSTRY IN "SUNNY STANISLAUS."

There are many irrigation projects in California, but none is more remarkable than the one which is now converting eighteen thousand acres of grain fields in Stanislaus County into five, ten and twenty-acre fields and fruit ranches.

The lands are those once embraced in the great Spanish grant—Rancho del Puerto. They are on the main line of the Southern Pacific Railroad. only ninety-seven miles from San Francisco. The soil is from twenty to thirty feet deep, without alkali or hardpan, and practically the same in all parts of the tract. The soil is a rich dark loam, with excellent under drainage, and the entire tract is smooth and even, sloping to the river with a fall of about twenty feet to the mile.

Even before irrigation was applied, the wonderful richness of the soil here made the property famous for its crops. Today, on the bank of the San Joaquin, a pumping plant, electrically operated and with a capacity of 50,000 gallons per minute at low speed, has been installed. The main canal, heavily lined with concrete, extends for three miles across the property to carry the waters which have their source in the perpetual snows of the Sierras. The entire irrigation plant has been constructed at a cost of $250,000, and in its capacity to furnish water and the security of its supply it is a model to the West.

The land is laid off in five units, and four pumping plants installed along the line of the main canal lift the water to higher levels. From each side of the main canal distributing laterals are taken off at points where the flow line of the canal is about eighteen inches above the ground. These laterals extend nearly eight miles, thus bringing a large acreage in each unit under irrigation by a minimum lift. The land is so even that there are no laterals t ofill, and therefore no danger of breaks and overflows such as occur where the laterals are built up over depressions in the ground. The soil type is of such quality and the slope of the land so uniform that it is practicable to deliver a very large head of water for irrigation without either washing or cutting the land. Indeed, experiments have demonstrated that it will be possible, under this system, to deliver heads of from ten to thirteen second-feet. When one remembers that a head of twelve second-feet will adequately flood a ten-acre tract in four hours and thirty minutes, the abundance of this supply will be appreciated. This provides for the delivery and distribution of water with the greatest economy of time and labor, and creates an ideal condition for the water user.

There will be forty-five miles of main laterals—twenty-seven miles already built—and of service laterals there will be seventy-seven miles, about thirty-five miles of which are now complete. These service laterals are built to reach the highest boundary point of each tract of land, where service gates are installed. The cost of these service gates and laterals is included in the price paid for the land, and the settler will not be bothered with such vexatious questions as the right of way across a neighbor's land, widening of ditches, or the expense of ditch or headgate building.

In the distribution of the water, a smooth-working and satisfactory system has been adopted and will be adhered to. The great pumps at the river will keep the main canal full, and the water will always be "on tap."

The great value in the security of a water supply for irrigation, that is, its dependability at all seasons of the year, lies not alone in the one or two extra cuttings of alfalfa which it makes possible, but in its maintenance of a stand of alfalfa unimpaired throughout many years. The value of water when needed to fill out the ripening fruit is also appreciated by the grower. These lands are peculiarly adapted to alfalfa, the soil being exceedingly rich, friable and deep. When alfalfa is not adequately supplied with water, or supplied only part of the year, it necessarily loses vigor, grows "spotted," and fails to make abundant yield. While the volume of the San Joaquin River decreases in the late summer months, at no time is the natural flow less than three times the amount of water required to adequately irrigate the entire property. The company is planting several hundred acres to alfalfa, fruit and vines for the special purpose of demonstrating the best and most practical methods of cultivation and irrigation, and the experienced men in charge of this demonstration will aid purchasers with advice on crops and the proper care of them. One share of stock is given with each acre of land. When all the land has been sold, the water system will belong perpetually to land owners and be controlled by them. The present acreage charge for water is very low.

The land has been subdivided into ten and twenty acre tracts. Practically nine years is given in which to pay for the land, and if the land is properly handled it will pay for itself.

Anything which will grow in a temperate or semi-tropic climate will do well here. The soil is especially adapted to walnuts, peaches and other fruits, and to alfalfa. Stanislaus County is California's record dairying county, and the dairy cow will here bring in a golden income. With the dairy go those big money-makers, hogs and poultry, both of which thrive on alfalfa.

The climate, while warm for a short while in the summer, is not oppressive, because it is cooled by the sea breezes from San Francisco Bay, yet it is warm enough to make a continuous growing season. The greatest markets of the West—San Francisco and the Bay cities, with a population of nearly a million—also Stockton, Sacramento and other nearby cities, are quickly reached by both rail and water transportation.

The town of Patterson presents the most modern ideas in townsite platting. It is a rapidly growing community, with a $25,000 concrete hotel, also good shops and stores, and has under way a $25,000 schoolhouse and a $20,000 bank building. A beautiful boulevard, lined with palms and eucalyptus trees, stretches from the town through the farms to the river, a distance of three miles, and another eight-mile boulevard, lined with syca-

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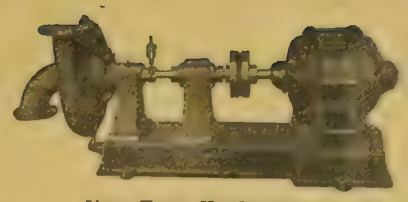
Does It Not Seem Reasonable

To Assume That a Company



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which has been manufacturing one line of goods for over thirty years must be in a better position to furnish superior goods than one which has been in business a few months or years? The old concern has experienced engineers, superior shop facilities and, above all, a reputation and standing to maintain.

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mores and oleanders, traverses the farms at right angles with the first one, so that the town may be reached by these tree-lined highways from any part of the tract. There are building restrictions on these boulevards, and no liquor is allowed to be sold either in the town or on the farms.

The amazing richness of the soil, with its corresponding wide range of productivity, the pleasant, healthful climate, the absolute surety of the water supply, excellent social conditions, nearness to markets, fine transportation facilities—all these are in every case up to the highest standard, and are bound to make for the success and happiness of every settler on these lands.

INTERESTING MEETING OF TULARE GRANGE.

By John Tuohy.

Remarks were exchanged between members on the effect of the frost on the 13th. It was generally agreed that potatoes, tomatoes and beans were hurt by it. No crop entirely destroyed. Potatoes are grown for commercial purposes, tomatoes and beans for home use. In grapes the first crop will be damaged. Those varieties, such as Sultanas, that have only one crop are damaged most. It is expected that with such varieties as bring two crops the second crop will be better. In citrus fruit no damage was done; in deciduous fruits very little damage was done by the frost. Prunes and apricots will be a short crop; Cling peaches and Muirs will be short; other varieties will bear good crops.

The question of the day was, "Should farmers take their own risks of fire, or insure in stock fire insurance companies?" The subject was fairly considered. Losses by farm fires are very few and far between. It is better the farmer should take his own risks against fire, but when a loss does occur to a farmer, as an individual, it is hard on him. Where an association of farmers provides against loss by fire, as in county insurance associations, each one helps pay the loss of the fire in proportion to the amount of risk he has in the association. In Sonoma County the County Insurance Society charges one mill on the dollar per year, and this has furnished a fund to pay all losses, and many have been paid in the thirteen years the association has been in existence, one of late for $3,500, the largest risk they take, and yet, after paying all losses and expenses, a balance is left on hand of over $5,000. State fraternal orders should have fire insurance for members; it would be an attraction to membership, and none but members who wanted fire insurance would have it. The order would make its own bylaws, and carefully watch their working. In the thirteen years the county farmers insurance has been in effect, and there is now perhaps $15,000,000 of risks written, every loss has been promptly paid; there has not been a suit for collection. Owners of business houses in Porterville have organized themselves into an association to pay a proportion of each one's losses by breaking of plate glass windows, the actual loss in breaking of plate glass windows being 25 cents a year, the stock insurance being $1.25 a year per window by the stock insurance companies. Mutual fire insurance is the safest and surest of all insurance, and should be provided for by the legislature, as now the state laws are simply prohibitive of such insurance.

PECAN PLANTING.

Not long since a prominent horticulturist asked me if I could tell how to transplant pecan trees so that the frequent loss of from 25 per cent to 40 per cent of the trees could be avoided. I have had losses as great as this; but since I learned how to set them, I have had good success. Of 248 trees transplanted a year ago last winter, none died. The pecan does not stand transplanting quite so well as peaches or plums, but there is no reason why there should be a loss of more than one to four per cent. Any loss beyond this signifies carelessness either on the part of the nurseryman who furnished the trees or of the man who transplanted them. Briefly stated, the rule for successful pecan transplanting is this: Never let the roots get dry from the time the tree is dug in the nursery until it is reset in its permanent location. The careful nurseryman heels in each tree as soon as dug; and when shipped the roots are well wrapped in damp moss. When received by the orchardist, it is best to set at once in holes that have been previously dug, only removing one tree at a time from the original package or other damp packing in which they have been carried to the field. Firm the soil well about the roots from the bottom to the top of the hole. If the soil is at all dry, pour in a bucket or two of water as the hole is being filled. If guano or manure is used, see that it is well mixed with the soil, and that the fertilizer does not come in contact with the roots. The size of the hole and the fertility of the soil have their bearing on the future growth rather than on the living of the tree. In only one case have I known trees to die from being set in too fertile soil. A friend set some trees in a very rich cow-pen and nearly all died; while others set at the same time in less fertile soil lived.—Coleman's Rural.

ALFALFA NOTES.

Irrigate freqently rather than by long continued soakings; over watering excludes air and compacts the soil.

Avoid pasturing alfalfa fields, especially when wet.

Cultivate alfalfa fields early in the spring, with the alfalfa renovator, disk, spring-tooth harrow, or any special alfalfa cultivator, for the following reasons.

(1) To break up compact soil conditions.

(2) To get air into the soil, which is very essential.

(3) To work leaves and other organic matter into the soil.

(4) To break up capillary action, thus conserving moisture.

(5) To destroy foxtail sod, grasshopper eggs, and other pests.

Cut alfalfa for hay when the growth checks and the plant puts out new shoots from the crown; this is usually about the time the plant is well started to bloom.

In curing alfalfa hay it should be done in the windrow and cock rather than in the swath, as the leaves will shatter if suddenly dried up in the sun. The undried green leaf is an important factor in reducing the sap in the stems in the curing process.—Philo K. Blinn, Alfalfa Specialist, Colorado Agricultural College.

The bacteria which are necessary to alfalfa in the soil for its proper growth are not found in the hay and so the droppings from cows fed on alfalfa hay will do no good as far as inoculating the soil with bacteria for alfalfa is concerned. The bacteria are on the alfalfa roots in the knots and nodules that are usually found on these when the plant is pulled up. The bacteria that are found in the nodules on sweet clover roots are much like those that the alfalfa plant utilizes and if you can get a load of ground anywhere in your neighborhood along the road where the sweet clover grows in abundance do so and scatter it over the plat which you wish to seed to alfalfa. This is generally considered very beneficial to a young growth of alfalfa which then grows nicely and soon develops a bacterial nodule growth on its roots.

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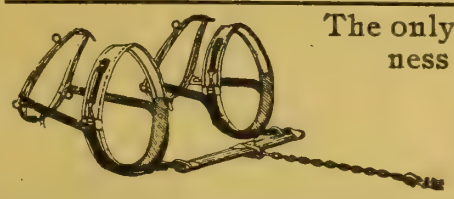

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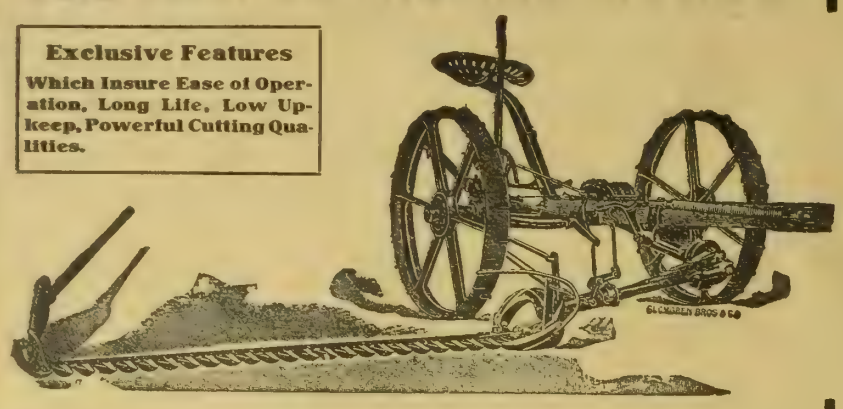

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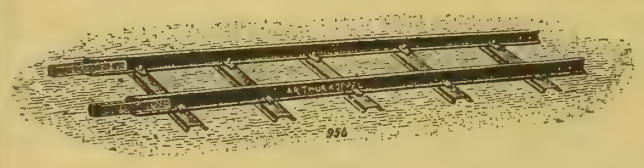

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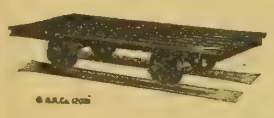

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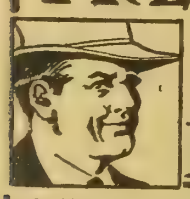

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A SOIL CONDITION.

Soil conditions are the prime requisites to successful agriculture, and the proper conditions are not all the same for all kinds of crops. A soil particularly adapted to one kind of crop may be wholly inadequate for others. The soil in proper condition for whatever crop to be grown must contain the absolutely necessary ingredient, moisture.

The moisture of the soil which is available for plant growth is known as free moisture, or that which is apparent. This moisture or water dissolves the salts of the soil and is taken into the plant roots to be used in the growth of the plant. This moisture is absorbed from the soil and by the capillary action follows along the minute tube that extends up the stem of the plant and out to the leaves, where the moisture is evaporated. This process is continuous and at the same time the growth of the plant is increased. We see that there must be some ratio between the amount of moisture absorbed by the plant and the increased growth produced.

Many experiments have been made upon different kinds of farm crops and the amount of water required to produce a pound of dry matter varies between wide limits. These tests indicate that 200 pounds of water will be necessary to produce a pound of dry matter, while in other cases as high as 800 or 900 pounds will be necessary.

This great variation is due to the climatic conditions, locality, kind of crop, and kind of soil. In the humid regions less water is required than in the arid country, and this fact partly explains why a greater amount of water must be held in the soil of our irrigated districts of the West. Wheat, in all probability, will require less water, per pound of dry matter, than oats, and alfalfa will require more than oats.

If we assume that an average crop requires 400 pounds of water to produce one pound of dry matter, and in the case of alfalfa, which produced four tons per acre for the season, will require for the above average about 51,200 cubic feet of water, or a depth of a little over fourteen inches over the entire acre, or 1.175 acre feet. This amount of water must be held in the soil particles as free water available for the plant growth. A good soil must be of such a nature as to act as a reservoir and at the same time supply the necessary chemical constituents to the plant.—R. L. Parshall, Colorado Agricultural College.

ALKALI FROM NITRATE OF SODA.

(Continued from Page 517.)

the presence of the alkali salts, have acid reactions and in the soils which do have acid reactions there can be no harm in the use of nitrate of soda until this original soil acidity has been neutralized and in all probability this acidity is continually forming from the decomposition of minerals in the soil forming acid silicates. It is to be remembered that 24 pounds of superphosphate will neutralize all the alkali formed from ten pounds of nitrate of soda.

Then I believe that under the present prices for nitrogenous fertilizers we should use liberal amounts of nitrate of soda on all open soils and on all acid soils. And I find that all our heavy soils which I have examined are acid with the one exception, that of the nursery cited above, and even that subsoil was acid. In the meantime we should encourage the manufacture of nitrate of lime as Dr. King suggested and it is highly probable that we will be able to get other forms of nitrogen to use before we have done any damage to our soils. Then if the present difference in prices persists we can even tile drain and wash out by that means.

C. C. Teague, Santa Paula.

We have never used any nitrate of soda on our property, and I, therefore, do not feel qualified to give you a statement in regard to it. Anything that I might say would only be from a conviction which would not be based on actual experience, and I do not care to give out a statement which might influence the growers in regard to the use of nitrate of soda, without actually knowing more about it.

I might say, in theory, the claims of Dr. King seem to be warranted; in practice, the question is, do the deleterious effects show up? Mr. Blanchard, of this place, has used considerable nitrate of soda, I believe, on his old seedling grove, and, I think, claims that he has never seen any injurious effects.

MAGNESIUM AND LIME AGAIN.

The following was received from Prof. J. H. Norton, of the Riverside Citrus Experiment Station, some time since. We desired to get a line on the information it contained, so deferred its publication until we could get down the old chemistry and brush up a bit on the symbols. However, we pass it on without waiting longer. But, seriously, it's full of information. Study it.

"You will find the following in the 'Chemical Abstracts Published by the American Chemical Society' under date of March 20. 1911:

" 'Experiments with lime and magnesium. D. Meyer, Agr. Chem. Vers.-Sta., Halle aS. Landw. Jahrb., 39, Erg. III, 254-98; Chem. Zentr., 1910, II, 406. 'In experiments with buckwheat and oats the dependence of the maximum yield on a definite proportion between calcium oxide and magnesium oxide could not be proved, either in the case of the soils with more calcium oxide than magnesium oxide or vice versa. The proportion of magnesium oxide, 1:3, considered unfavorable by Loew, gave a higher yield of buckwheat than 3:1 (considered favorable). The proportion 1:1 gave the same yield as the unfertilized vessels. With oats the ratio 1:3 increased the yield of grain. Magnesium sulphate and magnesium chloride, as well as sodium chloride, had a favorable action on cereals, but not on alfalfa, clover, mustard, beets, or potatoes. Addition of 2 per cent magnesium chloride and sodium chloride to soils worked more injury than magnesium sulphate, the injury being greater the lower the lime content. As to the lime requirements of a soil, the reaction as well as the lime content is of significance. Neutral soils with relatively small lime content show little lime reaction. In acid soils with high lime content the lime reaction is negative. Acid soils are unsuitable for the normal course of chem-biological processes and for the action of physiologically acid fertilizers, so that even with considerable lime content fertilizing with lime is a necessity. On an acid lime-poor soil, calcium carbonate and magnesium carbonate work favorably for clover, mustard and potatoes, while calcium sulphate works unfavorably.' "

An animal, warm from work, should not be allowed to drink large quantities of water.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Angora Rabbits.

Where can I purchase a pair of pure-bred Angora rabbits?—Subscriber, San Martin.

In the liner columns of this week's Cultivator appears the announcement of D. Caldwell Co., Los Angeles, that they have Angora rabbits for sale.

Bones for Poultry.

What treatment is necessary for bones that have been bleaching for several years to make them suitable for poultry food? We have "oodles" of them in this section.—Subscriber, Wilcox.

The only treatment which would be necessary would be to have a crusher which would reduce them to a meal or particles small enough for the poultry to swallow. They would not have the value of green cut bone; at the same time, in the absence of the latter, they would make an excellent addition to the diet. We think that the ordinary bone crusher, not the cutter meant for green bone, would be satisfactory. It should be run with a gasoline engine; don't put the job on the small boy.

Cypress in Arizona.

What is the lowest temperature Monterey cypress will stand? I want to plant windbreak, but our temperature has been known to reach as low as zero for a few minutes. Our altitude is 4,200 feet. Is there a better tree?—H. A. S., Wilcox.

The Monterey cypress has done well in sections in Oregon known to have occasional zero weather, and probably would do fairly well in Arizona. There is one of Arizona's native trees which might prove its superior; it is known as Arizona cypress, at least seed is kept for it under that name in Los Angeles seed stores. It is a native of the Williams Mountains and perfectly hardy anywhere within the boundaries of the state.

Locust for Fence Posts.

Can anyone inform me as to locust timber for fence posts? Will it stand in the ground for any length of time? —Subscriber, Healdsburg.

Locust timber has a good reputation for fence posts, and if seasoned and dipped in creosote is an excellent keeper. Under proper conditions, red gum or eucalyptus rostrata would be preferred, and they will grow in the Healdsburg section. The catalpa is a more rapid growing tree than the locust, and is fairly satisfactory. We would be glad to learn of experience of any of our subscribers as to keeping qualities of locust, especially as to whether there is any difference in timber cut when dormant or in full flow of sap.

Fertilizer on Alfalfa.

What kind of fertilizer will be good to put on alfalfa? It is planted on very sandy soil and does not look thrifty. Of course, I do not want to injure these young plants.—Subscriber, Hynes.

On sandy ground there is no fertilizer which is the equal of stable manure. It has the advantage of carrying into the soil a quantity of humus, which is what sandy ground needs, for it adds to its water-holding capacity, and one cause of sickly-looking plants on sandy soil is lack of moisture. Best results are secured by heavy application, working well into the soil before seeding, but we believe it would prove satisfactory in this case. If soil has sufficient humus, the application of a complete commercial fertilizer composed only of phosphoric acid and potash might be sufficient, for if the soil is supplied with nitrogen-gathering bacteria, the alfalfa should be able to secure its own nitrogen. A possible explanation of the sickly-looking alfalfa may be that the soil is not so supplied. Test of this could be made by securing a quantity of soil from a field which is thriftily growing. Scattering and working in this soil on a small plot of ground would determine whether that is your need.

Laying Out Orchard.

Please give plan and instructions for laying out ten acres, twenty by eighty rods, which will give the greatest number of trees per acre. Trees to be twenty-five feet apart each way and in rows every direction. How many trees per acre can be planted on the same land, using the diagonal plan, trees twenty-five feet apart each way?—Subscriber, Garden Grove.

We cannot understand how we can give any further instructions to the subscriber as to laying out his ten acres. As we understand it, he wishes the trees to be set square and twenty-five feet apart. This is inflexible, and no planning can change the matter. As to method of work, the laying out is usually done by use of a wire on which are tags soldered, or securely fastened, every twenty or twenty-five feet, or whatever the distance is. The wire is drawn perfectly taut, and care taken to always work from one end of the wire, to express it in military fashion, "guide right" all the time. If this is carefully done, the trees will be perfectly lined in every direction. It will be somewhat simpler if a long enough wire is to be had to "lay out" the eighty-rod way, but with greater care a shorter wire may be used the short way. In working that way a wire 330 feet long with twelve tags will be sufficient. This will allow for twelve trees to the row, leaving fifteen feet from each border line. Of course, on a street side this would be more than necessary, but if sides adjoin other property where trees are planted close to the line, fifteen feet will be none too much. The more common distance is eight or twelve feet, however, and by making a slight reduction of the twenty-five feet an additional row of trees might be secured. If greatest care is used in stretching the wire and keeping the first row absolutely straight the long way, then the cross work will show the short rows equally as true. Pegs placed by the tags on the wires will be exactly where the tree is to be. The use of the notched planting board and other aids to planting require too extended description to be given in these columns.

The number of trees per acre where set twenty-five feet square is sixty-nine; the same distance apart by the equilateral or triangular method, seventy-nine. In theory, the triangular method gives just as much space to the tree, but from our experience we would prefer the square system, for the gain in additional number of trees is offset by additional work, and it results in crowding much quicker.

Novel Leveler.

We have received a letter from Fresno, from one who signs himself "Ma-

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chinist Farmer," with description and sketch of a novel device for determining slope of land or for leveling lands. We do not reproduce the sketch, for the reason that it does not appeal to us as being as practical as some of the simpler leveling devices. It has the advantage of economical construction, but the disadvantage, it seems to us, of being cumbersome. In lieu of engraving, we describe: Two pieces of glass tubing, twelve or fourteen inches long, similar to those used in the steam gauge of boilers, are firmly attached with copper wire to uprights, the center or graduated line on each being identical as to distance from base or foot of the uprights. At the lower ends of these glass tubes is securely attached a rubber hose and filled with water. Farmer Machinist sends us the following description of the device:

"My scheme is for checking up land, lining shafting, gas engine foundations and other uses. It is made as follows: Get two ½-inch water glasses, one piece of light rubber hose (25 or 50 feet), two pieces of wood ¾x1¼ inches, have them made with foot ¾x3 inches square, also two corks to fit glass, and fasten with string on wooden upright to plug glass when needed. Fill with water to lines. Now, when leveling up check, drive stake on high ground, hold one upright on top of stake and carry the other, say, twenty-five feet. Drive stake until water in glass shows equal on both glasses, that is, to center line. Care should be taken to fill glasses until water comes to center line of both glasses. After the first twenty-five feet is laid off, keep doing so around the piece of land. For lining up shafting, hold the center line to bottom of shafting, or stand on top if you have head room enough; same with engine foundations or anything you want to line up, and it will be accurate."

Flea Beetle.

Will you kindly advise through your department as to best time to spray grapes for the flea beetle. We have your valuable issue of Nov. 3, 1910, worth several years' subscription, which tells what to use.—N. B., Elk Grove.

The so-called flea beetle of the grape in this state is not the regular flea beetle as it does not hop around but is the adult form of the imported root worm. The insect injures both the roots and the top of the vines. It is about one-fifth of an inch long, blackish brown in color. A hopper cage will take them when they are in the winged form. They are also well controlled by an arsenical spray. A strong dose is required. Lead arsenate five pounds to fifty of water or Paris green one pound to a hundred gallons of water, to be applied when the beetles first make their appearance. In the younger form before becoming winged if the vines are dug thoroughly around to the depth of six or eight inches many of them can be destroyed. If they were in my vineyard I should dig into the ground in February and in March and April most thoroughly to destroy them. This digging would increase the crop enough to pay for itself, like the old story of the man who told his sons on his death bed that if they dug they would find a pot of gold in the vineyard.—M. E. S.

Wooden Silo.

"Back East" I used silo built of 2x4 like a barrel with iron hoops. Can a silo be successfully used in this climate if built of the same material? I fear the dry summers and changes in temperature from night to day would do away with it.—A. K., Kerman.

Yes, silos are a success in California. We have on this ranch a wooden silo still perfect that has been in use nineteen years. I do not suppose there can be a greater need for silos anywhere than right here in Fresno county. Butterfat is cheap when the spring flush of feed is on and dear when the grass has lost its freshness. —M. E. S.

Bamboos for Turning Stock.

I have been told there are certain varieties of bamboo that will turn stock and at the same time be good soil binders along the banks of streams where there is danger of washing. I have found that the arundo donax is a perfect soil binder, but of no value in turning stock. What may be planted with that?—Subscriber, San Luis Obispo.

Acacia horrida, acacia eburnea and lycium horridum are all heavily supplied with thorns and will turn any stock. If there is no fear of the plant becoming a pest, the Eastern hedge plant used so extensively a few years ago, osage orange, will be found to make a perfect barrier.

White Minorcas.

What are the Standard requirements for White Minorcas?—Subscriber, Riverside.

The Minorca is the largest of the Mediterranean breeds. Body long, comb very large, wattles large, earlobes white, dark-colored legs and pinkish-white or flesh-colored skin. Head should be carried high, tail spread and carried at an angle of 40 degrees from the horizontal. At shoulders back should have appearance of being rather flat, lines of breast and body well rounded, and general carriage graceful. Standard weight is for cock 8 pounds, cockerel 6½, hen 6½, pullet 56. Plumage should be compact and free from any foreign color. Head moderately long, wide and deep, with beak of good length, stout and well curved. Comb should be moderately large, straight and upright in the male, and forming a loop over the back in the female. Neck should be long, arched, hackle abundant and flowing well over shoulders, wings large and well folded.

Cow Falling Off.

My cow has been falling off since calving two months ago, has little appetite. Three weeks ago when I went to milk her she could hardly get up, seemed to be stiff all over. In a few days she improved, but now is quite stiff again. What can I do for her?—Subscriber, Saugus.

The first attack looked as though it might be a very mild form of milk fever. As it was recurrent I should now suspect that she did not clean properly after calving. Have her examined if possible for this and the doctor will prescribe for her. If not convenient to see a doctor, examine for any discharges, and if there are any, use a douche with corrosive sublimate tablets once a day. Then the local druggist will supply you and tell the amount of warm water to use with each. Give her internally a teaspoonful of bisulphite of soda every day in a mixed feed. A little oil cake meal would help. A mixture of one part rolled barley, one part bran and one part oil meal, giving her a quart a day, will help her tone. Begin by giving her half the quantity. If not convenient to buy oil cake meal get a package of one of the standard mixed stock foods until she comes to her appetite again.—M. E. S.

Withertip.

I am sending lemon twigs which show a dying condition and yellowing of leaves. The affection is on the south side of the tree, twenty years old, and the only one in 500 which is showing the disease. Also send fruit from diseased branches. Does not grow to proper size and falls off.—Subscriber, Ioamosa.

These twigs were affected with withertip. The fruit also shows the characteristic marking or pitting of the skin. The small size and elongation of neck are doubtless due to poor condition of the tree. The proper treatment is spraying with Bordeaux mixture. The disease may be brought under entire control by using it.

Tariff on Lemons.

Is there a tariff on oranges and lemons, and how much? What would be the effect upon the citrus industry if there were a great reduction in the tariff?—C. S. B., Rialto.

The tariff on lemons is 1½ cents; on oranges, 1 cent per pound. Discussion of the effect of removal or reduction of this tariff would be to a certain extent political, and in any case we are compelled to acknowledge we cannot answer. The presumption is that it would result in great injury to the industry, for the one reason, amongst many, that the cost of production and of transportation from the Mediterranean sections to the Atlantic seaboard is much lower than cost of similar charges to California growers, but to enter into this fully would require pages and lay the paper open to the charge of being prejudiced.

Dieback.

I send you herewith two lemon twigs with strange infection.—Subscriber, Escondido.

These lemon twigs were affected by dieback, which may be caused by a number of different things, such as tree being over hardpan, the ground having lost its humus and become compact, excess of nitrogen, or any cause that will lower the vitality of the tree. The only way to determine it is to make a thorough examination and put the tree in the best condition, when the trouble will be dispelled. Dieback is sometimes confused with withertip, a far different proposition, and which may be handled by spraying with Bordeaux mixture. No spray will reach dieback.

TRICKS OF THE TRADE.

Bobby—"Are you the trained nurse mamma said was coming?"

The Nurse—"Yes, dear. I'm the trained nurse."

Bobby—"Let's see some of your tricks, then."—Early Bird.

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Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Elephant Leg or Glanders.

A high-class driving horse, apparently well on Sunday, has a chill. Monday morning the left hind limb is badly swollen and sensitive. Urinary organs and bowels act normally. Appetite good. After three days the limb remains swollen and the horse has a cough and also a discharge from the nose. The discharge has "rather a greenish color." — Subscriber, Norwalk.

If the symptoms ended with the chill and the swelling of the leg, we might be justified in prescribing for a simple case of lymphangitis or elephant leg—but the discharging from the nose of a greenish matter leads us to suspect glanders. Separate this horse from other animals. Use carbolic acid, 5 per cent solution, freely on the hands after handling horse. Have a qualified veterinarian examine the horses, and if he pronounces the disease glanders, destroy the horse and bury or burn the carcass.—F. G. M.

Caked Udder.

Please inform me what I can do for a heifer which has a badly caked bag. The condition evidently existed before she dropped her calf, five or six days ago. The bag is hard yet.—Subscriber, Covina.

Mix equal parts of zinc-oxide ointment and belladonna ointment and apply to the inflamed part with gentle but prolonged hand rubbing. Make a hot dry pack by filling a small bag about one-third with bran and heating in the oven of a cook stove, then, after using the ointment, adjust this to the udder, covered with a blanket to conserve the heat, and suspend in place by bands crossed over the back. Renew the application two or three times daily.—F. G. M.

Scours.

A young horse scours when idle, but as soon as he is worked is some better. His teeth are in good condition. Have given condition powders and tried rolled barley. He is fed the best of barley hay and given pure water, but remains thin and spiritless.—Subscriber, Garden Grove.

Give the horse one pound of epsom salts in a quart of water as a drench, and three days later follow with two ounces of turpentine in a quart of sweet oil. Drench slowly through the mouth only, taking care not to strangle the animal. When the last dose has ceased to operate, give three times daily, in the food, dried sulphate of iron, nux vomica and gentian, one drachm each.—F. G. M.

Debility in a Cow.

A Jersey cow, six years old, delivered her second calf, dead, last September, and since that time has gradually lost flesh, though her appetite has remained good. Recently she was noticed to fall occasionally, but regained her feet quickly. Now when she falls she cannot get up without assistance, but with a little lift she gets up, and when someone supports her hind quarters she walks with apparent ease. There is no evidence of pain, and the milk yield has continued regular. The extreme weakness is the only indication that she is diseased.—Subscriber, Surrey.

Evidently a portion of the afterbirth was retained at the time of calving, and its absorption has surcharged the blood with impurities, resulting in a weakened condition, which has permitted some internal disease, possibly of the nature of a tumor growth, to gain ascendancy over the body. The animal is undoubtedly in a serious condition. Begin treatment by giving one pound of epsom salts and a half teacup of table salt dissolved in a quart of water to which is added a tablespoonful of powdered red or chili pepper. Drench slowly, giving a little at a time, allowing the cow to swallow between draughts. Have your druggist mix the fluid extracts of nux vomica, cascara sagrada and gentian, of each two ounces, in ten ounces of wine, and give one ounce of this mixture on the tongue three times daily. —F. G. M.

Warts.

Cows, pastured with calves having warts on their heads, have contracted the disease, and now these spots, which are very disfiguring, are appearing around the eyes and on the heads of the cows. Kindly give us a simple remedy.—Subscriber, Valley Center.

Ordinary warts are not contagious, hence this disease must be of parasitic origin. Saturate the spots, where permissible, with tincture of iodine three days in succession, and then apply castor oil daily till cured.

OWN YOURSELF.

"We can't lose ourselves in crowds. We exist, each by himself, in our own personalities. If I were asked to name the three things most important to young men now, I should say, self-possession, simplicity, and a right standard of values. There is no social problem more grave than the tendency toward cities. In the founding of the republic we got character out of conditions not ordinarily characteristic of the life of great cities. We got deliberation and reflection in the long winter evenings with opportunities for reading and study and thought. Men were close to the land. The tendency of modern life in cities is too great pace.

"If a young man is not on the run most business houses have no use for him. In the vulgar, but most expres sive phrase, he must 'get a move on.' If he can't get a move on he must get out. There is danger that, under a commercial life like ours, a young man under orders will lose possession of himself finally. The drive threatens to take possession of us.

"In days like this a man wants first of all to get possession of himself, to have some hours in the business day to think over his blunders and his sins. It is necessary that you have time to say to yourself that you shall be God's man, owning yourself, when the day is done, as you did when it began."—Bishop Potter.

A SOAP TO KEEP THE HANDS SOFT.

There are always small pieces of soap left in every household. Collect them, add half their weight in oatmeal; now put your soap into a saucepan with a little water, to dissolve. Keep stirring till all is melted, then add the oatmeal, and when it is well mixed turn it out onto a piece of wood to cool. Divide it into small cakes with a sharp knife, and leave it three or four days to thoroughly set before using.

A little bit of kindness
To others now and then;
A little bit of blindness
To faults of other men;
The wish to be forgiving
When things somehow go wrong,
And life is worth the living
And hope is in the song.

Books for Ranch and Farm

For Sale by the

California Cultivator

GENERAL AGRICULTURE AND FRUIT GROWING.

	Book Alone	With Cultivator
Feeds and Feeding, by Henry	$2.25	$3.00
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Soil Fertility and Permanent Agriculture, by Hopkins	2.70	3.50
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FOR BEEKEEPERS.

A. B. C. & X. Y. Z. of Bee Culture, by Root	$1.50	$2.35
How to Keep Bees, by Root	1.10	1.85
Beekeepers' Guide, by Prof. Cook of California	1.20	2.00

Prices quoted are for delivery, postage paid, in the United States.

Upon request we will gladly quote price on any not included in this list.

Send orders with remittance to

CULTIVATOR PUBLISHING CO.,
115 No. Broadway,
Los Angeles, Cal.

Cultivator Order Blank

_____ 1911

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115 No. Broadway, Los Angeles, Cal.

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NAME	P. O. ADDRESS	STATE

SIGNED _____

ADDRESS _____

"Let There be Light."

—PAT HENRY, before the battle of Bull Run.

We are not sure that our old friend Pat has been correctly quoted, neither do we know that he was anywhere near Bull Run during that memorial event, but we do know that every Rancher, Miner, Dairyman, Stableman and Teamster on the Pacific Coast should be in possession of at least one of our Vehicle Headlights, here illustrated.

There are times when a good, strong light is almost indispensable. It is needed around the barn, the thrasher, the harvester, on the gang-plow, on your wagon or buggy when driving over rough roads, the ranch, the mine or the dairy.

A Boesch Vehicle Headlight is worth a dozen ordinary hand lanterns. They are well made, strong and durable, each one is fitted with a highly polished silver plated parabolic reflector which concentrates the rays of light with remarkable brilliancy. The body is finished in a rich glossy black with polished brass trimmings, and for appearance it is first in order of handsome lamps. It embodies all our latest improvements, and for efficiency as a light producer it is without equal. This is the Headlight that caused the passing of the State Law prohibiting the hunting of wild ducks by artificial light. It is being used by nearly every Fire Department on the Coast and in many of the large Eastern cities.

Do not be led into buying a cheap, inferior lamp. It won't pay. This one is the result of forty-two years' experience in the business. It is home industry, and we guarantee satisfaction. It is made in 6, 8 and 12-inch sizes, measurements across the face.

We also manufacture many other styles of Headlights, Lamps, Lanterns, etc., too numerous to mention.

Write for Catalogue and full particulars of lamps or lanterns that you require.

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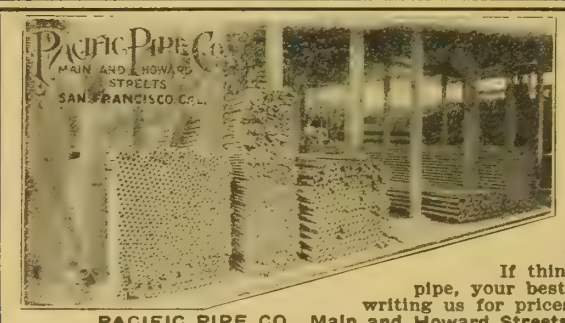

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Two men can run it. All steel and iron. Smooth bales. Easy draft. Satisfaction guaranteed. Free trial. Ask for catalogue 28.

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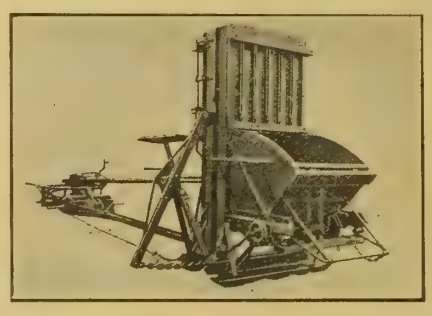

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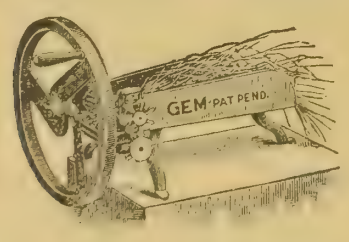

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Just the thing for the chicken raiser for cutting alfalfa, clover and green feed. Insist on the Gem. Take no substitute. Shipped direct on receipt of price, $8.00.

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SEED CORN

Department of Agriculture Selection No. 160. An early maturing yellow flint corn that has produced 78 bushels shelled per acre. Will produce a fair crop with a minimum of water if planted early. Sold only in the ear. Price $2.00 per 100 pounds, smaller lots five cents per pound.

J. B. Neff

Anaheim, Cal.

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Timely Ranch Suggestions

FERRETS.

The great number of queries received by the Cultivator regarding ferrets induced the gathering of information as to these little animals. Ferrets are of the weasel family, nearly allied to the polecat; some even claim that they are a domesticated variety. They are much smaller in size, height and body, about fourteen inches around, tail five and a half inches. The muzzle is long and pointed, the color usually yellow with more or less white. Ferrets were imported into Europe from Africa, and were used by the Romans for catching rabbits, sometimes being muzzled and sent into the holes to drive them out, again attached to a piece of string and drawn out when they had seized their prey. They are capable of only partial domestication, and tolerate handling, though they never manifest any attachment. They usually breed twice a year, the brood consisting of from six to nine.

The largest breeding center is New London, Ohio, and from that point they are shipped all over the world. They are used extensively in ridding old buildings of rats, also for hunting any of the smaller animals which burrow.

We are indebted to Mr. Trell W. Messenger, of New London, for the following facts:

"Yes, many ferrets are raised here, in fact more than in any other locality in the United States. They ship a great many to the Atlantic coast and turn them loose in the large freighters for rats, and some go to the Pacific coast. At present all are sold out excepting breeding stock, which is valued highly. Money would not buy them this time of year.

"Shipping generally commences about August at $1 or $1.25 a head, and by November or a little later they bring $5 and $6 a pair, so you can see how rapidly they advance.

"It is nature for ferrets to hunt, and all the training they need is to teach them not to be afraid of you when they come out of a hole. Anyone can handle them with good gloves, but the breeders very seldom use them. I think the reason there are no breeders of ferrets in California is that the fleas are a great pest and would doubtless prove a serious handicap."

It having been suggested that ferrets may prove a pest if introduced into this state, we wished a ruling from State Commissioner Jeffrey, and he writes:

"There is no specific reference to this animal in any of the statutory laws relating to agricultural interests, as far as I am aware. Nor has the ferret ever been declared subject to quarantine in any order on file, and inquiry indicates that no attempt has been made to exclude this creature from the state. However, the State Quarantine Act of 1899 provides that no person, persons or corporations shall bring or cause to be brought into the state any animal detrimental to horticultural and agricultural interests. While the ferret has never been formally declared detrimental, I believe it may justly be considered so and that it should be kept out.

"This semi-domesticated little animal is a bloodthirsty beast. It is very prolific and would no doubt flourish and increase in the mild climate of California. Its presence would not increase the tribes of beneficial birds. Nor would it conserve any useful purpose that I can think of, unless the sport of ferreting out ground squirrels might be termed useful. I think the importation of ferrets should be discouraged, and if necessary it may be prohibited by the State Commissioner under the authority of the law referred to."

We doubt not Commissioner Jeffrey's statement that "Its presence would not increase the tribes of beneficial birds" is strictly true, unless it reduced their natural enemies. If given liberty, however, and if the tribe increased to any extent, it would prove a menace to poultry. We can find no record of its ever having become such a pest. Bailey's Cyclopedia says "It is one of the most effective exterminators of prairie-dog towns."

BREEDING COTTON.

The most disturbing factor in the whole cotton-growing industry continues to be the steady advance of the Mexican boll weevil. The necessity for breeding of earlier types of long-staple upland cottons has reached an acute stage, because the region where most of this cotton is grown has been invaded, and is now infested sufficiently to make a scarcity of this type of cotton. So far the damage resulting from the weevil has been greater in humid regions than in the drier parts of Texas.

This crisis is being met in two ways: First, by the use of Columbia cotton, a variety originated by Dr. H. J. Webber, by selection from Russell's Big Boll. Columbia has attained great prominence in the long-staple region in Mississippi, since it is earlier than the varieties now grown. Second, by the introduction of a variety with long-staple which is still earlier. This variety, which has been named the Foster cotton, is yet in its infancy but it is in great demand. It is a cross between Sunflower cotton, an old-time long-staple variety, and Triumph, an early big-bolled, short-staple variety.

The department of agriculture is this year making a distribution of a new variety of cotton for Texas conditions, which has been called Trook. It is early, large-bolled, very productive, and with a very high percentage of lint. It is a cross of Triumph on Cook's Improved, the latter variety being an eastern big-boll cotton with a high line percentage.

Mr. O. F. Cook has a strain of Mexican cotton from the state of Durango which showed very favorable results in a number of plantings in South Texas in 1909. This cotton has lint about 1¼ inches long, and is early and productive.

The wilt-resistant varieties distributed by Mr. W. A. Orton for the eastern cotton region are giving excellent satisfaction to those regions, where this disease is a serious factor in cotton production.

Since cotton is an open-fertilized plant the question of the amount of crossing becomes very important for the breeder. It is a subject which has been too much neglected in the past. The amount probably varies with localities, and with seasons, and may be different with different months of

the same year, depending on the variations in the insect fauna. For this reason experiments should be planned in many places, and for more than one year.

Two papers are presented this year bearing on this subject, one on conditions in northern Georgia in 1908, and one for central Texas of the same year.

These results are not entirely comparable, but both indicate a considerable amount of crossing. It is planned to have other experiments ready for report at our next meeting.—American Breeders Magazine.

AN ALFALFA BANQUET.

During the past year or so the value of cottonseed meal as human food has been studied by investigators with favorable results, and a few months since a banquet was served in Washington, D. C., at which many of the dishes contained liberal quantities of cottonseed meal. The attention which this banquet attracted in the newspapers aroused the ire and awakened the jealousy of western alfalfa enthusiasts, and it is now announced that they will hold an alfalfa banquet in Colorado, which will make the cottonseen meal banquet look like a handout at the kitchen door.

"The very idea of cottonseed meal having anything on alfalfa as food," hotly declared one of the alfalfa enthusiasts. "I understand at that cottonseed meal banquet they served biscuits to the guests, and when they had partaken of those they served more biscuits; but I want to tell you that at this feast there will be something more than biscuits."

When pressed to name some of the alfalfa dainties which will be on the menu, he said that, though he had planned a big surprise, he felt that he owed it to the public, and his expected guests in particular, to tell just what kind of "alfalfa eats" were coming to them. He said:

"To start with, there will be alfalfa biscuits, made from alfalfa meal; then there will be turkey stuffed with alfalfa; alfalfa will be served in the place of potatoes, and there will be alfalfa leaves in the place of spinach. There will also be alfalfa salad, and for beverages alfalfa tea and alfalfa cider. When the meal is finished the guests will be given alfalfa toothpicks made from alfalfa straw."

"Is that all?" was asked of the alfalfa mill man.

"Oh, no—I almost forgot. Former Governor Alva Adams will be the chief speaker, and the subject of his discourse will be 'Alfalfa and Apples.' Isn't that enough to make those cottonseed meal men from Dixie turn green with envy?"

We do not want to dampen the enthusiasm of our southern and western friends. A healthy pride in what one has, and the determination to make the most of it and be content is to be encouraged rather than discouraged. But we remind them that each man has but one stomach, and that he owes it a decent sense of respect. Stomachs which do not receive this respect and consideration have a way of wreaking vengeance which is both effective and discomforting. We suggest, therefore, to our friends of the South and West that they sell their cottonseed meal and alfalfa hay, both of which are bringing good prices, and with a portion of the proceeds buy some of our good corn, wheat and oats, which, when properly prepared, not only tickle the palate, give that comfortable sense of fullness and impart strength to the body, but are welcomed by the stomach as proper foods for its use.—Wallace's Farmer.

WHO OWNS THE POSTOFFICE?

Under the auspices of the Postal Progress league a postal conference was held in Washington on April 25, in aid of the establishment of a parcels post.

Merchandise is sent from Europe, carried by our postoffice department across the United States and delivered in Los Angeles at a cost of 8 cents a pound, in single parcels weighing up to 11 pounds. The government does that for foreigners. It treats its own citizens in a niggardly way. It will not accept for domestic delivery a parcel weighing over four pounds and charges 16 cents a pound for the service, even though the parcels be transmitted but from Los Angeles to Pasadena.

The express companies have been the beneficiaries of the government's policy, and senators acting in the interest of the express companies have governed and controlled that policy. For a generation congress has been far more concerned in protecting the express companies in their monopoly than it has been in relieving the people from extortion. The companies have been a part of the system whereby legislation was controlled for the benefit of private interest and special privilege, whereby Big Business was endowed with the power of taxation to gratify its private greed and fatten its avarice.

Unhappily, the postoffice department is under the control of an official from whom the trusts may expect much, but from whom the people can expect nothing. But congress is his master, and congress steadily grows more progressive, more responsive to and more representative of the people. And, after all, who owns the postoffice department? The people. In whose interest should it be conducted? In the people's interest. Well?—Los Angeles Express.

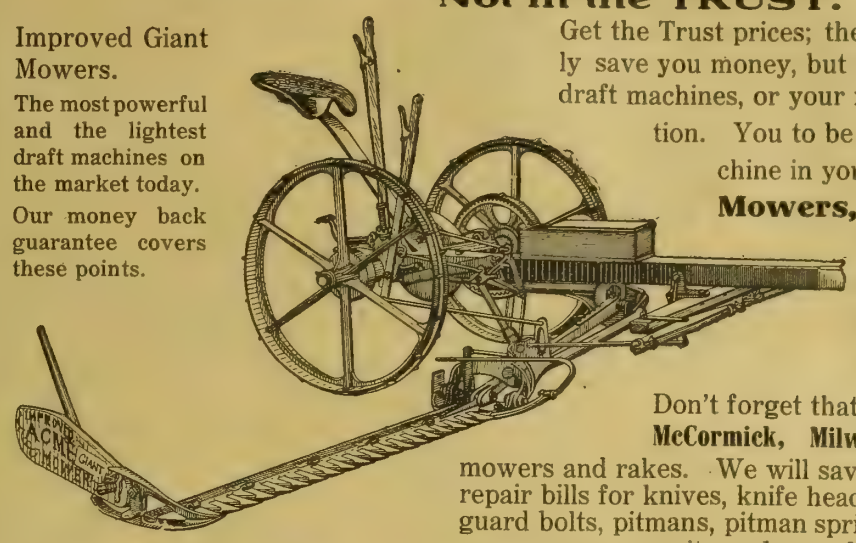
INDEPENDENT ACME

Not in the TRUST.

Improved Giant Mowers.

The most powerful and the lightest draft machines on the market today.

Our money back guarantee covers these points.



Get the Trust prices; then come to us and we will not only save you money, but guarantee you better and lighter draft machines, or your money refunded without a question. You to be the judge after you test the machine in your field.

Mowers, Rakes, Sweep rakes, Stackers and Binders.

We pay the freight. Write at once for catalog, prices and testimonials.

Largest stock of repairs on the coast.

Don't forget that we carry repairs for the **Acme, McCormick, Milwaukee** and all other makes of mowers and rakes. We will save you from 25% to 50% on your repair bills for knives, knife heads, sections, guards, guard plates, guard bolts, pitmans, pitman springs, pitman straps, pitman bolts, pitman boxes, knife clips, wearing plates, rivets, rake teeth and chain.

Send in your orders and ask for price list.

Acme self dump rakes. 8. 10, and 12 foot.
Better than the rest and much lower priced.

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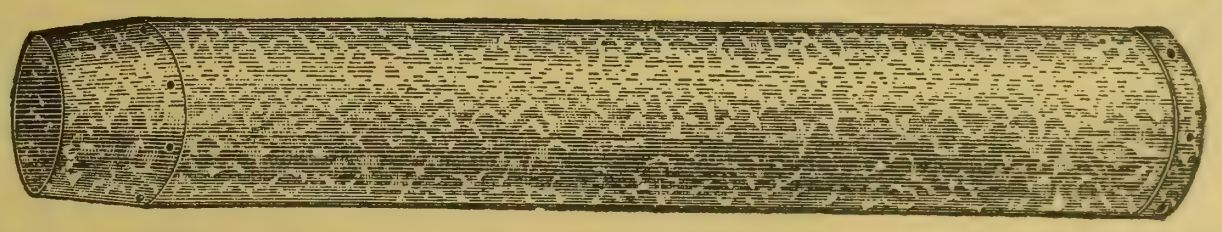
SAVE YOUR TIME WATER and GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE



The **PIPE RECOMMENDED BY ALL USERS.** It is the **ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE** on the market. **THERE'S NO ROUND SEAMS TO LEAK,** retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a life-time. For irrigating alfalfa it is the only pipe to use. We make **RIVETED PIPE AND TANKS.** Write for Illustrated Catalogue, also **SPECIAL IRRIGATION FOLDER** which may mean much to you.

American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., **Los Angeles, Calif.**

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Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c	per foot
10,000 feet	⅜-inch Standard, at	1c	per foot
25,000 feet	½-inch Standard, at	2c	per foot
20,000 feet	¾-inch Standard, at	3c	per foot
36,000 feet	1-inch Standard, at	4c	per foot
20,000 feet	1¼-inch Standard, at	5c	per foot
30,000 feet	1½-inch Standard, at	6c	per foot
50,000 feet	2-inch Standard, at	8½c	per foot
10,000 feet	2½-inch Standard, at	14c	per foot
15,600 feet	3-inch Standard, at	17c	per foot
15,000 feet	3½-inch Standard, at	19c	per foot
20,000 feet	4-inch Standard, at	24c	per foot
30,000 feet	5-inch Standard, at	40c	per foot
20,000 feet	6-inch Standard, at	45c	per foot

Oil Well Casings

1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00	per foot
1,000 feet	11⅝-inch Casing, at	$1.00	per foot
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30,000 feet	4-inch Casing, at	19c	per foot
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25,000 feet	3-inch Casing, at	14c	per foot
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WATER PIPE—Riveted Dipped Pipe

10,000 feet 24-inch Riveted Pipe, dipped, good as new	80c
10,000 feet 12-inch Riveted Pipe, dipped, good as new, 10-guage	35c
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10,000 feet 8-inch Riveted Pipe, dipped, good as new, 16-guage	25c
10,000 feet 6-inch Riveted Pipe, depped, good as new, 16-guage	20c
10,000 feet 4-inch Riveted Pipe, dipped, good as new, 16-guage	10c

20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.

Telephone and Telegraph Poles

20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

PHONE OR WRITE FOR PRICES

Take Santa Fe Ave. or Huntington Park car at 7th & Bro'd'y, Get off at Bay St.

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Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74319 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—Fine young Jersey bull, dropped August 6, 1909; sires St. Lambert of Ramona, 62633; dam Comma of Ramona, 202577. Solid color and an animal perfect in every particular. This splendid combination of St. Lambert and Pedro stock means a sire fit to head the best thoroughbred herd. See or address W. E. Vallentine, Sterling Milk Co., R. F. D., Corona, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Registered Yorkshire Boars. The Yorkshire is the greatest bacon hog in the world. Address Joe M. Regan, De Luz, San Diego Co., Cal.

Berkshire Pigs from registered stock, four months old, both sexes. B. de Groot, Aptos, Cal.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. National Co-operative Real Estate Co., L448 Marden Bldg., Washington, D. C.

Wanted—To rent to a reliable dairyman, an alfalfa ranch of 150 acres; 125 acres in alfalfa, balance pasture; fenced and cross-fenced. New buildings. Abundance of water, both ditch and pump. 7 miles west of Porterville, 1½ miles to creamery, church, school and blacksmith. Will rent for a term of years either for cash or on shares. References required. E. A. Marshall, R. F. D. 1, Box 90, Porterville, Cal.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Creamery Manager wanted for modern creamery, in operation one year. Opportunity for investment if desired. Address M. c/o Cultivator.

MACHINERY.

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, harness, disc, gang, walking, riding and side hill plowers; slip, Fresno and wheel scrapers; header, baler, seed sower, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.

8 ft. steel Star, tower, tank, tank house, pump complete, $39.00, or $42.50 on cars; 10 ft. steel Aermotor, steel tower, 3000 R.W. tank, 20 ft. stand, 100 ft. 2-inch galv. pipe at ½ new price; also many others. Several gasoline pumping plants.

TANKS, TANKS, TANKS.

50 gallons to 50,000. Special price on 25,000, 30,000 and 50,000 gallon; 15,000 on 20-ft. stand, 5,000 and tank house.

COMPLETE BRICK YARD.

Including one 100 H. P. boiler, brand new; one 60 H. P. boiler, and 50 H. P. engine; brick making machine, cutting table, clay screen, 50,000 new brick; plant complete or separate. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—Self-feeding Southwick hay press, good as new, with derrick, new cable, good Jackson fork, scales and buck rake. All for $200.00. Also three other good second-hand presses cheap. Address Frank M. Jones, R. F. D. 3, Box 487, Los Angeles.

For Sale—9 H.P. portable Alamo gasoline engine, mounted on steel trucks. This machine taken in exchange for a larger size and is a snap. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—One 25 H.P. Fairbanks-Morse gas engine. Also one 16 H.P. Have both been thoroughly overhauled and will guarantee like new. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

HORTICULTURAL PRINTING.

Catalogues for the seed and nursery trade, the live stock and poultry industries, are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

LINERS DO THE WORK.

Pattiway, Cal., March 4, 1911.

Cultivator Co.,

Dear Sirs: Please stop my ad. in a hurry and send me bill. I've received enough inquiries in one mail through my ad. in your paper to sell this whole country. Your paper is surely **IT** when it comes to getting results. I will send you another ad. soon. Yours respectfully,

WM. T. MANTZ.

ONE OF OUR LINER ADVERTISERS.

San Luis Obispo, Cal., April 2nd, 1911.

California Cultivator,
Los Angeles.

Sirs: Enclosed herewith please find check for $——, which will pay for the insertion from Feb. 9th to May 11th. Kindly notify me at that time as I may wish to continue the liner. I have received many orders through your medium and especially for eggs of my Blue Andalusians. At times even more than I could supply. I am very well pleased with the results of the advertisement.

Yours very truly,
MRS. A. V. COX.

NURSERY STOCK.

For Sale—Sour Orange Seed Bed Stock. Clean and thrifty, having excellent fibrous roots. $3.00 per hundred, $25.00 per thousand. We ship safely to all parts of the country. Armstrong Nurseries, Ontario, Cal.

For Sale—Choice nursery stock, 1 and 2 years old. Valencias, Navels, and Eureka lemons. Balled ready for shipment. Covina Realty Co., Covina, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Barbara, Cal.

For Sale—1000 first-class 2-year-old Valencia orange trees. Stock on Greystone Ave., Monrovia. Address for particulars, W. S. McQuilling, 125 N. Fair Oaks Ave., Pasadena, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

White Indian Runner and Buff Orpington Ducks. Stock and eggs. Belgian, Angora New Zealand and Flemish Giant Rabbits. Belgian Hare Guide, illustrated; price 50c. List free. Caldwell Bros., Los Angeles, Cal.

TREES.

500 Washingtonia Robusta Palms in 5-gal. cans for sale at a bargain; also Washington Navel and Eureka Lemon trees for sale. We still have a quantity of Eucalyptus Rostrata and Tereticornis which we are offering at a sacrifice. Write at once for our prices. Covina Nurseries, Covina, Cal.

For Sale—About 3000 each of Washington Navels and Valencias, 1 to 2 ft. high, at 35c each. Also several thousand each of Washington Navels and Valencias, 2 ft. high and upwards, branched, at 50c each. All the above are 1-yr.-old buds; guaranteed clean, healthy, vigorous trees. Carroll B. Smith, Box 9, Redlands, Cal.

Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seed bed stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For Sale—1500 1-year-old and 800 6-months-old Eureka Lemon trees in good, healthy condition. W. N. Kenyon, 609 Lorena St., Los Angeles. Phone Home 41767.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

MISCELLANEOUS

Panama Canal—Panama and Canal reproduced. 100 pages. 20 illustrations. Map and profile. Sent postpaid for 25c. C. C. Muldner, Publisher, 2861 Laclede, Maplewood, Mo.

Make Your Own Fireless Cooker. Illustrated full instructions and plans 10 cents. Information free. Write today. Address, Eureka Supply Co., 427 Pacific Building, San Francisco, Cal.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

For Sale—Pure Bred New Zealand Rabbits, young does and bucks for breeders. Prices and stock right. Write to Chas. W. Mixter, Banning, Cal.

POULTRY

White Leghorn Baby Chicks, $8.50 per hundred. Eggs $4 per hundred. A Frederiksen, Arroyo Grande, Cal.

Kellerstrass White Orpington Eggs, $2.00 per 15; $12 per 100. R. L. Warren, National City, Cal. R. F. D. 1.

POULTRY

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85 per 1000. Eggs for hatching $5.00 per 100, $45 per 1000, chicks and eggs safely shipped to any point on the Pacific Coast, Nevada, New Mexico and Arizona. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

For Sale—Some A1 Silver Penciled Wyandotte cockerels, from blue ribbon winners. Some fine ones at $2.50 and $3.00. Higher priced birds a matter of correspondence. Eggs $1.25 per 13, $3.00 per 100. My stock are the winners of four first prizes, three second prizes and one third prize at the 1911 Los Angeles Show. W. C. Pagenkopp, Sherman, Cal.

The White Wyandotte Farm—Eggs for hatching $1.00 per 15, or $6.00 per 100 in incubator lots. Day-old chicks $2.40 per dozen or $15 per 100. Yards at Vista del Valle, on Covina line. P. O. address Baldwin Park, Cal. C. M. Thompson.

Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene, Waukena, Tulare Co., Cal.

Eggs from our famous winter laying strains of trap-nested bred to lay Rose and Single Comb Rhode Island Reds. $1.50 per 15, $6.00 per 100. A. L. Harmon, Glen View Poultry Yards, Pasadena, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

Houdan Eggs, $1.50 per 15, $9.00 per 100, $4.50 per 50. Baby chicks 20c. Mother hen $1.00. Pen headed by prize winner. Mrs. Hocking, Guasti, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME

At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal.

For Sale—100 two-year-old hens, $1.25 each; 75 5-months-old pullets $1.50 each. R. I. Reds, B. P. Rocks, B. Orpingtons. Stamped envelope for reply. L. W. Nelisen, R. R. 2, Petaluma, Cal.

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Baby Chicks—White and Barred Rocks, White Leghorns and Black Minorcas. Eggs from my own hens, and incubated right. They will live and grow. J. W. Lyon, R. D. 1, Gardena, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

POULTRY

1889-1911—Barred Plymouth Rocks, Ocean Blue Strain. Birds of our breeding made a phenomenal record in the hands of our customers this season. Won first place at five of the largest Coast shows, besides many shape and color specials. Fourteen silver loving cups were won by this strain. We won in every class at the big Los Angeles Show—something no other exhibitor of Barred Plymouth Rocks can claim. Every female in pullet pen for this season is a winner either in pens or singles. Every male heading cockerel mated pens this season is a winner either singly or in pens. We are ready now for your egg orders. Same old price—$3 and $5. Mr. and Mrs. D. T. Wieland, Moneta, Cal. Take Redondo car via Moneta avenue. Get off at Illinois street, right on ranch.

White Orpington and White Wyandotte eggs for hatching. My winnings at Los Angeles 1911 were 1st cock, 1st hen, 1st and 2nd cockerel and 1st pullet on White Wyandottes. White Orpingtons, 1st, 3rd, 4th and 5th pullets, and 2nd and 4th hens. I breed my winners and am up to date in mating for results. I have no other business. Eggs sell at $3.00 and $5.00 per 15. No more stock until May 15th, when I will sell part of my breeders. Order direct from this ad and your order will receive my most careful attention. A. W. Huskins, 713 Waterloo St., Los Angeles, Cal.

Eggs from selected, trapnested stock. White Minorcas, beauties, layers of large white eggs, eggs $3.00 per 36. White Wyandottes, great winter layers. White Plymouth Rocks, Fishel's strain, prize winners, eggs from both $2.50 per 36, $6.00 per 100. White and Brown Leghorns, very select stock, $2.25 per 36, $4.50 per 100. Pearl Guineas, $2.00 per 15. Bronze Turkeys, 20c each; none better. I have about 500 per week of day-old White Rock chicks, Fishel's strain, for sale, $15 per 100, 17½c for less quantity. W. D. Rose, R. D. 6, Santa Ana, Cal.

Overcrowded; will sacrifice a few splendid White Rock roosters, 20 months old, fine breeders, $5.00 apiece while they last; also 6 hens, 20 months old, for $10.00. Write Dr. T. J. DeVaughn, 30 N. First St., Alhambra, Cal.

Rose Comb Black Minorca eggs and chicks from the largest and best mated flock in California. Eight-year line bred to pay and win. Free circular tells all about them. Eleanore Minorca Farm, Route 1, Los Angeles, Cal.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

This is My Last Notice for the Season. Those who desire eggs from either "Kellerstrass" White Orpingtons or Buff Wyandottes should write at once and book orders. Orpington eggs 20c each, Wyandotte 10c straight. Good stock. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

White Leghorn and Black Minorca hens, one year old; fine layers. B. de Groot, Aptos, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Day-Old Chicks for Sale—Barred Rocks, 12½c; White Leghorns, 10c. Baby ducks, White Pekins, 16c. Orders for April and May delivery taken. All good stock. S. Stone, Moneta, Cal.

Barred Rocks exclusively. Eggs $1.50 and $3.00 for 15. Hatched chicks 15c and 20c each. Fine young stock later. Correspondence solicited. G. L. Hawley, Madera, Cal.

Single Comb Brown Leghorn Eggs—$5.00 per hundred, $1.50 single setting. Mrs E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. I. V. Peterson, Guerneville, Cal

Very Fine Strain Barred Rock, S. C. Black Minorca, R. I. Red. Chicks $14.00 per 100; eggs, $1.00 per setting of 15. All pure thoroughbred, guaranteed. R. B. Sherman, Newcastle, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox Box 302, San Luis Obispo, Cal.

S. C. Brown Leghorn Baby Chicks, May 8th, $7.50 per 50 or $15 per 100. Mrs. C. H. Vary, Pomona, Cal.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Poults 50c. Bronze Turkey eggs $2.00 and $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J. Rhode Island Red and White Leghorn eggs and baby chicks.

White Holland Turkey Eggs from large, vigorous stock, 35c each. Poults, May 16th, 50c each. Also gobblers, $7.00. Mrs Hocking, Guasti, Cal. Winner of 1st prize, Los Angeles, 1911.

For Sale—Three thoroughbred Mammoth Bronze turkey hens, 1 year old. Good layers and good setters. Address Mrs. Chas. Post, Moorpark, Cal. R. D. 1, Box 25.

Mammoth White Holland Turkey eggs, $3.00 per dozen. R. L. Warren, National City, Cal., R. D. 1.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

FARM LANDS FOR SALE.

Owens Valley offers to the farmer unusual opportunities for diversified farming. With the elevation of 4,000 feet, no fogs, abundance of mountain water running by gravity, a disintegrated granite soil, having been washed from the mountains for centuries, a growing condition is created, the results of which are almost unbelievable.

Alfalfa, as high as four tons to the cutting; timothy with 10-inch heads; from 350 to 500 bushels of potatoes to the acre; as fine Spitzenberg and Winesap apples as grow in Washington and Oregon; a hog, cattle and poultry country that we believe is superior to anything in the State, and, on top of this, the most delightful climate and wonderful scenery.

Surely any farmer figuring on making a change should at least investigate Owens Valley before deciding. Buying a farm is buying a home, and it may be that you will spend the rest of your days on the next farm you buy. Certainly it is worth very serious thought. We want to mail you booklets and pictures, which will tell you a complete story of Owens Valley. The James R. H. Wagner Co., 329 S. Hill St., Los Angeles. Room 10.

40 Acres, near Dinuba, Tulare County, ¼ mile from Southern Pacific, 3 miles from Santa Fe, within 3 miles of three towns; all dry. Accredited high school, telephone, rural delivery. First-class soil, level and under irrigation in best and cheapest irrigation district in this state. Water right with land. Produced 14 tons dried peaches and 25 tons raisins in 1910. 2 acres variety fruits and nuts, over 100 varieties. 2 acres pasture. Plastered cottage, large tank house with 3 finished rooms. Excellent water piped to house and barn. Work shop, fruit, poultry and wood houses. Fully equipped for fruit drying with trays, boxes, transfer fruit car and steel track throughout. Everything about place in first-class shape. $1500 worth personal property. Everything goes with ranch, including furniture. Price $14,000. For terms address owner, Chas. F. Collins, Dinuba, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

Dairy Ranch For Sale—160 acres in San Joaquin Valley; 7-room house, stable, fenced and cross-fenced. Plenty of flowing water to irrigate the 160 acres. 80 acres in alfalfa, balance alfalfa land 12 miles from R. R. Good roads. $100 per acre, ½ cash. Will also sell the cows if desired. Inquire of Geo. W. Berry, of Berry's Market, Whittier, Cal.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Price $65 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

200 Acres Good Level Land—13 A. orchard; shade trees; 12-room house; 2 barns; windmill and tank house; fruit houses; cream separator; engine; etc. Price $21,000. 12 A. orchard home, good house, 4 rooms and bath, barn, fruit houses, windmill, equipment; complete place. $3600. Yolo & Solano Counties. Wyatt & Wilson, Winters, Cal.

20 Acres, adjoining the Roeding and Wood Nursery land, 1½ miles S.E. of Exeter; best of soil, good location; fine for oranges or lemons. Pumping water at shallow depth, road on both sides, high school. Price $175 per acre, $2000 cash, balance 2 and 3 years, interest 7 per cent net. Fred M. Hart, Exeter, Cal.

For sale—80 acres of land, four miles south of Hanford in the heart of the dairy belt, nearly all in alfalfa. Good buildings, fences and water rights. All checked and leveled. Telephone and rural mail delivery. Address Frank McClellan, Hanford, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

For Sale—48 acres, all in alfalfa, good buildings, fenced and cross-fenced under the ditch; ¾ of a mile from Newman; $300 per acre. Box 133, Newman, Cal.

Two crops of corn each year can be raised on our lands on the Isthmus of Tehuantepec, Mexico. Farmers: This is what you have been looking for. We can raise other valuable crops besides corn. Prices very low and liberal terms. Write today for our extremely interesting literature about Tropical Mexico. Mexican Isthmus Land Co., Commerce Building, Kansas City, Mo.

Eighty acres finest eucalyptus land, 4 miles from Santa Maria, Santa Barbara County, about one mile from railroad; price $2000, if sold at once. A. Frederiksen, Arroyo Grande, Cal.

For Sale—Orange land in small tracts in Exeter district. Large tract of level, fenced, pasture land. Plenty water. Part cash, terms. Apply Fred M. Hart, Exeter, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

Pacific Coast Lands—Farm lands appraised for prospective investors. Reports on agricultural projects, soils, irrigation, drainage, etc. Paul Goodloe, 1049 Phelan Bldg., San Francisco, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nursery, Pasadena, Cal.

Agricultural Implements—Vehicles.

Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

For Sale—One 5-passenger Winton auto, extra tires and inner tubes. Also one autocar runabout, fully equipped. M. Jacobs, 201 Howard St., San Francisco, Cal.

Business

ECONOMICAL HAY HANDLING.

Progressive farmers have decided that on account of the scarcity of labor they must depend upon some device other than the common fork to place their crop into the stack. And this fact would be impressed upon one's mind should he happen into the Schmeiser Mfg. Co.'s plant at Davis, Cal., and see a force of twenty men building and loading The Schmeiser Portable Automatic Derrick for shipment to all parts of California.

The influx of homeseekers into Merced County during the past two weeks is unprecedented. Every train brings in colonists who hail from all parts of the Union. Most of the newcomers have been attracted by the opening of a new body of land northwest of Merced on the Santa Fe Railroad.

The new tract, which comprises about 3000 acres of choice alfalfa land, is the fourth opened here by the Co-operative Land & Trust Company. It is known as Merced Colony No. 2. During the first six days after the opening of this colony twenty-one people were placed on the land. Most of them will put their ranches into alfalfa and devote their time to dairying and hog raising.

The new tract is the first of an enormous body of undeveloped land along the Santa Fe in Merced County opened for intensive development. The railroad company plans to co-operate in settling this district, and with that in view will put in a station and siding on the land.

A VALUABLE STORY.

The Los Angeles Times of Sunday, April 9, contained a nine-column illustrated story of the agricultural development which is going on in Arizona. The article is one of the results of the recent visit to Phoenix and the Roosevelt dam by General Harrison Gray Otis, the editor and proprietor of The Times, and it is written in the clear, forcible style for which General Otis is famous. It is, we believe, the most intelligent and illuminating description of this region and of its attractions for investors which has appeared in any outside publication. The Phoenix Board of Trade could not do better than to obtain from The Times, if that be possible, several thousand extra copies of the article for distribution in the East.

The Los Angeles Times is the greatest newspaper in the world, and one of the most conservative—which facts lend additional value to this timely article.

Incidentally, in publishing this most valuable and interesting story The Times has once more shown the genuine friendship for Arizona which intelligent citizens of this Territory know has always animated The Times management. There are benighted people everywhere who can see no merit in a newspaper which does not appeal to their pet prejudices and which does not profess to "believe" as they do. People of this class insist, of course, that The Times is an enemy to Arizona because it does not boost for their "beliefs." But a great number of Arizona citizens admire The Times because it is, as we have already said, the world's greatest newspaper, and because it stands by its principles; and if occasionally they are unable to agree with its notions that fact does not lessen their admiration for General Otis' wonderful paper.—From the Arizona Republican (Phoenix), April 12, 1911.

We referred last week to the $100,000 building with 100,000 square feet of floor space which has just been occupied by the Smith-Booth-Usher Company, of Los Angeles. This great building, with all modern improvements, is located at 228-238 Central Avenue, but we made one mistake in stating that the salesroom of the concern remained at its old quarters on South Los Angeles Street. The salesroom, together with storage and all other features of the business, is now under the great roof of the new building. Therefore, we ask our readers to bear in mind and not go to the old Los Angeles Street location, but to the new one at 228-238 Central Avenue.

General Household Notes

TO THE MEADOWLARK.

Thou tiny, feathered chorister, so brave,
Exultant on the very edge of Spring;
Though clouds are pouring and the winds still rave,
Hark! In a lull, I hear thee blithely sing.
Perched on a topmost bough or rustic fence,
What though around thee dripping skies be drear,
Thou spendest joy with prodigal expense,
And fillest all the air with song and cheer.
Undaunted heart. I would that I might warm
The world as thou, and top with song the storm.

Bright first forerunner of the coming green,
Sprung like a spirit from an empty sky,
While earth is winter-dumb and no life seen,
Then sudden sounds thy joyous minstrelsy.
Thy careless music thrills th' enraptured ear:
Like Pan's pure pipe it flutes unto the skies,
Telling all things, "Soft-footed Spring is here;"
And bidding ferns and violets arise.
Where hast thou learned thy rapturous bubbling glee?
Thou chosen bard of Spring's great victory.

I would that I could live as thou art,—free,
Bird of the open fields and morning-calm;
Without the clog and cramp of tyrranny
By law or custom. Give me that rare balm,
More heavenly than dew, which frees the soul
And bids it soar on wings wher'er it dare;
Let men live godlike free from men's control;
Then shall such heart-songs fret the morning air
As ne'er were heard; rare melodies divine,
With joy as deep, as reckless too, as thine.

—By Charles Erskine Scott Wood in Pacific Monthly.

LUCILE'S DIARY.

I suddenly realized last Thursday morning that I had scarcely 24 hours in which to finish my paper which I was to read to the Dix Amies club Friday afternoon. As I had barely started it I sat down immediately after breakfast to work on it.

Somehow my thoughts did not flow freely. The subject, "The Theory of Household Economics," was too dull to inspire my best efforts. I had succeeded in writing only a sentence or two when I heard the telephone ring. Thinking an interruption might give me fresh inspiration I answered it myself and I was glad I had, when I found it was Lionel Hawley.

"I remember, Miss Lucile," he said, "your telling me how interested you are in water colors and I wonder if you won't come down to luncheon with me and take a look at the summer sketches now on exhibition at our club?"

"Today?" I asked.

"Yes, I'm sorry to give you such short notice, but I never can tell a day ahead when I can leave my office. I simply have to seize any playtime I can get. Can you meet me at 12?"

"Yes, thank you, that will be delightful," I answered.

"Then I ran down to the kitchen where Cousin Fannie was doing up the morning work, for it was Tilly's day out.

"Cousin Fannie," I said, "I have to go downtown today and I don't see what I'm to do about my essay unless you take pity on me and finish it. You know, it is absolutely necessary that I have it by tomorrow."

"I write your essay, Lucile!" Cousin Fannie exclaimed.

"Yes, why not? You have to be at home anyway today and I'm sure, Cousin Fannie, dear, you have a much better understanding of household economics than I have. This is a good chance for you to express your splendid ideas. It will be real missionary work for you to write out some of your experiments and deductions for the benefit of the Dix Amies club girls."

"Do you really think it will be right for me to do it?" she asked.

"Yes, indeed," I answered, heartily. "So that's settled. Thank you ever so much for your generosity."

That day, while we were lunching and during a pause in the conversation Mr. Hawley drew a big English penny from his pocket and said, "Thoughts, please?"

"I was just thinking," I replied, "how frightened I shall be tomorrow at our club when I rise to read my paper on "The Theory of Household Economics."

"Are you interested in that subject?" There was a note of surprise in his voice.

"Indeed I am. Don't you think every woman should be?"

"I most certainly do, but I am afraid a great many young women never bother their pretty heads about the matter."

"I'm aware that there are frivolous women who shirk their natural responsibilities," I said, smiling, "but you mustn't think we are all in that class just because we happen to like pretty clothes and enjoy the gifts the gods provide."

"Just to show you how glad I am that you are the kind of girl who includes domestic art in her tastes," declared he, "I'm going to send you some flowers to wear when you read your paper, if you will so honor me."

I really think Mr. Hawley is one of the nicest men I know. He has such beautiful manners. The huge bunch of violets he sent me was the envy of all the Dix Amies girls.

"Really, Lucile," said Louise Edwin, who has a crude way of making uncalled-for suggestions, "you have enough violets for all ten of us."

"Yes, perhaps," I replied glancing down at the fragrant blossomc, "but I'm going to give them to some one who doesn't receive many flowers."

"That's very sweet of you, Lucile," said Arvilla Wren.

I felt glad that I had resolved to present them to Cousin Fannie to take to her mission school, for I always like to give her pleasure when I can. But it happened that evening that David Robinson came in unexpectedly with theater tickets, and of course, having the violets on, I could not very well take them off before going to the theater. I am sure he wondered who sent them to me, for I saw him looking at them several times.

When I had finished reading my paper the girls of the Dix Amies gathered around me in an excited little group.

"Why, Lucile," said Mary Towns-

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end, "no one ever suspected you of possessing so much domestic wit and wisdom. Your essay is delightful."

All the other girls complimented me also and asked so many questions that I was really confused. I think Cousin Fannie should have been more specific in her quotations and figures, for it was most embarrassing for me to have to acknowledge that I could not remember the names of certain authorities quoted in the paper.

"Lucile," said Louise, "you really should follow up this paper with a series on the same subject—only more in detail."

"Oh, no; I've bothered my family enough about this one," I laughingly protested, for I felt that it was only right thus to give credit to Cousin Fannie for her assistance.—Ex.

RAISINS.

Selma Raisin Pie.

Wash thoroughly two cups each seeded and seedless California raisins; soak several hours in cold water. Stew until tender. Then add one cup crushed walnut meats, one-half cup sugar, two tablespoons butter, two tablespoons cornstarch; rub to a cream with juice and rind of one orange and one lemon and part of grated rind, and cook until slightly thickened. Cool, and bake with a double crust.

Fowler Raisin Pie.

Beat yolks of three eggs and white of one, keeping the remaining two for frosting. Add one cup sugar, one cup cream, sweet or sour (sour preferred); one-half teaspoon cloves, one cup seeded or seedless California raisins. Bake in rich pie crust in slow oven. When done, beat whites of two eggs until stiff; add two tablespoons granulated sugar. Place in oven and bake until light brown. This will make one pie.

Sanger Raisin Pie.

One and one-half cups each California seeded and seedless raisins, three cups water, two tablespoons butter; juice of one lemon, juice of one orange, one-half teaspoon cinnamon and cloves mixed, one tablespoon flour dissolved in water. Bring all to a boil, add flour dissolved in water. Sufficient for two pies.

Clovis Raisin Pie.

Chop one and one-half cups seedless or seeded California raisins, one tart apple, one-half slice stale bread. Put in saucepan with one and three-fourths cups boiling water, one-half scant teaspoon salt, one-half cup sugar into which has been stirred one heaping teaspoon flour, one-half teaspoon cinnamon, one-fourth teaspoon cloves. Let cook ten or fifteen minutes, and before putting in crust add juice of a small lemon or sour orange.

Mock Mince Pie.

Two cups Sultana raisins (1 lb.) one-fourth cup vinegar (good), three-fourths cup boiling water, one-half cup sugar, one-fourth teaspoon cloves, one-half teaspoon cinnamon, one-fourth teaspoon allspice or nutmeg, little salt; chop or grind raisins, add three-fourths cup boiling water and cook ten minutes. Mix vinegar, boiling water, sugar, salt, spices and boil until it becomes a syrup. Combine syrup and raisins and let cool slightly. Make a rich pie crust.

Fresno Raisin Pudding.

Soak and slightly stew one cup each seedless and seeded California raisins. One and one-half cups sugar, two cups grated raw apples, one cup crushed walnut meats, one-half cup sifted bread crumbs soaked in one-half cup sweet cream or milk, two tablespoons butter, nutmeg and cinnamon to taste, two eggs beaten separately. Mix thoroughly and bake in pudding dish in moderate oven for twenty-five minutes. Serve with whipped cream.

Raisin Rice Pudding.

Thoroughly cleanse cup of rice, put in stewpan with one pound California seeded raisins, and about three pints water. Cook until well done and water boiled out. Add more water if necessary to cook rice. Make custard of two beaten eggs, two cups milk, and one-half cup sugar. Mix with hot rice and raisins, adding one pinch of salt, and put into baking dish in moderate oven, baking about thirty minutes.

Raisin Graham Pudding.

One cup each milk, molasses and California seeded raisins, two cups graham flour, one teaspoon soda, a pinch of salt and spice to taste. Steam two hours. Serve hot with lemon sauce made as follows: Cream one cup sugar and one-third cup butter. Beat one egg in cup and fill cup with cold water. Mix all together and cook until it comes to a boil, but do not allow it to boil, stirring constantly. Set off stove and add juice of one-half lemon.

Prize Raisin Buns.

One and one-half quarts flour, one cup yeast, one-half cup sugar, one egg, half cup butter, pinch of salt, a little grated nutmeg, mix into thick pancake batter with sweet milk which has been scalded and cooled to blood heat. Let stand in a warm place, well covered till very light, usually takes from three to five hours, then add flour enough to make a good biscuit dough and add two to three cups California seeded or seedless raisins, washed and dried. Mix well and let rise again till light. Roll out like biscuits, cut with biscuit cutter and put into greased pans to rise. When light brush with a little sweet cream and sugar and cinnamon and bake in hot oven fifteen minutes. Better than cake or pie for children.

Raisin Fudge.

Two cups sugar, one cup milk, butter size of egg, one-half cup chocolate; cook, stir continually until bubbles break slowly. Add one-half pound walnuts and one-half pound California seeded or seedless raisins. Stir until stiff and pour into buttered pans. When cool cut into squares.

Raisin Panoche.

Two cups brown sugar, one-half cup milk, one tablespoon chocolate. Let boil until when dropped in cold water will form soft ball. Take from fire and stir until becomes like cake dough. Then add one teaspoon vanilla, one-half cup chopped walnuts, one-half cup California seeded or seedless raisins. Stir until creamy and spread quickly on buttered tin. When cool cut in squares.

Raisin Sandwich.

Chop one cup California raisins and one cup walnuts very fine; add three tablespoons mayonaise and one teaspoon lemon juice. Mix into paste, spread on thinly buttered bread. Splendid luncheon sandwich.

Society Sandwich.

Delicious for afternoon teas, picnics and children's lunches. Chop fine one cup of seeded raisins, together with one cup of nuts (preferably walnuts), mix with whipped cream or the white of an egg beaten, season with salt. Spread between slices of thinly buttered bread cut very thin.

Raisin Salad.

Two cups California seeded raisins,

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The sun should not set upon our anger, neither should he rise upon our confidence. We should forgive freely, but forget rarely. I will not be revenged, and this I owe to my enemy; but I will remember, and this I owe to myself.—Bacon.

two cups sliced apples, one cup sliced celery (fine), one cup walnuts, one tablespoon sugar, one-fourth teaspoon salt, one cup whipped cream. Serve warm at once.

Raisin Ice Cream.

There is no finer fruit ice than California seeded raisins added to ice cream of any flavor. Thoroughly dissolve finely chopped or ground raisins in the milk before putting in freezer. Use one pound raisins to each one-half gallon cream.

MANNERS AT HOME.

"Isn't it funny?" said a girl in a college boarding hall. "At home, when anyone is through eating, she gets up and goes; here we are expected to ask to be excused."

Manners at home are not what they should be unless the mother keeps the family up to the mark all the time. Too many college girls and boys are absolutely lacking in the little refinements which indicate good breeding. One objection offered to college training for their children by farmers is that a college only teaches a child to look down on home. It is true that children who are being taught how to conduct themselves with consideration for those about them will notice the lapses in language and manners of the home folk, but we should not permit those lapses in ourselves. Good breeding should be a part of the boy or girl. They may have to follow a model at first, and assume the breeding which they have not, but it will soon become second nature to do the right thing at the right time; to respect themselves and others.

Children do not thank their parents for neglecting to teach them the principles of good breeding; on the contrary, they censure severely the parents who were too hard worked and too busy to secure the best development of their children.

The farm boys and girls in this country have opportunity for filling the highest places in the land. Do not think because you are finding difficulty in meeting the rent on a farm now, and keeping the children clothed and fed, that it will be always so. The future may hold a position of responsibility for which each one should be ready. Some of our great men have had atrocious manners, but they were great in spite of tnem, not because of them. Remember Ella Wheeler Wilcox's poem, and be guided by it:

"I may not reach the heights I seek,
My untried strength may fail me;
Or half way up the mountain peak
Fierce tempests may assail me.
But though that place I never gain,
Herein lies comfort for my gain:
I will be worthy of it."
—Wallace's Farmer.

Prayer is for the mountains,
Laughter for the plain,
Song for the greenwood,
A lass for the lane;
They come as God wills,
But He keeps the blue hills
For the heart still fain.

Dreams for the river,
Longing for the sea;
Yet sorrow's all my pillow
Wherever I may be.
'Tis all as God wills,
But there's rest in the hills—
So there lay me.
—Charles T. Rogers.

A tumblerfull uv snake bite prevention is wuth a barrelful uv cure.

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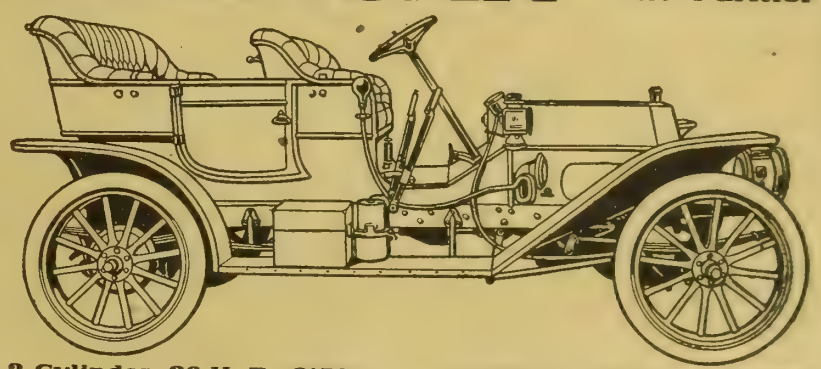

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, April 26, 1911.

Butter.

Demand in excess of receipts has caused a cent advance in butter, and the market is very firm.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	21
Firsts	20
Ladles	18
Country	14

Cheese.

Oregon Daisy	16½
Northern	14@16
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

A material advance with firm market prevails.

An important change in the rules covering the purchase and sale of eggs was made at yesterday's session of the Produce Exchange of Los Angeles. Jobbers in the future will pay 3 cents under the case count for pullet eggs when the quotations range from 20 to 25 cents, 4 cents off when the range is from 25 to 30 cents, and 5 cents off when the price is more than 30 cents. In case the buying price is below 20 cents, 3 cents will be deducted for all pullet eggs.

Heavy losses suffered by dealers through their inability to dispose of pullet eggs at the same quotations which the larger varieties brought was the principal reason for the change. Under the former ruling, dealers, when selling pullet eggs, were compelled to specify the pullet variety, and as a result the smaller eggs were taken only by the poorer class of trade at a price several cents under the market quotations. It has been the plan to buy pullet eggs on the same case count as the large eggs.

Paying price f. o. b. Los Angeles is:

Local ranch candled	24
Case count buying price	20
Northern	18@22
Eastern	20

Dealers pay for live poultry f. o. b.

Hens, per lb	18@19
Roosters	10@12
Broilers	30
Fryers	26
Roasters	24
Turkeys	25
Ducks	22
Geese	18
Guinea hens, doz	4.00
Squabs, doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Salinas	2.60@2.65
Lompoc	2.85@3.00
Idaho	2.25@2.35
Sweets, yellow, cental	8.00
New potatoes, lugs	2.00@2.75

Onions.

Wholesale quotations:

Oregons	3.00
Imperial, crates	2.00
Northern	3.00
Australian browns, Northern	4.50
Nevadas	3.00@3.25
Mexican Bermudas	2.25
Garlic	12

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	50@80
Asparagus, lb	7@8
Beets, doz bunches	35
Brussels sprouts, lb	12
Bell peppers, lb	25
Beans, wax, lb	30
Green chilis	25
Cucumbers, doz	90@2.50
Cabbage, sack	90
Celery, crate	3.50@4.00
Cauliflower, crate	2.00
Carrots, doz bunches	35
Egg plant, lb	10
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, doz	40
Lettuce, crate	1.00@1.25
Oyster plant, doz	40
Peas, lb	6@8
Parsley, doz bunches	45
Parsnips, doz bunches	50@60
Radishes, doz bunches	20@25
Rhubarb, Strawberry	1.00@1.25
Rhubarb, crimson winter	75@90
Spinach, doz	20@25
Squash, Hubbard	3½
Tomatoes, Mexican, crate	2.00
Turnips, doz	40

Citrus Fruits.

Navels	1.75@2.50
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.75
Tangerines	1.50@1.65

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Spitzenbergs	2.50@4.00
Pearmains	2.25@3.00
Newtown Pippins	2.25@3.00
Bananas	4½@5
Loquats, lb	3@5
Pineapples	10
Strawberries	5@6

Dried Fruits.

Wholesale prices are:

Apricots	12½@13
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	8@8½
Nectarines	10
Pears	13@14
Prunes	10½@13½
Plums	10

Beans, Dried.

Wholesale quotations:

Limas	6.75
Black eyes	7.50
Pinks	6.00
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	9½
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.50
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.55
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.55
Cracked wheat	1.90
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed meal	1.55
Rolled barley	1.55

San Francisco Market

SAN FRANCISCO, April 25, 1911.

Butter.

Butter advanced after last week's quotation to 22½c, a half cent of which it lost on Monday, with rather heavy receipts weakening the general tone.

Price to trade 2½c in advance of the following Produce Exchange quota-

California extras, lb	22
California firsts	21½
Seconds	18½

Cheese.

California flats, new	10@12
Cal. Y. America, fy, new	11½@12½
Oregon fancy	12½

Eggs and Poultry.

Eggs advanced to 22c for extras on Thursday last, then declined under heavy receipts. Market rather weak at this writing.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	20½
Firsts	19½
Seconds	17
Hens, doz	5.50@12.00
Fryers, doz	6.50@7.50
Ducks	6.00@10.00
Broilers	2.00@3.50
Roosters, doz	5.00@10.00
Geese	2.50@3.50
Pigeons	1.50@2.50
Squabs	2.00@2.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6½
Cows and heifers	4@5½
Calves, lb	5½@7
Hogs	5@7½
Milk lambs	6½
Wethers, No. 1	5¼@5½
Ewes, No. 1	4@4½

Potatoes.

Wholesale market quotations:

River White, cwt	2.15@2.25
Salinas Burbanks, cwt	2.85@3.00
Oregon Burbanks, cwt	2.60@2.75
Lompoc	2.85@3.00
Sweets, cental	5.00@6.00
New potatoes, lb	4@5

Onions.

Onions	3.00@3.25
Australian brown, crate	4.00@4.25
Bermuda seed	2.00@2.25
Garlic, lb	4@5

Vegetables.

Wholesale quotations:

Asparagus, box	50@1.00
Beans, string	15@35
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	75@1.25
Celery, crate	1.50@2.50
Beans, string	15@25
Chili peppers, lb	20@25
Egg plant, lb	8@12½
Lettuce, crate	75@2.00
Peas, lb	4@6½
Rhubarb	65@1.00
Summer squash	2.00@2.25
Tomatoes, Mexican	1.75@2.00
Turnips	60@75

Citrus Fruits.

Navels, new	1.25@3.00
Grapefruit	75@2.50
Lemons	1.50@3.50
Limes, Mexican	5.50@6.00
Tangerines, halves	1.25@2.00

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	1.25@1.50
Apples, Bellflowers	1.00@1.35
Newtowns	1.25@1.50
Spitzenberg	1.50@2.75
Bananas, Hawaiian	75@1.25
Strawberries, Southern, crt	1.25@1.75
Strawberries, Lgwths, ch	12.00@17.00
Malindas, chest	12.00@15.00
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

The late frost has materially strengthened the dried fruit market.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 11½@13c; Apricots, 10¾@13¾c; do, Moorparks, 14c; Peaches, 6½@7½c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 9¾@10c; Figs, 1911, 4@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6¾@7c; Choice, No. 16, 6¼@6½c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5½@5¾c; do, 3-crown, 5@5¼c; do, 2-crown, 4¾c. Dried Grapes, 2¾c. Seedless—Muscatels, 4¼@4⅜c; Sultanas, 5@5½c; Thompsons, 5½@6c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shall	14½
Almonds, '10 N P U	13¼
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans, Dried.

Limas	6.25@6.35
Pink	5.35@5.55
Black eyes	6.50@6.75
Small white	3.40@3.50
Large white	3.40@3.45
Kidneys	6.25
Garbanzos	2.75@3.00
Bayou	4.60@4.75
Horse beans	2.50@2.70
Red Mexicans	5.25@5.40
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	19@22
Hops, 1911 contracts	14@16
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week have been 2,558 tons. This is 1,000 tons less than the preceding week. The market the last few days has shown a slight improvement, and a little more inquiry for choice lots. Several sales have been reported from the country during the week, and holders in the interior are stronger in their prices, we believe, owing to the fact of the north winds which have been blowing for several days, many of the farmers claiming same have affected their crops very materially, and that they will not cut nearly as much as heretofore figured on. As this same condition shows itself nearly every year when the north winds blow for a day or two, we are not prepared at this writing to state whether or not the crops have been materially injured, but believe if we have rains in due time that the effect will be over come, as is usually the case, but we must admit that north winds at this time of year without being followed by rains are very serious to the crops in general. Therefore it would not be surprising if hay should do a little better should the rains hold off for any length of time.

Alfalfa is moving off slowly—no de-

mand for stock hay. Straw remains the same, with very light demand.

We quote the wholesale prices in round lots on today's market, as follows:

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Barley, fancy	1.50
Barley, good to choice	1.46¼@1.48¾
Barley, poor to fair	1.40@1.45
Oats, white	1.50@1.60
Rye, new crop	1.40@1.50
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	26.00@27.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	31.00@32.00
Rolled oats, ton	27.50@29.00
Middlings	32.00@33.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	22.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	27.00@27.50

Citrus Fruit Market

LOS ANGELES, April 26, 1911.

With as high as 225 cars of citrus fruits going forward daily, the market is holding especially strong. The quality of the fruit seems to be acceptable to the Eastern trade. Present shipments are carrying better than earlier, and nearly every car is iced. Some concern is manifested by the orchardists because of dropping, which, with a few puffs, is causing some loss. The distribution of the orders, however, holds back the desire to unload too quickly.

Severe storms and extreme cold weather in the Mediterraneon sections is giving strength to the lemon market, and the former good prices are not only held but advanced slightly. Full reports of the damage done are not at hand, other than that it is a most severe blow to the industry of those countries.

Shipments.

Shipments of oranges to date since November 1, 1910; 22,382; lemons, 2,688; total, 25,070. To same date last season: Oranges, 14,829; lemons, 2,152; total, 16,981.

LOS ANGELES, Monday, April 24.—One car navels and one car sweets sold.

NAVELS—	Avge.
Sweetest Yet, fy, Riv, not shipped	1.85
Sweetest Yet, sd, Riv, not shipped	1.35
SWEETS—	
Tourist, xc, Santa Ana, shipped April 21, iced	1.35
Beach, sd, Santa Ana, shipped April 21, iced	1.10

NEW YORK, Monday, April 24.—Forty-seven cars navels, three bloods, one sweets, one Homosassas, three seedlings and four cars lemons sold. Market strong on navels; lemons higher. Fair and pleasant.

NAVELS—	Avge.
Golden Orchard, iced, Ind F Co	2.65
Freedom, iced, xc, Ind F Co	2.35
Golden Cross, iced, O K Ex	3.25
Red X, O K Ex, iced	2.85
Alta Cresta, iced, A H Ex	3.45
Robusta, iced, A H Ex	2.85
Robusta, iced, A H Ex	2.95
Segenda, iced	2.60
Hobo, iced, A H Ex	2.45
Lotus, iced, O K Ex	3.35
Monogram, iced, O K Ex	2.95
Diamond S, iced, O K Ex	2.50
Glendora Hts, fy, iced, A C G Ex	3.00
Glendora Hts, ch, iced, A C G Ex	2.75
Golden Cross, iced, O K Ex	3.30
Red X, iced, O K Ex	3.00
Athlete, iced, S A Ex	3.15
Alta Cresta, iced, A H Ex	3.50
Robusta, iced, A H Ex	3.00
Hobo, iced, A H Ex	2.55
Lotus, iced, O K Ex	3.40
Monogram, iced, O K Ex	2.95
Diamond S, iced, S A Ex	3.05
Paul Neyron, iced, S A Ex	3.05
Del Oro, iced, Sparr	2.25
Echo, iced, S T, Pasadena	2.55
AUSTRALIAN NAVELS—	
Mission Bells, iced, A B, Chapman	2.55
Mission Memories, iced, Chapman	2.35
BLOODS—	
Golden Or, iced, Ind F Co	2.50
Tally Ho, iced, S B, Rialto	2.30
Titus Ranch, iced, San Marino	2.45
Blossom, iced	2.55
Circus, iced, Sparr F Co	2.10
SEEDLINGS—	
Golden Orchard, iced, Ind F Co	2.35
Golden Orchard, Ind. F Co	2.40
Red Globe, iced, Riv Ex, Riv	2.55
Carnival, iced, S T Ex	2.15
Santa Anita, iced	2.35
El Toro, iced, S T Ex	2.25
Titus Ranch, iced, S Marino G P	2.40
SWEETS—	
Stock Label, iced	2.35
Niagara, iced, Stewart F Co	2.50
Lotengo, iced, Sparr F Co	2.05
Del Oro, iced, Sparr F Co	2.00
ST. MICHAELS—	
Glendora Hts, iced	2.85
Pet, iced, S A Ex	2.60
VALENCIAS—	
Glendora Hts, ch, iced	3.05
GRAPEFRUIT—	
Circus, iced	1.65
BLOODS—Halves—	
Sierra Vista, iced	1.50
Kenilworth, iced	1.40
Blue Globe, iced	1.35
Homer, iced	1.45
Camel, iced	1.20
Parrot	1.25
TANGERINES—Halves—	
Golden Orchard, iced	.95
Lotus, iced	1.60
Monogram, iced	1.30
Lotus, iced	1.75
Monogram, iced	1.30
Orchard	1.55
LEMONS—	
Limoneira Co. selected	3.75
Rossmoyne	3.20
Excelsior	2.90
Peerless	3.40
Sunset	3.05
Regina, iced	3.10
Regent, iced	2.70

CINCINNATI, Monday, April 24.—Cool, steady. Four cars navels and one car bloods, one seedlings, one mixed, one lemons sold. Florida Valencias sold from $2.45 to $4.00.

NAVELS—	Avge.
Hawk, S A Ex	2.45
King, S A Ex	2.50
Newsboy, R H, Red	2.75
Hunter, A C G, C Oak	2.55
Hawk, S A Ex	2.50
Ben Hur, R H, Red	2.85
Pointer, A C G, C Oak	2.70
Possum, A C G, C Oak	2.40
LEMONS—	
Bridal Veil	3.60
White Cross	3.30
BLOODS—	
Colombo	2.35
Carmencita	2.75
Colombo	2.55
Ben Hur, halves	1.25
SEEDLINGS—	
Colombo	2.40
Playmates	2.65

PITTSBURG, Monday, April 24.—Sixteen cars sold. Market higher on navels; steady on lemons. Weather favorable.

NAVELS—	Avge.
Orchard, or, Nat O Co	2.90
Naralimo, or, Sparr F Co	2.75
Circus, xc, Sparr F Co	2.00
Pointer, A C G, C Oak	2.80
Owl, O K Ex	2.40
Mt Baldy, Riv Ex, Riv	2.40
Cal Orange, Riv Ex, Riv	2.15
Fiesta, Riv Ex, Pachappa	2.35
Pond Lily, Riv Ex, Pachappa	2.15
Standard, sd, Nat O	2.50
Del Oro, hc, Sparr F Co	2.55

LEMONS — Joy, 2.85; Economy, 2.60; Mtn Crest, 2.25.

JAFFAS—Peru, 2.50.

TANGERINES, Malves—Stag, $1.15.

BLOODS—Blue Globe, 2.70; Owl, 2.00. Halves—Blue Globe, 1.25; Quail, 1.25.

BUDDED—Red Globe, 2.15; Outing, 2.00.

ST. LOUIS, Monday, April 24.—Cool, clear. Market advancing. Ten cars oranges, one car lemons sold.

NAVELS—	Avge.
Pointer, A C G, Latin Station	2.75
Pico, S T, Whittier	2.40
Parrot, S A Ex	2.80
Sunny Heights, R H, Redlands	2.75
Golden Circle, R H, Redlands	2.55
Lighthouse, sd, Randolph F Co	2.50
Premium, or, Benchley F	2.75
Hunter, A C G, Latin Station	2.40
Sunset, S S, Orange	2.25
Newsboy, R H, Redlands	2.75
Sunlight, R H, Redlands	2.80
Carrier, R H, Redlands	2.40
Wildflower, ch, Randolph	2.75
Superior, Benchley F	2.60

LEMONS—Bridal Veil, 3.25; White Cross, 2.90.

SWEETS—Searchlight—22.35; Sunset, 2.30.

BLOODS—Parrot, 2.40. Halves—Parrot, 1.30; Ben Hur, 1.35. Boxes—Premium, 2.50; Superior, 2.40.

SEEDLINGS—Playmates, 2.50.

AUSTRALIAN NAVELS—Superior, 2.45; Good, 2.25.

PHILADELPHIA, Monday, April 24.—Five cars navels, nine mixed cars, two seedlings, one sweet and one lemons sold. Also eight cars Floridas, 1.80@4, average 2.80. Grapefruit, 1.80@4.40, average 3.00. Market is unchanged.

NAVELS—	Avge.
Echo, S T, Pasadena	2.55
Red Globe, Riv Ex, Riv	2.10
Pico, S T, Whittier	2.15
Heart of Gold, A F, High	3.10
Dan Patch, A F, Bloom	2.80
Yellow Beauties, A F, Bloom	2.40
Euclid, or, Growers F	3.30
Native Sons, King F Co	2.90
Salt Lake, sd, King F Co	2.60

LEMONS—E High A, 2.75.

SWEETS—Vista Bonita, 2.55; Lake Hemet, 2.50; Quail, 2.35; Salt Lake, 2.35.

BUDDED—Red Globe, 2.20; Outing, 2.05.

SEEDLINGS — Playmates, 2.35; Golden Pheasant, 2.20; Citrus Belle, 2.05; Golden Orchard, 1.90; Freedom, 1.80.

BLOODS—Ben Hur, 1.15; Parrot, 2.40; Owl, 2.20; Salt Lake, 2.50. Halves—Parrot, 1.25; Quail, 1.25.

TANGERINES, Halves—Heart of Gold, 1.50; Stag, 1.15.

ST. MICHAELS, Halves — Quail, 1.30; Dan Patch, 1.45. Boxes—Dan Patch, 2.75.

CLEVELAND, Monday, April 24.—Six cars navels, two mixed cars sold. Market higher. Cool, pleasant.

NAVELS—	Avge.
Stork, S A Ex	3.00
Billiken, Riv, Arl	2.40
Floral, S B, Colton	2.55
Holly, Covina Ex	2.60
Billiken, Riv, Pachappa	2.50
Producers, xf, Red G O A	3.20

LEMONS—Floral, 2.60.

TANGERINES, Halves—Floral, 1.25.

SEEDLINGS—Mother Colony, S T, Anaheim, 2.35; Carnival, 2.15.

ST. MICHAELS — Mother Colony, 2.70. Halves—1.30.

BOSTON, Monday, April 24.—Twenty-five cars sold. Clear and cool. Market is strong and higher on oranges, unchanged on lemons.

NAVELS—	Avge.
Jasmine, D M, Duarte	2.70
Peasant, A H, Riv	3.10
Honor Bright, A F, High	3.05
Golden Cross, O K Ex	3.40
Pinnacle, O K Ex	3.55
Homer, Q C, Corona	3.30
Regal, fy, Growers F	3.35
Orchard, or, Nat O	3.35
Euclid, or, Growers F	3.30
Regina, Growers F Co	3.10
Uplander, Growers F	3.05
Elk, R Henderson	2.95
Golden Flower, xf, Red G O	2.90
Mars, E Peycke Co	2.70
Mars, E Peycke Co	2.55

LEMONS—Rossmoyne, 2.70; E High A, 3.25; Regent, 3.10; Partridge, 2.15; Old Baldy, 2.15.

BLOODS, Halves—Kenilworth, 1.50.

NAVELS, Halves—Heart of Gold, 1.55.

TANGERINES, Halves—Heart of Gold, 1.40.

ST. MICHAELS—Champion, 3.20; Palomita, 2.90. Halves — Champion, 1.60.

CHICAGO, Monday, April 24.—Lemons firm. Demand and offerings about as they have been of late. Boxes, California fancy 300s, 3.35@3.50; 360s, 3.00@3.25; off sizes, 3.00; extra choice, 25c per box discount; choice, 50c a box less.

Oranges—Demand is good; fancy navels are selling well. Arrivals are but little more than ample. Boxes, California navels, extra fancy, all sizes, 3.00; fancy, 2.75@2.85; extra choice, 2.50@2.65; choice, 2.25@2.50.

NEW YORK CITY, Tuesday, April 25.—Fourteen thousand boxes Sicily lemons sold, 2.25@3.70, average 3.05.

BOSTON, Tuesday, April 25.—Nineteen cars sold. Weather favorable. Market continues strong.

NAVELS—	Avge.
Whittier, S T, Whittier	2.70
Cycle, F A C, Fillmore	2.35
Floral, S B, Colton	2.90
Robusta, A H, Pachappa	3.30
Hobo, A H, Pachappa	2.85
Big R, S B, Rialto	2.85
Laurel, Q C, Corona	3.50

BLOODS—Tiger, 3.05; Floral, 2.80; Rey, 3.10. Halves—Tiger, 1.45; Floral, 1.45; Kenilworth, 1.45.

GRAPEFRUIT—Tallyho, $3.15.

CHICAGO, Tuesday, April 25.—Lemons rule quiet; not being in any more than moderate supply, they remain firm. Boxes, California fancy 300s, 3.35@3.50; 360s, 3.00@3.25; off sizes, 3.00; extra choice, 25c per box discount; choice, 50c less.

ORANGES—There is a good strong market for navels. Demand is good; supply moderate, not large. Boxes, California navels, sound or made sound, extra fancy, all sizes, 3.00; fancy, 2.75@2.85; extra choice, 2.50@2.65; choice, 2.25@2.50.

A TREATISE ON PUMPS.

One of the most interesting, and withal the most tantalizing catalogs that has come to our desk in many a day is that of the Geo. E. Dow Pumping Engine Co., devoted to agricultural pumps. The cover design represents an orange orchard under irrigation, with the foothills and mountains in the distance. When held in a certain light the silver glint of water can be seen in the ditches. Harder still to see are the snow-covered slopes of the mountains. At first glance the mountains seem bare, but when caught in the proper light the glint of snow can be plainly seen. Nor is the cover the prime factor of interest. The reading pages set forth in a brief way the principles governing the choice of different types of pumps to meet various requirements in agricultural pumping. This company, as is well known, manufacture a wider variety of pumps than any other manufacturer in the world. This gives their engineers wide knowledge, and their customers great latitude in determining the proper installation to secure the best results. Alternate with pages describing Dow pumps are pages containing information expressed in clear terms enabling a practical man to figure the required sizes of ditches, pipes and pumps for different conditions. Much good advice relative to the proper considerations, and particularly in the matter of dollars and cents, governing the installation of a pumping plant, is given in their advertisement appearing in this issue. It will pay to read this advertisement carefully and apply to your own ranch the analysis there laid down.

AUCTION

40 Fine Saddle Horses

FASHION SADDLE LIVERY

623 WEST 12TH ST., LOS ANGELES, AT 10 O'CLOCK A. M. THURSDAY, MAY 4.

On account of dissolution of partnership, Kerner & Kollas have instructed us to close out to the highest bidder without reserve their High-Class Saddle Livery and Equipment, consisting of 40 Head of Choice Saddle Horses, from 5 to 10 years of age, all gaited Saddle Horses, most of them high-class single footers; several of the above are first-class drivers. This is undoubtedly the best lot of saddle horses in California, sound and handsome, nearly all gentle for ladies and are city broken.

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If you are in the market for First-Class Saddle or Combination Horses, do not fail to attend this sale, as owners have instructed us to dispose of same on above date positively without limit or reserve.

TERMS, CASH. For full particulars inquire of Auctioneers.

KERNER & KOLLAS, Owners.

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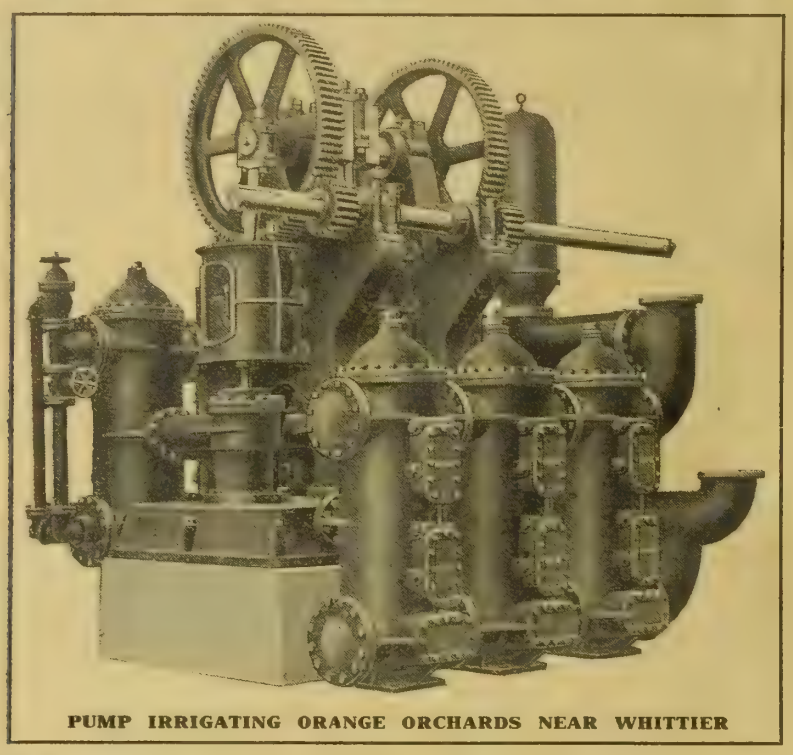
The Installation of a Pumping Plant for Agricultural Purposes Involves Two Important Investigations: *Engineering and Financial*



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Engineering . .

The engineering features include the development of a sufficient water supply, the best method for getting the water to the point of distribution and the best means for distributing it. The pumping plant is the connecting link between supply and distribution. On the reliability of this plant depends the reliability of the entire system. However well the water supply or distribution system be built, on the successful running without stoppage or other interruption, depends the success of the entire ranch. For this reason great care should be exercised in the selection of machinery for pumping, and that the correct type for your condition is chosen.

Financial . .

The financial investigation is by all odds the most important.

First: to determine the additional income derived from the land after installation of the plant.

Second: because the less money expended in running the plant and keeping it in order, the greater the net profit.

Engineering judgment may indicate a plant costing more than you have determined on spending. Another outfit may come within your allowance. An investigation of the cost of running may show a difference great enough to pay for the higher-priced plant in a short time. Or, you may have in mind a plant with many special devices. Investigation may show that your condition can be met with a rig slightly different, and with a marked saving in first cost. Points like these require careful study, and are best determined by men who have had experience with many types of pumps.

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The Geo. E. Dow Pumping Engine Co. are the largest manufacturers of pumping machinery and compressors on the Pacific Coast, and the only manufacturers building their pumps complete from foundry to delivery. The various demands on them to meet all conditions have resulted in a line of pumping machinery and compressors containing more types than any other manufacturer in the world. The many conditions encountered have given their engineers a broader view of pumping needs than those of any other manufacturer. In advising the use of certain pumping machinery they are not bound by the limitations of one particular line or type. They are in a position to draw on a vast fund of experience and select the type best suited to the engineering and financial conditions under consideration. The services of this engineering force and this factory are at your command. As an aid to you in the selection of proper pumping machinery a new booklet called

ACRICULTURAL PUMPS

has been published. A copy will be sent on receipt of your name and address.

Dow Pumps . .

A few of the types we build are:

Centrifugal pumps for irrigation and reclamation service.

Triplex pumps for use where cost of power is an important factor.

Air compressors for pumping water containing large quantities of sand.

Deep well pumps for pumping water from wells in the most economical manner.

Portable pumps for use in wineries, dairies, or wherever a portable pump is required.

We are prepared to furnish these pumps in any size and driven by the method best suited for your conditions.

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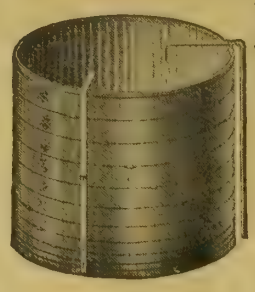

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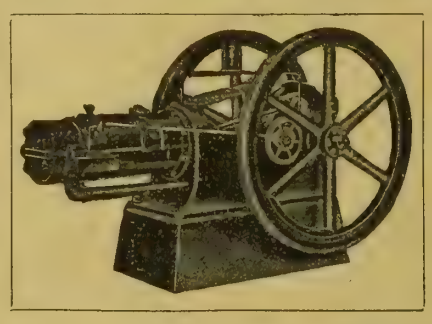

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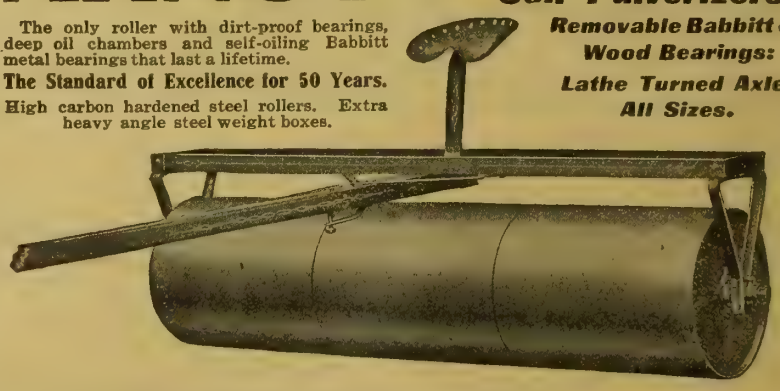

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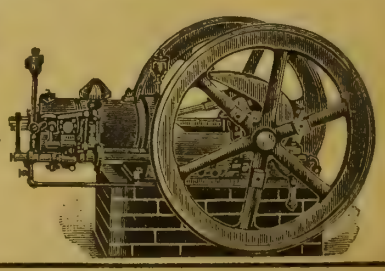

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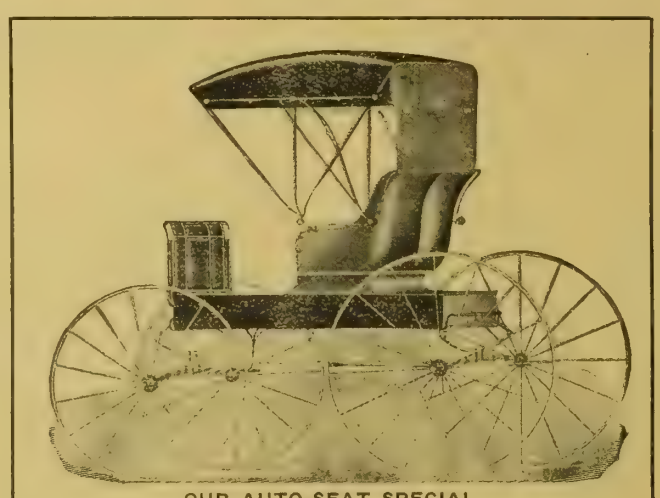

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Vol. XXXVI. No. 18. LOS ANGELES: THURSDAY, MAY 4, 1911 One Dollar the Year

Recent Discoveries Regarding Graft Hybrids

Written for the Cultivator by Dr. J. Eliot Coit,
State Pathological Laboratory, Whittier

In the horticultural literature of the past century there are records of many discussions between eminent horticulturists regarding the mutual influence of stock and scion. In a large number of these graft hybrids are mentioned as notable instances of the influence of stock on scion.

Ordinarily, when we speak of a hybrid plant we have in mind a seedling which has resulted from the cross-pollination and fertilization of two distinct species or genera of plants. Walnut trees which have sprung from black walnuts cross-pollinated with the Persian walnut are known as hybrids and are common examples in California. Very often the characteristics of the hybrid are intermediate between the two parents, but sometimes they may closely resemble one parent only, the characteristics of the other parent being hidden or "recessive." Seedlings of hybrids usually show a great degree of variation.

In 1825 M. Adam, a French horticulturist, in nursery grafting Cytisus purpureus on Laburnum vulgare, found that in one case the resulting shoot was intermediate in character between the stock and scion. This new form was thought to be a "graft hybrid," was named Laburnum Adami, and has been propagated by grafting until this day. The seeds of L. Adami, however, always produce seedlings of L. vulgare, the yellow-flowered parent. A similar combination was later produced between the medlar and haw and named Crataegomespilus. The Bizaria orange is also thought to be a similar combination between Citrus aurantium and C. medica.

In 1907, however, Hans Winkler, a European botanist, published a paper which opened up an entirely new method of investigation. Winkler resolved to produce a graft hybrid under experimental control, and with this in view made a large number of grafts between the common tomato and the nightshade. After the scions had taken he made transverse cuts along the line of union in the hope of causing adventitious shoots to arise from the point of union in such a way that the tissues of both the stock and scion would be involved in the production of the new shoot. His efforts were finally successful, but when the long-desired shoot was studied it was found not to be a graft hybrid, for one side of the shoot was tomato and the other side nightshade. If a branch put out through the tomato side, tomatoes would be produced, and if from the nightshade side, nightshade berries would result.

In some cases where both kinds of cells were mixed throughout a new branch, even extending to different parts of the same blossom, the kind of plant the seed produced would depend upon whether the egg cell in the ovary was of tomato or nightshade origin. As the tomato and nightshade will not cross sexually, there was no chance for real hybridization. Winkler called this kind of a mixed plant a chimera.

Continuing his experiments, Winkler produced other forms which he concluded were real graft hybrids. Through the researches of Erwin Baur, however, it has been found that he was mistaken, and that there are at least three kinds of chimeras: (1) hyperchimeras, where the cells of stock and scion are mixed together without any apparent order throughout the new plant; (2) sectorial chimeras, where the proportion of stock and scion making up the new plant is represented by sectors on the cross-section of the stem; and periclinal chimeras, or where one component invests the other as a mantle.

Baur studied the well-known Laburnum Adami and found it to be a periclinal chimera with an epidermis of Cytisus purpureus and a body of Laburnum vulgare. Baur found, also, that geraniums with white margined leaves were parts of a periclinal chimera, and, furthermore, that practically all of the supposed graft hybrids on record are chimeras of one kind or another.

Baur, therefore, while solving the botanical riddle of the century (Laburnum Adami), has opened up a new and exceedingly interesting field for study. We have become accustomed to think of a grafted plant as one with a root of one kind and a top of another, and it is somewhat unsettling to our habits of thought to consider, for instance, Winkler's tomato-nightshade mixtures, in some of which both kinds of cells were intimately mixed together throughout the length and breadth of the top and (as the chimera shoots were cut off and rooted as cuttings) the roots as well. In such a plant it is evident that neither part can be designated as stock or scion, for they have reached a far more intimate association. If there is a mutual influence between stock and scion, what will be the ultimate result of the mutual influence of the diverse cells making up a periclinal chimera, for instance? These and dozens of other questions crowding behind them certainly indicate that an exceptionally interesting field has been opened up by Hans Winkler and Edwin Baur.

Possibly a New Profit Winner for California

Carica Papaya, Sometimes Called Melon Papaw, has Promise of a Future in this State. It now grows in Texas, where Winter-Protected.

An article which was published in The Cultivator of March 2d referring to the medicinal qualities of the Carica papaya, as grown in Peru, has caused some interest and a number of inquiries have been received as to the worth of this particular fruit and its possible adaptation to California conditions. A letter was sent to the Foreign Seed and Plant Introduction Service of the Bureau of Plant Industry for fullest information and we have a letter from Mr. Peter Bisset, expert of the Bureau, enclosing a photograph showing a plant now growing in Brownsville, Texas, raised from seed obtained from the Ben Gut Province, Philippine Islands; also photograph of a bunch of fruit on a plant in the Subtropical Garden at Miami, Florida. The Brownsville tree we reproduce on this page, the other being very similar is not shown. The Brownsville plant "was protected through the winters by the use of corn stalks and ripened all of the fruits the following summer.

"Carica quercifolia, another member of this family, has stood the winters at Chico, California, where it has been exposed to a temperature of 18 degrees, and has borne fruit abundantly. We have not had these fruits analyzed, however, and therefore cannot state how valuable they are in the manufacture of pepsin.

"On my visit to Southern California last year I saw one or two trees growing at Hollywood but was told that they had never borne fruit. This may be due to the fact that these are male plants. As you no doubt know this plant is dioecious and it requires both staminate and pistillate flowers before any fruit can set."

Regarding the more particular description of the carica family Bayley's Cyclopedia says: "Small trees mostly with unbranched trunks, the juice milky. Leaves near the top of the trunk, alternate, large and variously lobed, soft, long-stalked; plant usually dioecious: flowers in racemes from the leaf axils, the staminate funnel shaped and bearing ten anthers on the throat, the pistillate larger and with five distinct petals and one pistil with five rayed stigma. There are about twenty species in tropical America. They have somewhat the aspect of palms. Under glass in frosty countries the common carica papaya is frequent, and is grown for its foliage and interesting habit. In frostless countries this species is grown for its fruit, which is oblong or egg-shaped, a foot or so long, orange-yellow when ripe, thick-skinned, with many small black seeds. The young fruit is cooked and eaten and the ripe fruit is eaten by natives.

"The soil most suited for caricas is a rich loam having perfect drainage. As the stem is succulent and tender great care is necessary to avoid bruisings; hence pot-grown plants are much to be preferred to seedlings from open ground. Seeds should be selected from the best and largest fruits and sown in a well-stocked bed under a slight shade. If seeds are quite dry or old they should be soaked in warm water before sowing. The seedling plants are delicate and require close watching at first to prevent damping-off. As soon as plants are well up, remove the shading and after a third leaf appears they may be pricked out into a larger bed, or better, potted off in fairly rich soil. After plants are a few weeks old and have been shifted once into larger

(Continued on Page 554.)

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GROUND TEMPERATURE.

An interesting question which has been raised for years, and especially since green manuring has prevailed, is as to the effect at time of extremely cold weather. Many have insisted that cover crops prevented radiation of heat from the soil, so that orchards with the green covering would show a lower temperature and at the same the shading of the ground during the sunny portion of the day would prevent the ground's absorption of the sun's warmth. It is an interesting question and should cause investigation. Dr. W. F. Sutherst, in charge of agricultural work at the Bonita Union High School of the Lordsburg and San Dimas districts, has made some interesting experiments, which he has kindly furnished to us. As we take it, his ground temperatures are taken by the bulb of the thermometer lying above the surface of the ground or above the surface of the mulch where it covers the ground. Dr. Sutherst writes:

"I have been taking ground temperatures of orange orchards in the neighborhood of the above school, to see what effect green manuring and straw mulching had. The following results were obtained:

	Minimum on Soil.	Minimum on Vetch.	Minimum on Straw Mulch.
Feb. 7.....	34°	34°	31°
Feb. 8.....	34°	34°	31°
Feb. 9.....	32°	32°	30°
Feb. 10.....	28°	28°	25°

"You will see that the minimum temperature on straw mulch is about three degrees lower than on vetch or bare soil."

One peculiarity of the above figures is that there is absolutely no difference in the minimum on the bare soil and on the soil covered with vetch. We would think that the latter would show a higher temperature, especially if its temperature were taken in the morning after a night of radiation. We think a more instructive test would be as to the temperature of the atmosphere a few inches above the soil or above the growing vetch or mulch. We are inclined to think that clean culture, and especially a freshly cultivated orchard, will give a higher temperature to the atmosphere than under any other conditions.

INSECT CONTROL.

Speaking on the subject of insect control before the recent State Citrus Growers Convention at San Bernardino, Prof. A. J. Cook called attention to the need of more competent workers among the inspectors who have to do with enforcing county and state laws. He maintained that among the qualifications for a first-class horticultural commissioner, he should be a thoroughly trained mycologist and entomologist and able to discover the ills and enemies of plant life, and fully informed on the laws which he is to enforce. As to necessity for very highest efficiency in this work, Prof. Cook says:

"It is a fact that must be patent to all that no citrus orchard can do the large service which we expect and usually secure, except it be in full health and vigor. We ask of our groves a colossal task, that of giving to us a maximum crop each year. This requires that they be in perfect condition as to health and strength. One of the most patent causes of lack of vigor is the presence of the great host of sappers and miners, our insect foes. Any decadence that may be noted may very likely be justly charged up to this fact, that insect despoliation is rife in the orchard.

"It is just as true that fungoid troubles which are more difficult of detection, and more likely to be neglected also, claim very heavy toll from our citrus growers. If we may judge from the experience in old orchards in other parts of the world, we may rest assured that this matter of pestiferous fungi will be in the future a close second to that of insect pests as an impediment to success in citrus culture. We have long known of apple scab, and bitter rot in the apple, and yet only yesterday did we get at the bottom facts, even if we have reached them at this date.

"Again, we have all observed that insects and fungi alike are coming more thickly and are working more viciously as the years go by. For years, at Claremont, we had only the black scale to fight; now we have four other insect foes, full worse to handle, at our very doors. Rot and withertip now keep the bug pests company, and bid fair to keep the orchardists awake of nights. You will all agree that these pests are not becoming less, but are crowding in upon us in most alarming fashion."

As to the needs of the commissioner's office, Prof. Cook adds:

"The office of commissioner of horticulture is one of colossal importance, and its proper manning means thousands of dollars in your pockets, as does unfitness as great loss. Again good men can be had, and it behooves each one of us to bend all our energies to secure the fit man in each county. When we find that such a man is at service, let us back up every effort that he may make to secure to us a scale-free county. Just imagine how the real estate man would dance with joy if he could truthfully say our county is scale free, and would we not joyfully all join in the dance?"

THE ORANGE TORTRIX.

By H. J. Quayle, Southern California Laboratory, Whittier.

The orange tortrix (Tortrix citrana Fernald) was first described in 1889 by Professor C. H. Fernald from specimens bred from oranges from Southern California by Mr. D. W. Coquillett. Complaints of it have occurred from time to time since, but with the exception of occasional years it has not occurred in sufficient numbers to attract much attention. According to Coquillett, considerable inquiry was made about the insect in 1894, and also again in 1898.

During the season of 1909-10 this insect was the cause of no little concern in certain sections of the Southern California citrus belt. It seemed to be most abundant in Los Angeles County from Glendale to Pomona, very few being seen further east in the Riverside-Redlands district. In some of the packing houses during the early part of the shipping season the amount of wormy fruit ran between 5 and 10 per cent.

Coquillett states that "ordinarily it lives in a rolled or folded leaf, upon which it feeds, but it also has the

habit of burrowing into the green oranges." This latter habit of burrowing into the fruit really seems to be the most common. Very little evidence of rolled or folded leaves was noticed in the infested groves, and the worms kept under observation in the laboratory seemed to attack the fruit in preference to the leaves.

This insect appears to attack a wide range of food plants aside from the orange. Coquillett (loc. cit.) states that it occurs on apricot, willow, oak (Quercus agrifolia), wild walnut (Juglans californica) and golden rod (Solidago californica). On July 24 specimens of larvae were received from Mr. I. J. Condit, of San Luis Obispo, which were attacking green house plants. Moths were reared from these and submitted to Dr. L. O. Howard at Washington, and were identified by Mr. August Busck as Tortrix citrana Fernald. Mr. Condit states that they have been infesting various greenhouse plants for several years, but have not spread out of doors except to some geraniums close by and to various plants in the lath house. The greenhouse plants listed are: "Wandering Jew, rose, seedling acacias, seedling eucalyptus, asparagus sprengeri and A. plumosus, lavender, Jerusalem cherry, pentas, cineraria, lantana, coix lachryma, begonia and ferns of various species. Pelargoniums were especially subject to attack, and the larvae seem to work into the tips and branches of these plants similar to a borer. Commonly they work in folds of leaves tied together by means of silk threads."

The injury to oranges is due to the burrows made in the fruit, and usually these go no further than just through the rind. There is considerable variation in the character of the burrows, both as regards size and the depth they go into the fruit. Of course such fruit is classed as culls, and the holes are frequently the source of infection for decay following blue mold, navel end rot, and withertip fungus. The burrows in the fruit also cause it to drop prematurely, especially if the fruit is still small, so that all of the injury chargeable to this insect is not accounted for in the packing house alone.

The eggs are laid on the leaves, either the upper or lower surface, but more usually on the lower, and also on the fruit. They are laid in masses of from ten to thirty-five, overlapping one another like shingles. An individual egg is cream color, measures about .75 mm in diameter, disc shaped, slightly convex on upper surface, and with a distinctly marked hexagonal network discernible with hand lens. Two or three of these masses may be laid by a single moth, so that the total number of eggs may vary from twenty-five or thirty to seventy or eighty. At the end of six days the two black eye spots of the developing larvae are visible, and hatching occurs six days later.

The young larvae are active and wriggle quickly away on being disturbed.

A considerable amount of web is spun, and the portion of the orange entered is sometimes covered with a thin network of silk. Larvae in the insectary chose to enter the orange on the under side where it was resting on the surface. One entered alongside a cell which had been attached by paraffin to the fruit. In the field, the most usual place of entry is where two oranges are in contact or an orange and leaf are in contact.

The full-grown larva is about one-half inch long. The color varies from greenish white to dark gray, with broken irregular stripes more distinct in the darker specimens. During the growing period of the larva it remains almost continuously within the fruit, but upon reaching maturity it wanders about over the cage at night. During the day it is always found in its burrow. This traveling about off the fruit is no doubt for the purpose of finding a suitable place for pupation. In case no favorable location is found, it will pupate within its burrow, first making a slight irregular cocoon. Pupation within the burrow is, in fact, very common, though other places may be selected if available. The total length of the larval life is from fifty-five to sixty days, and the pupal period from nine to twelve days in midsummer.

The number of broods in a season is not very well defined, and there is more or less overlapping. There does appear, however, to be a period in the spring when the moths are abundant, and again in the early fall. Moths were common in May and the first part of June, and practically none were seen in July and August. Moths appear again in September, and possibly also again about December. Judging from the appearance of the worms and of the moths, there are probably three generations, or two with a partial third generation.

Two species of Braconids (species not yet determined) have been reared from the larva. As for control measures, spraying with an arsenical has been suggested, but the worms would have to become more abundant than they have thus far to make this practical. The most feasible measure seems to be the picking up and destroying of dropped fruit in the field, while the larva is still within its burrow, and also the destruction of the wormy culls as they are sorted out in the packing house.—Journal of Economic Entomology.

HOW TO DISCOVER WHITEFLY.

It is not always easy to discover the presence of whitefly when it is first beginning to infest a grove. The winged adults may have disappeared (died), and there may be only a few larvae present, perhaps only one on a leaf here and there. It is at this stage of infestation, however, that drastic measures for its control should be adopted in order to check its rapid spread. While nearly all fourth-stage larvae are now readily visible to the unaided eye, earlier in winter and during fall many were still so thin and transparent that it was difficult to see them. But even now the following manipulation for loosening and making them more easily visible is very useful.

To loosen the larvae (not to remove them) simply grasp the end of a leaf with the thumb underneath and forefinger on top, turn it over, stretch it taut, and rub the free finger of the hand holding the leaf along the lower side. It is surprising how many more larvae can frequently be made visible by this means, and the whitefly traced far beyond the suspected limits.—Florida Grower.

How wonderful is the chemistry of nature. Different trees feeding upon the same soil and the same air will produce different products. The oak gives the acorn, while another tree gives us oranges, another apples, another pears, peaches, plums. How marvelous is nature—Green's Fruit Grower.

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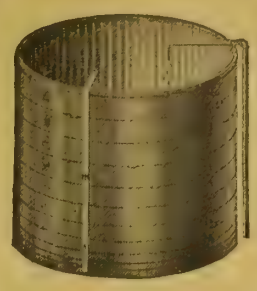

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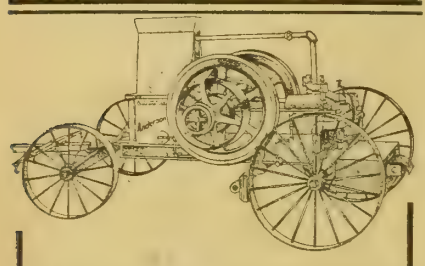

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The section about Covina, Los Angeles County, reports red spider prevalent, but spraying campaign active.

Deciduous Bush-Tree Fruits

STORAGE IN TRANSIT.

Answering request for information as to what "storage of apples in transit" means, we may say that it is a method of storing urged by the International Apple Shippers Association and described by that association as follows:

"Apples, carloads, from any point shown in tariff, may be shipped to any intermediate point, placed in storage, and afterward reconsigned on protection of through rate, under the following provisions:

"A. The storage point must be an intermediate point in the same general direction between point of origin and final destination, except that no charge for back haul will be made, when ultimate destination is in the same general direction, or storage point is in territory intermediate via any route from point of origin to final destination.

"B. Storage must be in warehouse furnished by shipper, or owner of property. The carrier not to assume charges for storage, insurance, or other expense accruing at warehouse.

"C. Shipments entitled to storage in transit privilege shall have their expense bills at the storage station stamped. 'To be stored in transit.'

"D. The surrender of paid expense bills accompanied by warehouse certificate identifying said shipment will be a declaration by the shipper that said shipment is entitled to transit privilege.

"E. Shipments may be stored in transit for a period not exceeding nine months, but in no case is privilege to be extended beyond July 1 following.

"F. Upon surrender of paid inbound expense bills, shipments will be rebilled from storage point to final destination, plus a switching charge not to exceed $5.

"G. The through rate in effect on date of shipment from point of origin shall be the rate to be protected.

"Much work has been done by this committee, and as a result the number of associations working for the privilege is continually increasing, and the railroads themselves have taken an increased interest in the matter. The Central Freight Committee, located at Chicago, has voted in favor of granting this privilege. This committee acts in an advisory capacity to the Central Freight Association, comprising all the transcontinental lines entering Chicago, and from this center the movement would be expected to extend to the transcontinental lines entering New York. In addition, prominent banking interests on the Pacific Coast are actively at work urging the Western lines to grant this relief.

"It is conceded that within a few years the states of the Northwest will have to market 100,000 cars of apples annually, as against the 15,000 cars of the present time. This is a tremendous increase and presents a problem difficult to solve.

"Some of the reasons why this storage in transit privilege should obtain are given in the words of Mr. Loomis, as follows:

"'The great trouble with the movement of the crop of box apples in a satisfactory way has been the lack of facilities for distribution. The crop is moved in a month and a half; it requires nine months of the year to consume it; storage facilities must be provided at the most favorable points to hold this crop during that period of time and to allow it to go to any market that most needs the supply. At the present time the box apple crop is congested at Chicago and New York, and no efforts are being made to increase the consumption of box apples at other cities. According to the proportion of wealth, half the box apple crop should be consumed in the East, between Chicago and New York. At the present time only one-quarter of the crop is being there consumed. The granting of this privilege would particularly stimulate the demand in the many large cities between Chicago and New York. It would greatly benefit the railroads in an increased amount of traffic, especially on the Eastern lines between Chicago and New York, probably to the extent of a million dollars annually.

"'It would also greatly benefit the growers of box apples in providing a systematic scheme of distribution; it would allow their crop to be marketed where it is most wanted, and also by scattering it among the cities of the United States prevent a glut or congestion in any one market. It would in addition greatly help all the cold storage warehouses at all cities on transcontinental lines, and would particularly place on a prosperous basis the warehouses at Chicago and those in Western New York. The latter would be assured of full houses on any short year.

"'In addition, it would greatly help the apple industry. At the present time competition is concentrated in one or two sections. With this privilege, capital would be induced to invest in box apples on equal terms with barreled apples, and thus it would be distributed throughout all apple sections, thereby tending to greater uniformity and stability.'"

BAD FARMING.

When will farmers brace up to the consideration of preserving the fertility of their soil? No matter what crop is grown, there is a constant evidence of a decline of productive power in the land. It has always been supposed that the legume plants, like peas, beans and the clovers were the least exhausting on the land of any, but here comes Mr. R. M. Ballard, an extensive grower of peas in the eastern counties of Wisconsin, who says that he will be obliged to seek new fields for this industry because of the rapid failing of fertility in the old pea sections.

This is simply the old story of selling out the farm by the bushel or the ton. Farmers must take into consideration the ever governing fact that every crop, no matter what, exhausts the soil of some of its elements of fertility and if they are wise unto its salvation, they will pay back to the land in special fertilizers some of the revenue they have received from it.

Let that be considered a fixed charge to be met every year. The final effect will be that in a few years the farmer will have under his feet, a strong resolute soil that will answer back to him in good crops in almost any season. These are the ever present considerations: Drainage for the surplus water; humus to hold the natural and necessary soil moisture and the nitrogen; ground limestone to correct the growing acidity of the soil and furnish what lime is needed by the clovers, including alfalfa; phosphate for the grain; potash for its share in the general economy of fertility.

Now, if any of these conditions and elements are wanting they must be supplied. That is plain, common sense, else down goes the productive power of the land. That means future loss to the farmer. Too many farmers are like the man who said he could get rich on the proceeds of his labor if it did not cost so much to keep up the machine in food and clothing. It does cost something to keep up the productive power of the

land. And the beauty of it is that the farmer in reality is no poorer for it. He has kept up the production, and consequently the selling value of his property. There is no poverty or hardship in that.

Those pea farmers in Wisconsin are not different from the wheat farmers in Minnesota, or the corn farmers in Illinois. They are now confronted with the judgment of an outraged soil. Because the judgment is deferred, many think it will never be levied. But it will. They are like the Irishman who was caught stealing a pig. The owner, an old Quaker, said to him, "Thee will pay for this on the Judgment Day." "Troth," said Pat, "If I'd knowed yees was going to wait as long as that for your pay, I'd taken two."

What is needed is the spirit and pride of good farming. We must trust ourselves to the well-settled principles of good farming, assured that if we do, we will "make our calling and election sure." No country ever prospered by an impoverishment of the soil.—Hoard's Dairyman.

RED SPIDER ON ALMONDS.

Mr. Harry P. Stabler, county horticultural commissioner of Sutter county, advises the application of sulphur to almond trees when leaves first appear and again later. Mr. Stabler says:

"On almond trees the first sulphuring should be done as soon as the leaves appear in March. A second application is advised from the 1st to the 10th of May. Prune trees should be treated as soon as the spider appears. In Sutter county this occurs about the first week of July.

"Full grown trees require about a pound of sulpnur which should be thoroughly distributed throughout the foliage. The old method of throwing a handful of sulphur in the crotch of the tree, or on the ground under the tree is valueless. The use of a blower is economical in large orchards, but a can with perforated bottom is frequently used on young trees or small orchards.

"In normal seasons the spider is easily controlled by dry sulphuring. When the pest does not yield to this treatment a spray is recommended."

CO-OPERATION.

"The excessive toll paid to cross the bridge between consumer and producer is today the chief cause of complaint of high cost of living, on the one hand, and failure of the producer to share justly in the profits of his labor on the other. How to reduce this toll has been, and is today the great economic problem. It is generally conceded that the only way to selve this problem is by co-operation —meeting combination by combination. Notwithstanding the many failures, some progress has been made and good work is still going on. But there are many difficulties to overcome. In this connection, I will quote from the last report of the Master of Kansas State Grange:

"'The fruit raisers of California are writing to us often wanting the Grange supply houses to purchase their fruit direct from them to save the expense of so many middle profits; but under the present system of business we can not do it and the reason is discrimination against both the producer and consumer.

"'We can buy California fruit from the commission firm in Kansas City in small lots as we use it cheaper than we can buy the same fruit from the fruit grower in car lots. The system arranges things that way.

"'The manufacturers are organized; the jobbers have combinations and the retailers in the town have an understanding and in the cities an iron-clad combination, and the result is that the farmers are underpaid for their produce and the consumer is overcharged and the only remedy is to increase your numbers in the Grange and establish co-operative exchanges.

"'The National Grange has taken this matter in hand and has a committee from Maine, Pennsylvania, Indiana, Illinois, Missouri, Kansas and California. The committee realizes the difficulties before it, but it is possible to establish produce exchanges, which will grow into a system that will cheapen transportation and eliminate so many intermediate profits, and be a benefit to both the producer and consumer.'"—The Grange.

ESTIMATES OF APRICOT CROP.

D. Felsenthal, Buckhorn, Ventura County.

The older trees in this vicinity are very much spotted, some trees have enough while others in the same orchard are bare. The younger trees will yield about as last year. On the whole I should say the apricots in this district of the year would be about 65 per cent of last year's yield and of a fine size.

Aratus Everett, Moorpark, Ventura County.

In vicinity west of Moorpark, two and one-half miles of the main valley, apricots were badly hurt by frost. This with cold rain, east winds, etc., reduces the crop prospects to about one-fifth of an average crop. North of this valley in the foothills and the Simi Valley the crop may be better than half of an average crop, which might bring the average in the county south of the Santa Clara River up to one-half of an average crop. The average of the whole county will be about one-half of an average crop. Our county has recently been canvassed for organization of dried fruit association and above results ascertained. In this locality there will not be nearly as many cots as last year.

G. H. Waters, Pomona, Los Angeles County.

Pomona valley has about half a crop of apricots. The peach crop is setting very heavy with every indication for a full crop. All kinds of berries are in bloom and looking well. We have no prunes to speak of any more, as the orchards have been mostly dug up. Pomona valley never looked better.

A. S. Shively, Santa Paula, Ventura County.

From the very best information we can get, the crop will go from one-third to one-half of what we had last year.

DIFFERENT KINDS OF MANURE.

The relative value of manure placed around trees, as observed by experiments, ranks as follows: Hens, hogs, sheep, cattle, horses. A hay mulch six inches deep is almost equal to stable manure and cultivation. To obtain color in its deepest and richest aspect, wood ashes applied around the trees in late fall or early spring will produce the desired effect.

The bean growers are slow in signing contracts for the coming crop, as every promise is for good prices.

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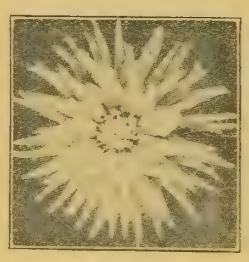

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Garden and Field Crops

THIS MONTH.

By O. M. Morris.

Spring is now on us with its rush of work in everything pertaining to the garden. Hoeing and cultivating of crops already planted and the planting of new crops, make this one of the most busy months in the season for the amateur as well as the professional gardener. Unfortunately the cold weather of the second week of April will cause many of the early plantings of tender stuff to be planted over again, but this is only one of the many trials of the gardener. Potatoes were badly nipped, but in most cases only temporarily hurt, and will again in a few days be up and growing as the "reserve eyes" will fill the place of the lost growth in a short time. The greatest loss probably was in tomatoes and vining plants, such as cucumbers, melons, etc. These will have to be replanted where they were lost. Great quantities of tomato plants are a total loss and the supply is very short.

Sweet potatoes are now in good demand, with only limited supply, but later they will be plentiful and good yield can be had from these planted up to June 1st.

During this month all manner of seeds can be planted. Look after the melons, cucumbers, beans and all seeds planted in the open and if stand is not good, replant at once so as to secure perfect stand. Bean planting in the large acreage sections will be on in a few days. Early snap beans are also being planted. Among the popular bush varieties Stringless Green Pod probably stands first with Early Six Weeks closely following. Mohawk and Refugee are quite popular in some sections and of the wax pod varieties, Ventura Wax and Black Wax are most popular among the bush varieties, while among pole varieties nothing is so popular as Kentucky Wonder Green Pod, but Kentucky Wonder Wax is gaining much favor and is quite as fine and preferred by some. These two varieties are grown without stakes, on large scale, but for small plantings poling is best and they are more easily picked, without injury to the plant.

Corn.

Both sweet and field corn are now being planted. Of the sweet corns, probably Oregon Evergreen is the most popular, with White Mammoth Evergreen and Stowell's Evergreen and Country Gentleman about equal. These are all large varieties and not near so early as Golden Bantam, Peep-o-Day or Early Cory. These three last varieties are very early and probably Golden Bantam is the most popular. A new corn introduced last year, the Howling Mob, is quite early and an excellent medium early. Unfortunately the best of all earlies, the Heath's Early, is all cleaned up and supply is exhausted. This we believe to be the sweetest corn grown. Of field corns, the Yellow Dents in several varieties lead, with Hickory King, the large white a great favorite, the Yellow Flint, King Philip, is also a popular early variety.

Tomato, egg plant and pepper plants have been more scarce this season than for years. The long wet season caused much loss of plants from "damping off" and consequently a brisk demand for plants, all over this section, especially for early varieties. It is not too late, however, to plant seed again.

Melons, especially the musk melon, has become extremely popular of late years, and like lettuce has grown into universal favor. Not many years ago a few hundred pounds was sufficient to supply the nation, while now the seed crop runs into hundreds of thousands of pounds. California supplied over two hundred thousand pounds of lettuce alone.

The most popular musk melon for the market on a large scale is the Netted Gem or Rockyford, but only as a shipping melon. It surely lacks flavor and is so very small, it is not popular as a home garden variety. The Tip Top, Pineapple and Model far excel in flavor, and the Tip Top beats them all in localities where it succeeds. The Chilean watermelon still leads the list for market, with Kleckley's Sweet as a home variety. As melons, cucumbers and like tender vining plants require heat, they can be planted for a month yet and produce a good crop. Casaba melons can be planted any time up to July.

Onions are a prontable crop and can be planted most any time of the year and require about six months to mature. Australian Brown is probably the most popular for planting now, Bermudas for July and August.

BREEDING NEW PLANTS.

New purposes are constantly entering into the breeding of plants. We are producing maize with extra high content of starch and other forms, with high content of oil. The Germans breed potatoes for alcohol production and other fruits for extra long shipment. We have peas and sweet corn specially adapted to canning. We are beginning to breed for disease-resisting qualities. The United States Department of Agriculture is working on a wilt-resisting cotton and watermelon, a rust-resisting oat, and similar things. The North Dakota experiment station is producing a disease-resisting flax. The Maine and Vermont experiment stations are investigating the subject of blight-proof potatoes. We shall probably breed blight-resisting pears, disease-free ginseng and blight-proof tomatoes. We already have a wilt-resisting and nematoid-resisting cowpea, although not the result of direct breeding. We are constantly giving more attention to securing plants that have the desired qualities inherent in themselves rather than in obtaining these qualities by means outside the plants.—L. H. Bailey, in Century.

NAKED SNAILS OR "SLUGS."

Lettuce, and other plants, in the cold-frame, greenhouses or gardens, are sometimes troubled with these slimy creatures, which, by the way, are not insects in any stage, but snails without shells. The writer has killed them in his own cold-frame by sprinkling upon them with a sprinkling can clear and quite weak lime-water, made by slaking a little quicklime, possibly two or three pounds in five gallons of water. This in no way injured the lettuce, or impaired it for table use. Only the clear liquid was used, not the "milk of lime," and whenever it touched a snail the latter "gave up the ghost" immediately. The mere presence of this lime-water in the soil appeared to be disastrous to snails, and one or two applications were all that was necessary in the cases referred to.—F. L. Washburn, Div. of Entomology, Minnesota University Farm.

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Home Grounds Beautiful

THIS MONTH.

By O. M. Morris.

The flower garden should have its share of attention this month and all manner of annuals can be planted, such as centaureas, snapdragons, asters, phlox, larkspurs, marigolds, candytufts, coreopsis, etc., are highly recommended and hundreds of other species and varieties. The above are all good for cutting and should be grown liberally. The biennials are also to be planted during the spring months for blooming next spring; the Canterbury bells, Sweet Williams, etc., and such varieties of perennials that bloom the first year from seed, as delphiniums, perennial Canterbury bells, carnations, dahlias, Brompton stocks, salvias, perennial asters, aquilegias, anemones, foxglove, petunias, daisies, verbenas, etc., should be planted as nearly as possible to have a good season of bloom. Those species or varieties of perennial that do not bloom first year, can be planted later and be large enough to bed out in early spring.

LATH HOUSE HINTS.

All winter long the lath house has seen its owner pass by to plant potatoes and peas, to hoe and to spade, to work in the open and the sunshine, and it has worn an air of dejection, but now there is a stir in its shady depths. Everything is starting the season's growth, and the gardener will be among his ferns.

The sun is gaining power every day and when the north wind blows evaporation is very rapid. See that potted things and hanging haskets do not suffer for moisture. A rain that will wet the ground for a couple of inches or more will often leave pots and baskets perfectly dry. Once either of these really dry out, they must be submerged in a vessel of water to get moist all over again, and it really seems that with plants a drying-out habit can be formed.

The warmer nights will bring out the slugs and other plant enemies to riot among the tender fronds of the pushing ferns. Visit the lath house with a light, a miner's electric lamp is excellent, and catch the villains in the act. Slugging is most unpleasant but most necessary, and conditions that make for good fern growth invite a slug population.

If you have tree begonias planted in the ground in your lath house, top-dress them with well-rotted cow manure. They are surface feeders and tend to get up out of the earth into the dry, and then find they made a mistake, for they want moisture at the roots all their growing season. Be sure and put out some tuberous begonias as advised last month.

About now there will probably be some putting up lath houses, so that the following suggestions are offered. Build your lath house big enough to accommodate yourself and a few friends as well as the plants. Leave a protected side, preferably the eastern, open. Have a height of twelve feet if possible, and then your choice climbers can be inside instead of on the roof. Make a feature of your posts. Why not have four feet or so rough rocks and concrete to accommodate ferns, etc.? Run your lath on the roof north and south, to better distribute the sun's rays that filter through. Have a central dome if you can accommodate tall things. Put in lots of hydrants; the hose in the lath house should be short and light. Have a little addition for potting and storage of all the tools and paraphernalia that are indispensable but very untidy.—California Garden.

NEW YORK'S EASTER LILIES.

New York's Easter lilies are largely shipped in from the Bermudas. Only those who have been fortunate enough to have visited Bermuda at the time when the vast fields of lilies are in full bloom can realize the rare beauty and fragrance of these lovely flowers, for with acres upon acres of their snowy blossoms spreading away as far as the eye can reach, and the caressing tropic wind wafting the heavy fragrance across one's nostrils, the effect is almost intoxicating. It is a rare and wonderful sight, and one never to be forgotten, for nowhere is the lily so beautiful as in its native islands under the bland and tender skies of the semi-tropics. The flowers are bigger, purer, sweeter, and the sunshine of the islands is so dazzling clear and white that it fairly glorifies the lilies bending on their graceful stems.

The lilies are shipped from Bermuda in three forms—the bulbs, the budded plants, and the cut flowers, this last named form having been employed only of recent years, the fast express service making it now possible. The lily plants are shipped in huge crates, and the florist pots them upon their arrival, carefully "feeding" them for several weeks before putting them upon the market. The plants are received in various stages of growth, the last shipments before Easter being of plants in full bloom, ready for an immediate market.

BAMBOOS FOR SOIL BINDERS.

Having request for bamboos which would make dense growth and at same time be good soil binders along banks of streams, we wrote to Mr. Peter Bisset, Expert Plant Introducer of the Bureau of Plant Industry, as to best varieties for this purpose. He writes:

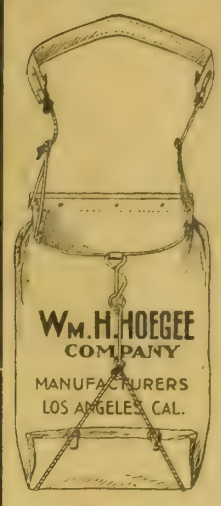
"We have quite a number of varieties of the bamboo that would be well adapted for this purpose, amongst the best would be Bambos veitchii and Bambos palmata, both of which varieties grow close together, forming dense mats. The veitchii grows to a height of from one to two feet, and the palmata, to a height of from two to four feet. They have long underground rhizomes that spread rapidly and form very good soil binders as well as undercover crops.

Should a larger growing variety be desired we know of nothing better than the Bambos moso, which is one of the large growing timber bamboos of Japan. Sufficient time has not elapsed since the introduction of the different varieties we have at Chico for us to state definitely just what they are best adapted for.

Until one has seen a really well grown, so-called Papyrus, or umbrella-plant, one cannot realize its decorative possibilities. Like the calla, it likes plenty of water to stand in.

Water potted plants by standing them all night in two or three inches of water.

Canvas Goods



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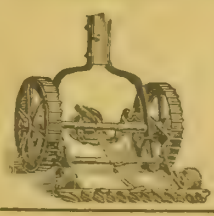

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Commissioner Makes Good

No state in the Union has given the attention to horticultural quarantine and protection of its fruit and other products from the depredations of insects and fungi that California has. With the state horticultural commission and its deputies and employes in many sections of the state, and with most of the counties of the state conforming to the state law and maintaining county commissions, all sections are fairly well guarded. We say they are well guarded, and this is true theoretically, though it must be admitted that in some counties results have not justified the expense. In contrast, others show results most remarkable. We believe this latter class, however, may be counted easily upon one's fingers. We would not discourage the work being done under the county commission law because of some of these failures or partial failures. The effort is in the right direction, and where politics has been obliterated promise is given for proper results from the funds expended. In some counties results have not been what they should, because of lack of harmony between various producers rather than lack of ability on the part of the commissioner and his helpers.

It was our pleasure recently to inspect one county where harmony and ability unite in accomplishment of remarkable results. It is not a big county, though it is big in some of its products. For instance, in lemons it produces over 200,000 boxes valued at well up towards a million dollars, oranges a couple of millions, dried apricots over five million pounds valued at nearly a half million dollars. Walnuts again is where it shines in the production of practically 4,000,000 pounds valued at nearly a half million dollars, and when it comes to Lima beans it is the greatest county in the state and the greatest producer of any small section in the world.

As agriculture, or more particularly horticulture, predominates, its board of supervisors, not one member of which is a farmer, yet with keen business judgment, picked a young man fresh from college who has an ambition to make his county the cleanest in the state. We refer to Ventura County, whose commissioner is Mr. E. O. Essig. The board of supervisors has granted to the commissioner practically every request for supplies and appliances. His central office is located in Santa Paula, not the county seat, but in the center of the producing section of the county, and this office is thoroughly fitted with cases containing specimens of insects and fungi, a fairly complete library, almost perfect filing appliances, and incubators for developing fungous growths, nearly everything needed in a laboratory for original investigation.

In return for this confidence manifested by the board of supervisors, Mr. Essig has given his days to work in study and inspection in the field and his nights to work in the laboratory, and the result is that for original research and actual accomplishment we do not believe there is a commission in the state superior. Especially along the lines of withertip and mealy bug investigations has Mr. Essig been persistent. We do not recall any man or body of men that has gone after the matter as he has. This work has been treated of more at length in former Cultivators; the carbolic spray which is proving so successful is the result of Mr. Essig's investigations.

The orchards of the Little Santa Clara Valley are practically all thrifty and well cared for. This little valley, but a few miles wide, extending from the northern end of the Southern Pacific tunnel in Los Angeles County through Ventura County, bending toward the ocean near the little city of Ventura, is one of the prettiest in the state of California. The orchards are watered either from the Santa Clara or its tributaries coming down from the mountains along the eastern side of the valley. The section about Santa Paula is largely devoted to lemon and apricot culture, though the English walnut groves cover many acres. Plantings of the last few years are more given to citrus than to deciduous fruits, and while some apricots are still being planted, we believe there are a far greater number of walnut trees being uprooted to make way for lemons than are being set out. The thrift of citrus trees was manifest on all sides, though in occasional in-

E. O. Essig.

stances the twig ends give evidence of the withertip fungus. The withertip has lost its terror now, for it has been proven both by work conducted under the direction of Mr. Essig and others that the application of Bordeaux is abundantly able to care for it; it is simply a question of carefulness on the part of the operator.

In the matter of red spider control we saw work being done in the large orchards of the Teague McKevett Company, and it was easy even for the layman to see the vast difference between trees recently sprayed and those not sprayed. Scarcely a leaf could be picked from the latter that was not covered with myriads of eggs and young of the red spider, while on the sprayed trees many leaves could be examined without detection of a single insect. The best part of this treatment is that it is economical. The ordinary commercial sulphur-lime mixture, 2½ gallons to 100 gallons of water, is used. Mr. Essig assured us that this was an absolute remedy for the red spider. Formulas for the Bordeaux mixture and the carbolic have been given in former Cultivators. The carbolic acid mixture has been successful not only on mealy bug but many other pests, and it, too, is a remarkably cheap mixture.

Part of the day was spent on the great Limoneira ranch, with its 3,000 rich acres, of which 520 acres are in lemons, 450 acres in walnuts, and the balance in beans, hay and grazing land. It is a beautiful ranch, a profitable ranch, because given the very best of care. A visit to such a place is an education which other fruit growers should avail themselves of.

PROFIT WINNER FOR CALIFORNIA

(Continued from Page 547.)

pots, they may be set permanently outdoors in the tropics. Caricas seldom branch but usually grow upright like a palm, hence cuttings are not often available. Sometimes small branches form, and these may be cut off and as readily rooted as most tropical decorative plants, providing the cutting is not too young and tender. In temperate climates caricas have been found to be good decorative plants for both conservatory and summer bedding, the deeply cut, palmate leaves forming a striking contrast to ordinary vegetation. In budding out select open, sunny exposure with perfect drainage and make the soil rich and friable. Constant cultivation with a light hoe will cause a luxuriant growth under these conditions, and the planter will be amply repaid for his trouble by beautiful, showy specimens as unique and tropical appearing as palms."

The melon papaw is described by Bayley as having a "trunk reaching twenty feet, leaves often two feet across, palmately seven-lobed, fruits six to twelve inches long and half as thick, hanging from the lower axils of the pistillate plant. It is a native of tropical America but has been widely naturalized, growing spontaneously in the wilds of southern Florida. The fruit is used as a vermifuge and a cosmetic. The juice of the fruit or the macerated leaves, if rubbed on animal flesh, makes it very tender. It is best to roll the meat and leaves together for a few hours. The fruits are made into sauces or conserves and are sometimes eaten raw."

The Cultivator of April 21, 1910, contained an illustration of one variety of this fruit growing in the Hawaiian Islands. As this tree appears to be much larger than the one illustrated herewith, we take it that Hawaiian conditions are very favorable to growth of this species.

"RUNNING OUT" IN POTATOES.

Every farmer is perfectly familiar with the fact that if a good herd of Shorthorns falls into the hands of a stockman who feeds them as the average farmer feeds his stock, there will be a rapid decline, in each successive generation, from the former high standard of the herd.

Every farmer is also aware of the fact that if a stockman, who has brought a herd of Shorthorns up to a high standard of perfection, discontinues the selection of the best animals for keeping up or improving his herd, it will "run down" rapidly from generation to generation.

Just as surely as these two factors —namely, good feeding and selection —are necessary for keeping a good herd of Shorthorns from "running down," so are they necessary for keeping a farmer's potato-seed stock from running out.

The ideal feeding standard for potatoes should be such as will produce not less than 200 or 250 bushels per acre, and preferably more. This requires a soil that is, first of all, fertile, and, secondly, in a good condition for the roots to gather plant-food from. In addition, the plants must not be overrun with weeds, and the bugs must not be allowed to get away with the crop. The fertilizing can be accomplished by rotation of crops and manuring. A rotation which supplies a clover sod, or a sod of clover and timothy, one or two years old, is generally best for the potato crop; the only exception being that found in some cases where some other crop is grown on the sod, to be followed by potatoes. The manure can be applied to the sod at any time, during the year preceding the potato or other crop, that may be practicable. Liberal applications should be made, usually ten or more good sized loads per acre. If this cannot be done for the entire potato field, it should be done on enough land to supply from two to five times as many bushels of seed potatoes as will be required to plant the next year's crop.

The second requirement for good feeding can be supplied by first preparing the best possible kind of a seed bed, and second thorough cultivation of the crop. In preparing the seed bed, many plow twice, first about 4 inches deep in the fall, and again, 7 or 8 inches deep, in the spring. This method seems worthy of trial. At any rate, the land should be plowed deep, preferably 8 inches. This should be followed by a thorough working up of the seed bed; to be followed by a liberal use of the harrow, weeder and cultivator, as needed during the season.

The benefit to be obtained from the proper feeding and care of the potato crop is greatly increased by the selection of the tubers possessing the most vitality for seed potatoes. Even though the crop as a whole may have been well fed, and the yield large, there is much difference in the way in which certain tubers acquire the vitality that results from liberal feeding.

The sign of vitality in a potato is, most of all, the plump form, as considered with reference to length. Rural New Yorkers and similar varieties should be round and more or less flattened, without the least elongation. Ohios should be as oval, plump, and as short compared with their thickness as they can be found.

The signs of degeneration in potatoes are as follows: (1) elongation of form as compared with the shortest, plumpest form that can be selected for the variety, often accompanied by more or less tapering ends, a taper toward the "seed end" being worst; (2) eyes more numerous than usual, and likely to be deeper than usual, especially in badly degenerated tubers; and (3) an increasing proportion of small potatoes.

The above principles of selection may be applied to any variety of potatoes. Degeneration is the same for nearly all of them. A few varieties do not show the elongation, and the difference in the eyes, that are generally found along with degeneration —until they are almost completely run out. In such cases, the proportion of small potatoes is more important than ordinarily.

Small potatoes should never be used for "seed." They are very likely to be the most degenerate seed stock that could be planted.—A. R. Kohler, Minn. Univ. Farm.

It is now claimed by orange growers that the "adulterated orange ruling" does not apply to California oranges.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

MAKE A STUDY OF YOUR BUSINESS.

Marvelous progress has been made in agriculture during the past ten or twenty years, as exemplified by the leading farmers and stockmen of this country. This progress is the result of two main causes: a better knowledge of the sciences underlying the business, and improved farm machinery. During the past quarter of a century more has been learned about the soil, the needs of plants, the control of injurious insects, plant diseases, and animal diseases than during the century preceding. This is saying a great deal, but it is true. This body of new knowledge has been worked out largely by the experiment staions, in this as well as in foreign countries. Furthermore, the facts discovered by these institutions have become common knowledge of the majority of American farmers through the following agencies: The agricultural college, the agricultural press, farmers' institutes, other farmers' organizations, and short courses. Besides, during the last decade the farmers have been very prosperous and therefore have been in position to put their advanced knowledge of farming into practice.

The other agency that has contributed to agricultural prosperity, improved machinery as mentioned above, has in many respects contributed even more than an education; at any rate, without the improved machinery of today, our present knowledge of farming would not nearly have the value that it does have in connection with the machinery. The productive power of the individual farmer who is up-to-date and who has availed himself of the great body of farm facts that have been accumulating, is undoubtedly twice as great as it was twenty years ago. The question arises what percentage of our farmers are living up to present-day opportunities. How many of them are producing twice as much from a given amount of labor as they did twenty years ago? That all of them are not, is quite evident from the average crop yields as reported by the government.

The amount produced on the farm is not necessarily a true criterion of the success of the farmer; in fact, it seldom is. Some produce more than twice as much with a given amount of man labor as they did a score of years ago, but they are not, barring the increase in the value of their land, making twice as much net profit. While efficient machinery has been invented and come into use, this machinery has cost money. The price of labor has also risen and consequently the cost of production has increased. To secure a large net profit from the farm we must decrease the cost of production. Machinery helps in that direction if it is properly used, but other things must be taken into consideration.

A quarter of a century ago, land that is now greatly reduced in productiveness was rich and fertile. The fertility that has been taken out of our soils and marketed at the elevators, and some of it even at the stock yards, must be returned before maximum yields can be secured. This can be done in one of several ways, but in this section of country practically only through the raising of more live stock and the growing of more legumes, such as clover, alfalfa, peas, etc. Even after this has been done better methods of farming must be practiced. The average man is growing too many weeds, which, like corn and oats, remove fertility from the soil as well as large quantities of water. It is no exaggeration to say that one-fourth of the total amount of plant food taken from many soils in a season and one-fourth of the water pumped out of them is removed by weeds that give no returns whatsoever. The weed problem is a more serious one than the average man realizes. It is one to which he must give especial attention in the future. It is one that will be of very great importance during the coming crop season, because there is a scarcity of water in the soils throughout this territory. In many cases, unless the rainfall should be considerably above normal, water will be the limiting factor in crop production next year.

Think these things over during the winter months. Study your business carefully. Plan your work with a view of going through next season with a smaller supply of water than usual. Do this by putting more work on your land this spring. Disc your corn ground just as early as you can get on it with a team. Do the same with the stubble ground that was not plowed last fall, and also disc the ground that was plowed. Use both disc and harrow sufficiently often to keep a mulch on top of your soil to prevent loss of moisture. Surface cultivation was important last year, but it may become still more important next season; at any rate, make your plans with that end in view.—Farmer and Breeder.

El Centro Stock Corrals. Courtesy Calexico Chronicle.

OUR VANISHING DESERT.

A quarter of a century ago, says the Baltimore Sun, any mention of the great American desert called up visions of a region of limitless extent, sun-baked, parched and desolate. A country associated always with tales of suffering and death, of unfriendly savages and deadly reptiles, for years it was passed over by congress as worthless. The marvelous transformation which has been wrought in two decades in this land of silence and sunshine, furnishes one of the most interesting and inspiring pages in the annals of our republic's development.

The great American desert is vanishing from the map. Its boundaries have shrunken and it no longer presents a formidable barrier to the growth and progress of the far west. Twelve million acres of this rainless country have been subdued by means of agriculture and irrigation and are producing bountiful and assured harvests every year. A quarter of a million families are residing on farms, and as many more have found homes and occupations in the cities, towns, and villages which have sprung up in the midst of the agricultural areas.

Great dams have been constructed to impound the floods, and through 70,000 miles of canal and ditches the life-giving water has been turned upon the dusty desert. The streams have been harnessed for power, and an era of manufacturing is dawning in which all of the raw products of the farm, the forests and the mines will be prepared for the markets of the world. The comforts and luxuries heretofore unknown in agricultural regions already are obtainable in many of the western valleys. The farmer lights and heats his home with electricity, and his heavy work is done cheaply by the same potent force. Trolley lines bring the farm and town close together.—Country Gentleman.

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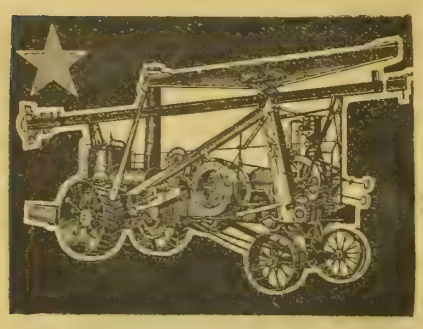

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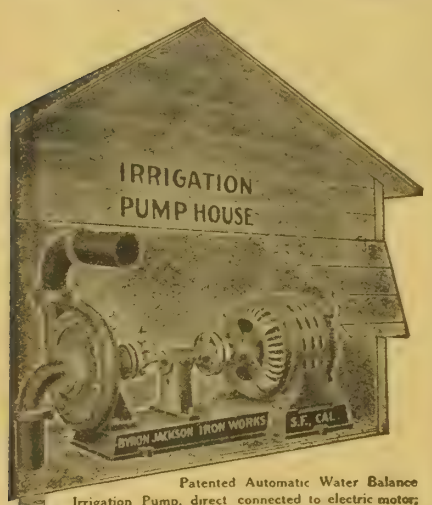

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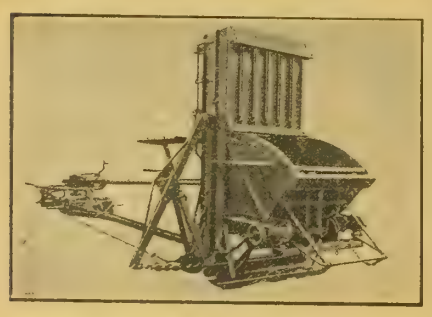

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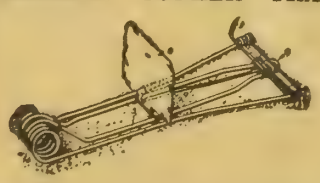

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GOAT DAIRYING.

The increasing value of land and the advance in the price of milk are making goat dairying increasingly attractive. As the time grows nearer when economy in grazing lands must be practiced, as in Europe, the value of the goat as a milk producer is appreciated. One of the features of the product that appeals to all is its value to young children. The researches of Dr. Barbellion, of Paris, on the digestibility of the different kinds of milk, reported at the International Congress of Medicine, bring out the benefits in a significant manner. His report shows that the curd of cow's milk forms a dense adhering mass, which by agitation separates into clots that are but slightly soluble. On the other hand, the curd of goat's milk forms into very small, light flakes, which are soft, very friable and very soluble, like those in human milk. The curd in both human milk and that of the goat after agitation, is precipitated very slowly and incompletely, while the curd of cow's milk is precipitated very rapidly and very completely. Sumbitted to the action of digestive ferments, human milk and the milk of the goat were digested completely in twenty hours, while the same process applied to cow's milk showed only a very slight advance after sixty hours. Probably the statement which commands greatest interest is that the milk of the goat approximates more nearly in its composition and digestibility to human milk than that of any other animal.

Considering that goat's milk is very palatable, is richer, keeps longer before souring, and the generally accepted statement that it is free from tuberculosis bacilli, the hardy little rival of the cow must soon bid for a wider patronage. "The Case For the Goat," is authority for the analysis of goat's and cow's milk which is as follows:

	Goat's milk	Cow's milk
Water	83.28%	87.56%
Butterfat	7.30%	3.63%
Casein	4.18%	3.75%
Milk sugar	4.10%	5.00%
Ash	1.21%	.75%

The U. S. Bureau of Animal Industry has made repeated attempts to secure a foundation herd of foreign bred goats for experimental purposes, but has failed in every attempt. As far back as 1904 there had developed an interest in milk goats that had increased to almost a public demand for information on goat dairying. George Fayette Thompson of the bureau was assigned the task of selecting a foreign herd, and after looking around decided on a flock from the Island of Malta. He brought a large herd of selected animals, that gave every promise of success, but in a little over a year, the entire importation, including the progeny, was destroyed because of an outbreak of Malta fever, discovered subsequent to their arrival. Mr. Thompson later died of what the attending physicians pronounced pneumonia, but it has been an open question in the minds of his former associates if the real cause of his death was not Malta fever.

Last spring an Illinois breeder desiring to make an importation from Switzerland sought the co-operation of the bureau in the matter. Arrangements were made for one of the experts from the animal husbandry division to accompany him for the purpose of selecting the best individual animals. A veterinarian from the bureau's London branch was to accompany them to examine into the physical condition of the animals selected. A part of the plan called for the quarantining of the importation on an island for a period of six months, to avoid the importation of any diseases that might lurk in their system, as in the case with the importation made by Mr. Thompson. The breeder sold in advance a large number, one customer taking 100. The department thought that this was the chance to secure the long desired herd. All was in readiness for the trip when a cablegram from the U. S. consul in Switzerland advised that there had been an outbreak of the much to be feared foot and mouth disease among the goats in the section of the country the party contemplated visiting. The result was that the whole project fell through, and the quarantine still exists against importing goats from Europe. This explains why there are so few of the imported goats in this country, and why goat dairying has not been exploited more generally over the country.

But now comes a time when land steadily increases in value, and slowly but surely we must learn to follow the thrift practiced on the small farms of foreign countries, where every acre must be turned to account.

Herein lies the value of the milch goat: that she thrives on weeds and brush that other stock ignores; that she yields in proportion to her weight more milk than the cow; and that her milk is richer and more nutritious than that of the former; and is free from the dreaded bacilli of tuberculosis so frequently found where cattle are improperly kept.

Up to the present time probably less than 200 head of Swiss goats have ever been imported into the United States, and these few are scattered widely over this country, so that the sight of a real Toggenburg, Saanen, or Schwartzenburg, as the three best Swiss breeds are known, is of very rare occurrence and their value, as may be imagined, is high.

Of the three breeds mentioned, the Toggenburg is considered the finest, and is to the goat family, what the Jersey cow is to her breed, the aristocrat of the race. In color they vary from light to a dark brown on the body, with white bars down each side of the face, and white from the knees and hocks down. The coat also varies in length, some having short and others long coats, but the hair in either case is thick and fine, and the race markings very distinct. The heads of these goats are finely shaped, and their long, delicate ears give them much the appearance of deer. They are most attractive creatures and quite superior to the ordinary goat in every respect. The Toggenburg is hornless though occasionally a kid is born with horns.

The Toggenburgs, when properly handled, yield from three to five quarts of milk per day, and should give as much as two quarts eight or ten months after kidding. One doe gave at her second kidding 248 pounds and six ounces of milk in 28 days, and three two-year-olds raised in California from imported parents at their first kidding gave as follows: Gretchen, a triplet gave six pounds, five and one-half ounces per day. Katrina, a twin, gave seven pounds and four ounces; Griselda, a single kid, gave seven pounds and eight ounces.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

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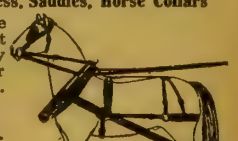

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When writing to CULTIVATOR advertisers ***BE SURE*** to say where you saw their advertisement. It will cost you nothing and *MAY* do you some good.

These records were made a month after kidding.

In comparing these high grade goats with ordinary stock, there is noticed the greatest difference in the size, quality and duration of the yield, fineness in texture of udder, and intelligence and gentleness of disposition, in each instance the Swiss excelling the native.

One of the most successful breeders of Toggenburg goats in this country is the firm of Howland & Hurd, of Redlands, California. They have produced a milker in their thoroughbred, "Fanette," whose record has not been excelled in this country or Europe. She kidded on February 8, 1909—buck and doe kids. On the 14th her milk record was started and the product weighed twice daily. On January 29th of this year the milking was ceased and the record showed 1708 pounds and 13 ounces. Her greatest record for one day was Aprlil 7, 1909, when she yielded 9 pounds and 10 ounces, or approximately 5 quarts of 7 per cent butterfat milk. She weighs 135 pounds.

At present there is no regularly established price for goat's milk as the supply never meets the demand in towns or cities, where it can be procured. When certified it sells for as much as 50 cents a quart, 25 cents for pints and 15 cents for half pints. What has been done along the line of goat dairying has been accomplished in the hands of individuals. The department of agriculture has never been able to determine the limits of goat dairying, or to even exploit it to any extent. At the present time the bureau of animal industry is carrying on a series of milk experiments at the new breeding farm, to obtain certain information with regard to the milk of the native goat, such as are raised in Georgia and Alabama.

That there is an unexploited field in this country for goat dairying, cannot be denied. That a market awaits goat's milk, when properly handled, at a price that admits of profit, is likewise true. The industry is practically in its infancy, but the feature which will appeal to those who depend on the goat to supply food for the infant, or young child, is the fact that when the family goes away on its summer or winter trip, the milk supply can go also. Nanny can be put in a crate in the express car and "Snookums" will not miss a meal and there will be no fear of the long train ills that follow in the wake of a change of milk for the baby.—James E. Downing, in Hoard's Dairyman.

PREPARING HOG CHOLERA VACCINE.

As every farmer well knows, certain hogs are naturally immune; i. e., resistant to hog cholera infection. When such hogs pass through an outbreak, receiving infection from which they recover, they become, as a rule, permanently and for all practical purposes absolutely immune. One of these exposure-immune hogs may occasionally be made, under certain abnormal conditions, to take cholera.

It has been proved that when such immune hogs are treated with large doses of virulent blood from sick hogs, it does not kill them, although very small doses of the same blood may kill susceptible hogs in a few days. The immune hogs, treated by large doses of this virus, develop in their own blood something which has the power of protecting ordinary susceptible hogs from infection. The immune hog, after receiving the large doses of virulent (disease-producing) blood, becomes what we call a hyperimmune, i. e., a very highly immunized hog, and will hereafter be referred to as the "hyper" or the "hyperimmune." The ordinary immune hog may be converted into a hyperimmune by either one of the several different methods. He may be treated either by inoculation under the skin with very large doses of blood from sick hogs, or by inoculation with much smaller doses directly into a vein, or by injection of the virus directly into the abdominal cavity. We now prefer the vein injection method, because it requires only about one-half as much virus blood, and is quicker and perhaps more certain of producing fully potent serum.

When blood from such specially treated immune hogs, i. e., from the hyperimmune, is injected into the bodies of susceptible hogs, they in turn become immune for a time. During this short period of immunity we can expose such vaccinated hogs to cholera in the pen, or give them injections under the skin of very small doses of virulent blood. In either case we have given susceptible hogs, first, a treatment which enables them to resist the disease; and, second, we have given them the disease, from which they recover and become perfectly immune.—Minnesota University Farm Press.

Wash and oil the collars occasionally. Two minutes' work at the end of the day is sufficient to keep the surface of a collar clean, soft and pliable. A damp sponge and a cake of harness soap kept in the curry-comb box are the only equipment needed. Shoulder galls are due to one of two things: dirty, or ill-fitting collars. There is no excuse for either.

Barley and corn should be fed only in small amounts. Most of the severe cases of colic come from the improper use of these two feeds.

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Raise more FEED on 40 acres in the Sacramento Valley near Willows than I could raise on 160 acres on my Eastern Farm.

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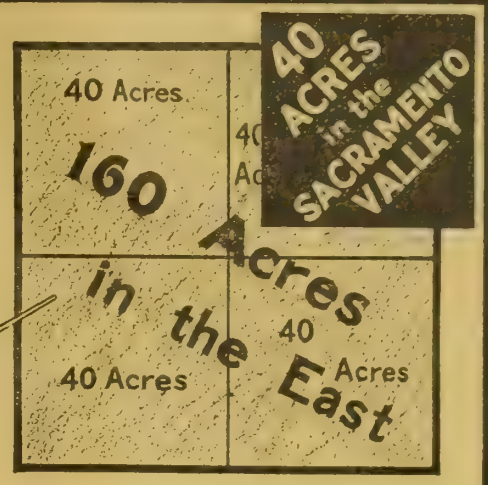

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On one of our Sacramento Valley irrigated farms you don't have the snow and blizzards of winter to contend with—you don't have to store away fodder for winter feeding—you don't have to sit back and wait for spring. Your cows, pigs or chickens can run out in the open.

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Just see what a small amount it takes to be a "California Farmer" on one of our small farms.

$15 DOWN THAT'S ALL $11 A YEAR THAT'S EASY

Climate, soil and water are your helpers. You can purchase your cows on the installment plan, paying for them with half the amount of your cream checks. All that is needed is your guidance and your willingness to work. If you sow, you will reap. Every day in the year the alfalfa is growing in the field. Five to seven crops a year is general—many cut seven and eight, and harvest from one to two tons an acre each cutting.

Alfalfa hay in the stack sells readily at from $5 to $7 the ton, and if held and baled it should yield from $10 to $18 the ton.

The most profitable returns to be realized, however, is to feed it to your stock. One acre of alfalfa will support one cow, two hogs and a calf. Each cow should produce on an average $75 to $100 worth of butter fat in a year. The calf should be worth from $7 to $10 at the end of the year, and the two hogs should weigh from 200 to 250 pounds, giving an income for the year of from $90 to $130 per acre.

One of the attractive features of dairying on this plan is that the revenue is coming in every month of the year. This estimate can be very materially increased by raising a flock of poultry.

The man who investigates the actual facts regarding this country—who interviews those who are here now realizes that

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Twenty acres is plenty; it will give you a freedom and independence experienced only on a Sacramento Valley small farm.

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Personal freedom, with its pleasures, profits and plenty, is found only in the great open-air country of California. If you want to be healthy, happy and hearty, with more than an even break to become wealthy, write for detailed information regarding these small farms.

You can purchase from 20 to 80 acres in this fertile district for $125 an acre, $15 down and the balance spread over ten years. Expert dairymen and agriculturists will advise you free of cost, and every co-operation will be extended. If you'll work, you win. Do you want to be king of a little kingdom, all yours?

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The California Cultivator

A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all corespondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,370 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, May 4, 1911

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NET WEIGHT.

A step in advance has been taken by the Southern California Walnut Growers Association in a resolution to give net weight in the marketing of walnuts. Heretofore a sack weighing some two or three pounds to each hundred has been weighed in as a part of each shipment. The sack, costing a merely nominal sum, was thus used to bring the grower 15, 16 or 17 cents weighed out as walnuts. The sum gained was too small to amount to much, and yet both wholesaler and retailer were somewhat restive under the practice. The pure food laws and general trade practices are working towards the honest weight package. The farmer often has a just grouch because of mistreatment received along this line, but his complaint comes to the wholesaler with poor grace while he does the same thing to the limit of his opportunity. From this standpoint the walnut men have argued that one way to secure honest treatment is to give honest treatment. This is along the line of Mr. De Motte's article in last week's paper. It is one of his ideas that standardization of fruit is merely putting common business honesty into the package. We believe the walnut growers' determination is a wise one and that it will enable them to demand absolutely just treatment. The argument is entirely on policy or business grounds; morals have nothing to do with it.

ON TRIAL.

The State Board of Game and Fish Commissioners has secured the expert aid of Prof. H. C. Bryant of the state university to investigate as to the effect of the meadow lark, robin and blackbird upon the growing crops and upon grapes and other fruits. In other words, these three birds are on trial for their lives. Certain producing sections have maintained for some time that the meadow lark is a culprit and must be removed from the California landscape. The indignation expressed all over the state at this effort resulted in the last two state legislatures refusing to lift the protection from these sweet songsters. The birds have some arguments on their side; admitting that they do some injury, their beneficial work on predatory insects is of sufficient value to overcome the loss they cause. It will take months and perhaps years to complete an investigation along this line. It can readily be proved that the birds eat some grain and some fruit and it can as readily be proved that they eat many destructive insects. Whether it is possible for any scientist to strike a just balance we question.

ENGLISH CO-OPERATIVE BUYING.

The English farmer is far in advance of the American in the matter of co-operative purchasing organizations; in the matter of selling organizations the American is in the lead. There is no marketing organization in the world equal in scope and in success to the California Fruit Growers Exchange. The Co-operative Agricultural Trade Society incorporated under what is called the Industrial and Provident Societies Act is saving great sums to the purchasers of fertilizers, feed stuffs and farm implements. The society after purchasing its fertilizers has them analyzed for each individual if desired and consignment is made directly to the user. When a sufficient number of farmers decide that they wish to form a co-operative trade society they write to the secretary of the central organization and are given full privileges. In a statement recently made by the concern it is asserted that while co-operation is not a cure-all or a panacea it comes nearer than other methods tried to lighten the burdens of the English farmer. It is especially advantageous to the small farmer.

CALIFORNIA'S POSSIBILITIES AS A SUGAR PRODUCER.

California produces the highest percentage of sugar in her beets of any section of the world, and while there are other states with a greater number of factories this state will soon surpass all others in tonnage. But reference to the excellent article by Mr. R. L. Adams on another page of this issue will show that in tonnage per acre we have a valuable lesson to learn. Mr. Adams says that the sugar beet is an exacting plant to grow and that only good farmers make a success with it, yet the profits are worth securing. At 10.60 tons to the acre, which is California's average, our farmers are averaging only about the cost of production, that is, including the farmers' work. The table given shows that both Utah and Colorado surpass us and the average of the United States is practically that of California. These figures should spur us to more intensive culture. Mr. Adams' article is a most excellent one and will be followed by others helpful to the grower and those about to become growers.

Nothing on earth is too good for the farmer boy and girl. Why should young, inexperienced teachers be permitted to experiment upon your children? Why should the idea prevail that a teacher must "make good" in the country before he or she can be entrusted with the children of the cities? If they are to fail, why prove the inefficiency to the detriment of the clearest brains, the best-working capacities, the greatest possibilities of the thinking world? Why? Because too many farmers have given too little attention to this phase of life.—Mrs. C. W. Boucher, Marion Normal College, at Farmers National Congress.

California canned tomatoes are superior to any packed in the United States, the superiority lying principally in the color, which is so typical that Eastern consumers have made the claim that California canned tomatoes were artificially colored. Tomato canning is one of the great industries. Last year's output is already cleaned up and out of the market.

If the farmer will make more of recreation and social life, encouraging in every way the development of both, he will find less desire on the part of his young people to drift away to the cities. Of course, schools, good roads, rural mail delivery, telephones, good churches and many other factors increase the attractiveness of the farm, but social and recreation conditions may be more quickly changed for the better.

A writer in the Kansas Farmer says: Last fall I smeared some trees with axle grease to keep the rabbits from peeling them, and this spring I found I had killed all the small trees. The bark was dead and black just as far as the grease went, although the tops started to grow.

Ventura County's horticultural commissioner is making careful experiments with the Wiley walnut blight spray.

The state of Washington has 47,110 farmers as compared with 28,020 in 1900. Nearly 8000 farms are conducted by tenants. Twenty per cent of the farms are reported as mortgaged.

The Department of Agriculture has issued through the Bureau of Biological Survey Circular No. 78, "Seed Eating Mamals in Relation to Reforestation." It touches upon ground squirrels and other pests which destroy forest trees and gives methods of eradication and control.

Bulletin No. 208, on Late Blight of Celery, by Stanley S. Rogers, has a great fund of information for celery people. In addition to a very complete text, illustrations of growth and culture add to the value of the bulletin. It should be in the hands of every grower, and may be had by writing to College of Agriculture Experiment Station, Berkeley, Cal.

The University of California is making a special effort to advertise its summer school so as to induce teachers from various parts of the East to spend the summer in Berkeley and be present during the convention of the National Educational Association which will meet in San Francisco, July 8 to 14. Booklets are being sent out referring to California's advantages as well as the advantages of the midsummer school.

The office of Experiment Stations has looked into the matter of attendance at agricultural fairs and finds that the attendance at the 1203 county fair associations in existence during 1909 was 6,103,227, and the gate receipts, income from concessions, and appropriations aggregated $2,525,750,05. Much information regarding the fair associations and their needs is given in Experiment Station Circular 109.

The Department of Agriculture has departed from its usual line in issuing in Bulletin 432 "How a City Family Managed a Farm." It gives description of the old run-down farm, amount of capital and other resources, plans of arrangement of the fields, cropping system, buildings, labor, system of employment, and even family discipline and household problems enter into the report. We do not know that it would make a good working plan for any other farm, but there are suggestions in it which make it worth writing for.

It is unfortunate that the Walnut Growers Association fails to market its product so as to secure best returns. The association is organized on such a loose basis that it can hardly be said to be working under a "gentlemen's agreement." In fact, there is not much agreement to it, and this because one or two of the larger associations refuse to pool their nuts with their neighboring associations. This is especially to be regretted when it is considered that the quality of the nuts is practically the same in all sections and only ordinary care in grading will assure uniformity of output. As it now stands each association may market as it pleases, when it pleases and where it pleases, and in addition while it makes no fixed and unchangeable price there is a general understanding which permits the outsider to take advantage of the association price. This attitude of the walnut men in the face of the remarkable success of the citrus growers exchange is not understandable.

Agricultural News Notes of the Pacific Coast

Northern California

Eastern capital is investing in large tracts of land near Chico, Butte County.

A rose carnival is to be held in Santa Rosa, Sonoma County, on May 4, 5 and 6.

A Grange of the Patrons of Husbandry has been organized in the Gold Ridge section.

The foothill sections of Placer and Eldorado Counties are planting extensively of Bartlett pears.

Mr. C. C. Moore, of San Francisco, has been chosen as president of the Panama-Pacific Exposition.

The forest service is making extensive plantings of forest seeds in the Trinity National Forest.

The first shipment of strawberries into Secramento was on April 13, from Penryn, Placer County.

Maxwell, Colusa County, is pleased at the number of colonists who are purchasing lands in that section.

It is claimed the poultry industry at Dixon, Solano County, has increased 75 per cent in the past few years.

Woodland Mail reports half to two-thirds of the fruit crop of the Capay Valley as destroyed by the early April frosts.

A large dairy ranch at Oroville is being improved by the building of large barns, each of which will house 100 dairy cows.

More conservative estimates of frost damage in the wine grape districts is that 25 per cent of the crop has been lost.

A new $2,500,000 corporation is planning to develop water for irrigation of lands in Sacramento, Eldorado and Calaveras Counties.

The next meeting of the Counties Committee of the California Development Board will be at Eureka, Humboldt county, June 2nd.

Sutter county peach growers report predominance of "double peaches" which will necessitate much thinning in order to secure fine fruit.

Sacramento capitalists are experimenting in poultry culture and will put an expert in charge of a large plant at Robla, Tulare County.

Some vineyardists near Lodi are contracting for the coming crop of table grapes at $25 per ton August delivery, $18 per ton subsequent.

One firm in Yolo County is contracting for hops on a three-year basis at 15 cents per pound for the 1911 crop, 14 cents for the '12 crop and 13 cents for the '13 crop.

The annual farmers picnic will be held at the State University Farm at Davis on Saturday of this week. Addresses will be made by President Wheeler and Professor Wickson.

Fifty-four thousand acres of land will be subdivided and disposed of in small parcels in Sutter County. The town in the center of the tract will be called Rio Oso. It is the property of the Natomas Consolidated.

Horticultural Commissioner Hecke of Yolo county, reports that owing to apricots being short in quantity of blossom, also because of the early April frosts, the almond crop will not exceed 30 per cent of normal; the apricot crop will be about 25 per cent.

Central California

Last Saturday was clean-up day for Kerman, Fresno County.

Fishermen are happy over a fine run of salmon in the San Benito River.

A timber company is planting sixty acres to eucalyptus near Delano, Kern County.

Thirteen thousand five hundred citrus trees will be planted near Delano, Kern County.

The Kerman Alfalfa Company has just received a shipment of ninety pure-bred Holsteins.

Porterville, Tulare County, reports the shipment of a $50,000 bunch of fat cattle on one day last week.

A sheepshearer at Porterville, Tulare County, is affected by a disease very closely related to "anthrax."

The size of the coming prune crop is yet a problem with the general guess running "at least a fair crop."

As result of some little friction in the Tulare Irrigation District the former secretary has tendered his resignation.

The overflow of the Spreckels canal at Salinas, Monterey County, filled wells drilled for irrigation purposes at Fort Romie.

Prunedale, Monterey County, reports a magnificent crop of hay and grain, the late showers coming just in time to perfect the crop.

Rangers of the Sequoia and Sierra National Forests recently met at Trimmer, Fresno County, and discussed methods of fire protection.

Orange growers of Tulare County think the possible frost injury to deciduous fruits may bring a larger price for next year's orange output.

Northern Tulare County is coming to its own as a producer of citrus fruits; this section was not developed along this line until about two years ago.

Sportsmen are complaining because there are no fish in Kings River this year; the complaint is that the weirs prevent the fish from coming up from the lake.

As an evidence of good faith and to show that they can do it, some ranchers near Salinas, Monterey County, are growing oranges on the low bottom lands.

The setting of highway trees in Tulare County is under the control of a county forestry board and property owners are forbidden planting without permit.

The last demonstration train trip of the Southern Pacific and State University ended last Saturday afternoon, the last place visited being Walnut Creek, the trip having been made up the coast counties from Hollister.

A writer in the Fresno Republican is urging the raisin growers to "nail the six-cent flag to the mast." The frosts have reduced the promise of the coming crop so that raisin growers are firm in their holding of the holdover.

Apricot growers of Santa Clara Valley believe the dried fruit market will be such that good dried fruit will command 15 cents this fall. The San Jose Times states that 12½ cents has been offered already and that some claims of sales have been made at 14.

Southern California

Lima bean people of Ventura County are busy with planting.

San Diego was the Mecca of rose lovers at its rose show last week.

An alfalfa meal mill is being constructed at Corona, Riverside County.

Corona, Riverside County, is installing machinery for an alfalfa meal mill.

Beaumont alfalfa growers will produce more alfalfa seed than heretofore.

Farmers at Brawley, Imperial County, are making plantings of seedling dates.

Los Angeles supply of asparagus is now being received from San Joaquin River points.

El Toro, Orange County, reports apricots well advanced, with a large crop in prospect.

San Fernando alfalfa growers are the latest to join the co-operative marketing movement.

A Riverside fruit grower has just returned from an investigation of avocado growing in Mexico.

The beet fields near Huntington Beach, Orange County, are reported in the very best of condition.

Escondido, San Diego County, estimates its output of lemons for this year at about eighty-five cars.

Viticulturist Husmann is setting two and one-half acres of grape cuttings of 210 varieties near Brawley, Imperial County.

Borings to bed rock are being made by the engineering force of the Los Angeles aqueduct system on the great dam site near San Fernando.

The bee inspector of Imperial County is serving notice that colonies of bees must not be brought into that county without securing permission.

Redlands maintains a municipal nursery in which trees for street and park planting are produced. Five thousand trees are now ready for distribution.

Walnut growers will not give definite information as to prices that will be placed on the coming crop, but the feeling is that last year's price will be reached.

The Pala Indians are fencing and otherwise improving lands recently allotted to them. The Indian office feels much gratification at the spirit shown by the Indians.

The litigation over the flooding of Salton Sink, which resulted in the destruction of the salt works, has been transferred from Imperial to Los Angeles County courts.

The spreading of the waters of the Santa Ana in the gravel beds above San Bernardino is causing contention between that town and irrigating sections below which are benefited.

A canning company which planted 700 acres of valuable pea seed near Brawley, Imperial County, has failed because of improper preparation of the ground and lack of experience of men in charge.

The Park Commission of San Diego is surrounding the seed of cocos plumosa palms with wire gauze to save them from dropping and being carried away by visitors. The seed from a single palm is sometimes worth $5 or more.

The Coast

Wasco County, Oregon, shows "Crops backward. Need rain."

Washington grain growers are appealing for another soaking rain.

Over 1,000 men are at work on the Yuma project of the reclamation service.

Very heavy frosts visited nearly all sections of Oregon on the nights of April 12 and 13.

Albany, Oregon, reports that Linn County's fall grain crop is looking exceptionally well.

The reclamation service has purchased 600 acres to add to a reservoir site in the Boise project.

Fifty per cent of the peach blossoms of Yakima County, Washington, are reported in condition to set fruit.

A contract for furnishing electric power for pumping to irrigate 2,000 acres near Phoenix has been closed.

Forest reserves in Coeur d' Alene and Clearwater sections near Wallace, Idaho, are being protected from fire depredations.

The poultry association of Elmira, Washington, has formed a boy's annex for the purpose of educating the youngsters in poultry handling.

The Byron Jackson Pump Works has been awarded the contract for six monster centrifugal pumps for the Salt River irrigation project in Arizona.

Careful examination of orchards near Walla Walla, Washington, shows at least average crops of apricots, peaches and apples, but early cherries seriously injured.

Sheepshearing has been finished at Walla Walla, Washington. The flocks have dwindled from 200,000 sheep a few years ago until now there are less than 20,000. This is owing to forest reserve policies and the extension of fruit growing.

The Northwestern Live Stock Association is planning a great show of the live stock of the Inland Empire of Eastern Washington and Northern Idaho to be held at Lewiston next December 12-14.

The Santa Fe Railroad and capitalists have purchased a great tract of land near Prescott, Arizona, and a reclamation scheme will be inaugurated which it is estimated will cost about a million and a quarter.

The fruit growers of the Inland Empire, Eastern Washington, find that as the warmer weather restores the trees to vigorous growth the frost injury of the second week of April is not so serious as at first anticipated. However, some sections still show a total loss.

The schools of Salem, Oregon, have installed Babcock milk testers, and it is obligatory on the part of all pupils to learn to test milk. The idea is that the youngsters will grow up and be able to test their own milk if farmers, or their own purchases if living in town.

A poultryman at Medford, Oregon, claims the largest record in thirty-five pullets which laid 913 eggs in thirty-one days. Eugene, Oregon, goes one better, claiming 809 eggs from twenty-four Black Minorcas. These latter eggs averaged twenty-eight ounces to the dozen.

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Practical Poultry Culture

DARK CORNISH, AS BRED TODAY.

Charles S. Brent, Vice-President of American Cornish Club.

The Cornish are not a new breed, but a tried and true breed, originated in England in 1840. They have stood the test of time, and have not been found wanting in that which is required to make up the utility value as well as value from a fancier's view. It is not an idle boast when we Cornish breeders claim that there is nothing in chickendom that equals the Cornish fowl for the table. Why? The origin of the variety will show that meat and bone were the essential point desired. First a Red Aseel was brought to England from India. This bird, short, heavy, great width of body, compared to other fowls like the French Percheron horse to the roadster. The Red Aseel was crossed with the Lord Derby English Game, and the Malay, and in the early 70's a cross was introduced of what Lewis Wright calls "Pheasant Malay." The flavor of meat of a young Cornish bird or a Cornish capon can well be termed a "pheasant flavor." In England the Cornish have been the favorite table bird for over half a century. The qualifications required for a table fowl are that they should be quick growers, dress well for the market, be attractive and clean in appearance when dressed. These qualities the Cornish possess in a remarkable degree. The fancy market in large cities demands a plump, yellow-skinned fowl for the table. Where do you find the healthy richness, the something that looks good to eat, more than you would in a clean, dressed Cornish with its plump, yellow body, yellow legs and healthy appearance? Neatness, cleanliness and healthy color and apearance in a fowl dressed for the table, with a plump round body, are the popular table requirements. I claim that no fowl ever grown can come as near having these as the Cornish. We do not claim the laying qualities of the Leghorn or Minorca, and other smaller breeds, but I believe Cornish can be brought to a splendid laying value by a system of trap-nesting. Many of the more enterprising Cornish breeders are beginning to realize the value of selecting their best laying females, and continuing their progeny, discarding the non-laying females, and in this way build up a much improved laying flock. The trap nest, or some system to know your best layers, must be resorted to, so that the Cornish fancier will use only his very best layers for reproduction. We do not expect to produce Cornish females weighing from eight to ten pounds each that will equal the little Leghorn in laying, with her four to five pounds weight, but we do expect the Cornish fowl to excel in laying qualities over many of the larger varieties. For so large a fowl, the Cornish are not lazy, they are very acitve, and if properly cared for can be bred to a high standard of value as a laying fowl. From a fancier's view, the Cornish are the aristocrats of the show room. Many of the finest specimens bred in England have been shipped to our fanciers here in the past three years, and prices are always high, thus you can see the advantages of taking up the Cornish as a "fancier's fowl," as well as for various reasons. The state of California, with its loyal fanciers, perhaps leads all the other sections in appreciating the good points of Cornish fowls. Many hundreds of dollars are invested in Cornish by fanciers in California, and the importations of a few breeders in the Middle West and their great winnings with these birds at the leading shows both East and West demonstrate the superior exhibition qualities of these English-bred birds over the kind that were being bred here in the states up to the time of these importations. Some few, perhaps not more than two, "would-be" lovers of Cornish made a great fuss over changing the name to "Cornish" instead of "Cornish Indian Game" or "Indian Game." I am sure, could anyone who might know the wisdom of this change, in that the variety has increased in popular favor many fold, they would not be so ready to find fault.

A beginner might ask, "Why do we get the best Cornish from England?" This is partly answered in the climatic conditions. Over in England, hatching starts in January and February. The long season ahead for the chicks is of just the right temperature to produce great size. We may overcome this, to a certain extent, by hatching in April and May, growing our birds quickly, and, above all, having plenty of shade and good, clean water three or four times a day. Proper food rations and cleanliness are absolutely necessary. Discard the narrow-bodied kind for current type. In width of body "bulkiness" is the present trade mark.

STATE FEDERATION OF POULTRY CLUBS.

Fifty poultrymen recently gathered at San Jose and formed the State Federation of Poultry Clubs. Thirteen counties were represented. Los Angeles, Alameda and Santa Clara Counties had the largest number of delegates. Petaluma was not on the list, but this was owing to a misunderstanding of the purposes of the organization and it is expected that Sonoma County will be heard from at the next meeting.

The call was sent out by the Santa Clara County Association for the purpose of having an exhibit of the poultry industry of California at the Panama-Pacific exposition in 1915 that shall surpass anything that has ever been shown before. It is intended to have a conference with the managers of the fair at an early date and have the poultry exhibit placed in their hands.

The officers shall be a president, a first and a second vice president, a third vice president, a secretary, and treasurer. That the governing power of this federation be vested in the officers above named and an executive committee consisting of one member from each of the various poultry associations which may be represented at this meeting and such other associations as may apply for membership in this federation.

The following officers were elected: President, W. E. Gibson of Oakland; first vice president, Samuel B. McLenegan; second vice president, J. L. Harrison of Pasadena; third vice president, G. W. Smith of Fresno; secretary, Joseph T. Brooks of San Jose; treasurer, W. S. Macy of Santa Barbara.

These officers will serve temporarily until July 22, when permanent organization of the federation will be effected at Santa Cruz, where the federation will hold its next session during the poultry show. The annual meeting will be held at Los Angeles during the poultry show there.

INDIANA EGGS ARE BAD.

The farms of Indiana produced over 72,000,000 dozen eggs, valued at over $12,000,000, in 1910. A large proportion of these eggs were not first-class in quality, many of them being small, dirty, washed, cracked, stale or rotten. The following figures, taken from Circular No. 140 of the U. S. Department of Agriculture, are given to show the per cent of undesirable eggs that are sold upon the market in the middle western states: Dirties, 2 per cent; broken, 2 per cent; chick development, 5 per cent; shrunken or held, 5 per cent; rotten 2½ per cent; mouldy, ½ per cent; total, 17 per cent.

Observation of conditions in Indiana has not shown that the eggs of that state are any better than any other; in fact, some reports seem to indicate that the reverse is true. Assuming that the above figures are applicable to Indiana, it is fair to state that the annual loss to farmers selling good eggs amounts to over $2,210,000. This amount might therefore be saved to the producer without extra cost to the consumer, if buyers would buy eggs on their merits.

Feed the pullets ground bone or bone meal. This will supply mineral matter, which is much needed before they begin to lay.

GET ACQUAINTED WITH YOUR FLOCK.

It certainly pays to take pains to get acquainted with your fowls. Hens that are frightened almost to death every time an attendant goes among them cannot do well in egg production. Fright has a detrimental effect on the egg basket, just as it has on the flow of the milk of a cow. This is a well-known fact. You have seen young flocks that were in a panic every time a human being came into their quarters. Something is wrong when such conditions exist. Fright is usually the result of children's work. If children are allowed to get into the coops and chase the chickens just for sport, you needn't expect any eggs, especially not in winter. Train your hens so you can sit down among them and have them pick dainties from your hand. You cannot hope to get every bird as tame as that, but you can train all of them so they will never fly or run off in a panic when people appear among them.

To tame a wild flock, proceed as follows: Get some bread, bits of meat or even shelled corn, and with it sit down on a box in their midst. Make no violent motions, but very slowly toss out small pieces where the more venturesome can reach them. Take plenty of time and exercise considerable patience. In a little while they will venture nearer and nearer to the food. Do not try to touch any of them while giving the first few lessons. After they have learned to know you and begin to eat from your hand, there is plenty of time to make more intimate advances. It is unwise to go into the coops during the daytime to chase and frighten fowls in an effort to catch some of them. Take them from the roost at night if possible. Better still, coax those you want into an outer enclosure to catch them. A stray dog or cat or pig getting into the poultry house will often throw the hens into such a panic that they remain in a state of nervous excitement for hours.—Farmer and Breeder.

The Imperial County Bee Keepers Association has been reorganized and is now on a co-operative basis. The acting directors are: G. W. Nichols, B. F. King, Thomas Phillips, J. W. Whittaker and J. H. Huff, all of the El Centro and Silsbee country.

Test irrigation wells are being bored near Yuma, Arizona, one well now being over 700 feet deep.

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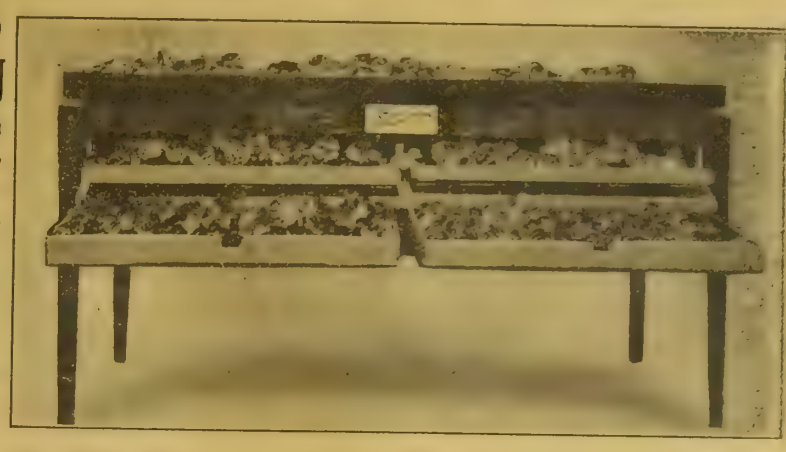

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The Mandy Lee is as far in advance of other incubators in heat and moisture as it is in ventilation. We do not guess at anything. The sensitive regulator controls heat to the fraction of a degree and *we measure moisture* just as accurately with the Mandy Lee Hygrometer (one sent with every incubator). You know what you are doing. *You* measure and control moisture; *you* control the hatch. The Mandy Lee is the all-season, all climate, all condition hatcher, always producing the most and the strongest chicks.

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225 West Second St.

Irrigation and Forestry

ELECTRICITY ON THE FARM.

By M. A. Johnston, M. B.

The poet and novelist have given us alluring pen pictures of the old-fashioned plowboy and dairymaid, but the lives of these products of a primitive civilization are not so attractive at close quarters. How much better it is to turn on a bright electric light simply by pushing a button than to trim and light an oil lamp at the risk of starting a fire! Certainly it is more sanitary to clean the horses and cattle with an electric vacuum apparatus than to scatter the dust and dirt with a currycomb or wash it off with a hose. And it is admittedly quicker and more effective to milk the cows with a vacuum milker, or to clip the horses and shear the sheep by motor-driven devices, than by hand.

The introduction of the tungsten lamp, which gives three times the light for the same current as the carbon-filament incandescent lamp, has placed electric lighting within the reach of every fairly prosperous farmer in the country. And from electric light to electric power service is but a logical step. The rural mail delivery, the telephone and the automobile have brought the farmer into closer touch with civilization, and it is but natural that he should want the benefits of electricity, which in many ways he can use to far greater advantage than the ordinary householder in the city or town.

If an electric power service is possible on a farm, it will go a long way toward solving the problem of the hired man, for the ubiquitous electric motor can be made to do almost any kind of labor. All the smaller machinery can be electrically driven, either by individual motors or by a portable motor outfit. Electrically operated pumps will render the farmer independent of the weather by filling the irrigation ditches or directly spraying the fields or greenhouses. And even plowing by electricity is not only feasible, but nearly 20 per cent cheaper than plowing by horses, and about 38 per cent cheaper than steam plowing, as proved by statistics recently compiled by a German authority.

There are several methods by which the farmer can obtain his electricity. If close enough to the power lines of a central station company he can usually buy his current to advantage, and often at a cheaper rate than the city dwellers. The big power companies of the West, who cater especially to the farmer, maintain substations from which the current is supplied at a voltage of from 2200 to 13,000 (usually 6600) volts to secondary distributing systems. At the farms there are small transformers which convert this high-tension current to a lower voltage, usually 110, for operating the motors and lamps.

If the farmer is too far away from a power line to buy his current profitably, he can generate it himself. Thus he may harness a small waterfall, erect a wind motor, or use a steam, gas or oil engine.

The water turbine is practical and costs nothing for its "white coal," which is plain, ordinary water, otherwise running to waste. It is to be recommended when the water power is available.

"Overshot" waterwheels, in which the water enters the buckets from the top of the wheel, are suitable for falls of from 12 to 20 feet. The peripheral velocity of the wheel will vary from 3 to 6 feet per second, in small wheels, to 10 feet per second in the larger sizes. The buckets or floats should be well ventilated if a high efficiency is desired, a feature of importance in practically all types of water motors.

"Breast" waterwheels, in which the water enters about the middle of the wheel, are suitable for smaller falls than the overshot wheel.

"Undershot" waterwheels, in which the water enters the buckets nearly at the bottom of the wheel, are best for the lowest falls, of from 1 to 3 or 4 feet.

For falls above 20 feet in height, there is probably no wheel to compare in both cheapness and efficiency to the Pelton wheel, which depends entirely on the impulse of water on the buckets, and not upon gravitational action of the water in flowing from a high to a low level.

In all cases, the services of a consulting hydraulic engineer should be requested before deciding on the type of wheel to employ. The simple waterwheels may even be made by the farmer himself.

The wind motor or windmill is not as a rule favorably regarded in this country for generating electricity, although quite a large number of successful wind-operated plants are operating all over the world. Perhaps the best installation in this country is an imported English plant on an estate in Long Island.

The question of fuel and attendance limits the field of the steam or gas engine, although where natural gas is found, or where a gas producer is feasible, the gas engine may be successfully applied for generating current on the farm.

For small farms, the gasoline or oil engine is perhaps the most practical and economical. It may be used directly or in conjunction with a storage battery.

The electric automobile or wagon is a useful adjunct about a farm, and where horses are not regularly used for other purposes, electric vehicles will be found profitable, convenient and speedy. For loading farm products in the field and conveying them to the barn or to market, the electric truck will often be found cheaper than the horse-drawn wagon, and its great capacity and speed in running will greatly economize the time of the drivers. In fact, Germany has gone even a step further in this direction, for in that country there is a farm which has a narrow-gauge electric railway for transportation purposes, and its results are said to be highly satisfactory.

The importance of the problem of irrigation must not be overlooked in a review of this nature, as it is closely associated with the development of electricity on the farm. It is generally admitted that the addition of a hydroelectric plant to an irrigation project adds materially to the value of the undertaking and to the return on the investment as a whole. Electric motors are ideal for pumping water from low-lying irrigation ditches, and, in California, many orange groves and plantations on hillsides are made possible by electric pumping. It has been estimated that an acre of land can be covered with water to a depth of a foot by the expenditure of 2 kw.-hours of current for each foot of lift of the water. The average cost for this power is 10 cents.

With regard to the financial considerations involved, it may be mentioned that the U. S. government irrigation projects cost approximately $30 per acre of land reclaimed. The value of the irrigated land is on an average about $100 a acre. An alfalfa ranch in the state of Washington cost $600 a few years ago when the land was principally covered with sagebrush. When irrigated, it was sold for $3000, and, after $1500 had been put into it in improvements, chiefly electrical, the owner refused an offer of $7800 for the property.

When this country begins to abandon extensive for intensive farming—that is, when the farms are made to produce their maximum output—electricity will not only be advisable, but indispensable. Then, perhaps, the crop output will be forced by the direct application of high-tension electric discharges from wire "networks" on the fields, as is being done even now in isolated cases in Germany, England and America. And perhaps also the farmer who cannot buy his current cheaply will produce his own alcohol, for operating his engines, from the waste products of his crops. —Shop Notes Quarterly.

GASOLINE ENGINES ON FARMS.

George Ethelbert Walsh, a writer in "Harper's Weekly," says over 250,000 gas engines are working on farms in this country. "These engines," he continues, "have displaced, it is estimated, at least half a million horses and mules, and reduced the 'hired man' problem to an irreducible minimum."

He then says that "the substitution of steam for horsepower on our farms was of value only to the big bonanza farms." The small farmer could not afford the expense involved in the use of steam, but the gasoline engine just fits his case, and all over the country farms of from fifty to one hundred or more acres now have gas-explosion engines installed on them to do much of the work formerly requiring hired men and horses. These engines range from three to five horsepower up to from fifty to sixty horsepower.

The work they do is varied. Small ones are employed for churning, pumping water for stock, cutting hay and fodder, sawing wood, shelling corn and operating sewing machines. Larger ones are used for cutting corn for ensilage, grinding feed and threshing.

On the big farms of our own and the Canadian Northwest, large traction engines are employed, and the huge grain crops of that region are threshed with the power they supply.

The interest farm boys show in these engines is such that it is believed they are keeping many boys

We install complete in every particular anything from 1 to 60 horse power

PUMPING PLANTS

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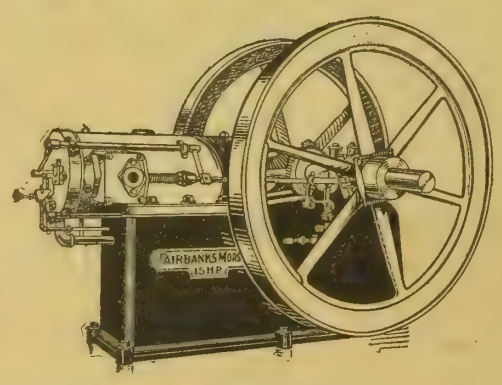

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with a mechanical turn on the farm. One sixteen-year-old boy in Colorado utilized the gasoline motor of a runabout as a combination header and pushbinder in an 800-acre field. Another lad rigged a six-horsepower second-hand motor engine up in his woodshed, where, through a system of belting, it drives a churn, a corn sheller, a grindstone, a sewing machine, a hay cutter and a washing machine.

If there are farmers who want to keep their boys on the farm and have found other inducements have failed, let them buy a new or second-hand gasoline engine and put the boys in charge of it. The use of these engines by farmers in the East is only in its early stages as yet, but already they may be found on many farms in this section and their number will soon be much greater than it is now.

INTERSTATE WATER RIGHTS.

By G. N. Houston, C. E.

One of the most important questions affecting Colorado today is the matter of interstate water rights. This state is in a very enviable position with regard to water. Practically all the streams in the state rise within its borders and the question naturally presents itself, has Colorado the right to use all these waters without regard to the adjoining states? We have assumed that we have, and have proceeded to appropriate all we could get sometimes, as in the case of the Arkansas river, leaving nothing for the people of Kansas. This gave rise to the famous Kansas-Colorado case which was decided in 1907 by the supreme court of the United States.

The state of Kansas sued the state of Colorado, claiming that the people of this state had appropriated and used all the waters of the Arkansas river, thereby damaging the state of Kansas.

I will quote a paragraph from the conclusion which gives a very concise statement of the opinion of the court.

Summing up our conclusions, "We are of the opinion that the appropriation of the waters of the Arkansas by Colorado for purposes of irrigation, has diminished the flow of water into the state of Kansas; that the result of that appropriation has been the reclamation of large areas in Colorado, transforming thousands of acres into fertile fields and rendering possible their occupation and cultivation when otherwise they would have continued barren and unoccupied; that while the influence of such diminution has been of perceptible injury to portions of the Arkansas valley in Kansas, particularly those portions closest to the Colorado line, yet to the great body of the valley it has worked little, if any, detriment, and regarding the interests of both states and the right of each to receive benefit through irrigation, and in any other manner from the waters of this stream, we are not satisfied that Kansas has made out a case entitling it to a decree. At the same time it is obvious that if the depletion of the waters of the river by Colorado continues to increase, there will come a time when Kansas may justly say that there is no longer an equitable division of benefits, and may rightfully call for relief against the action of Colorado, its corporations and citizens in appropriating the waters of the Arkansas for irrigation purposes.

"The decree which, therefore, will be entered, will be one dismissing the petition of the intervenor, withqut prejudice to the rights of the United States to take such action as it shall deem necessary to preserve or improve the navigability of the Arkansas river. The decree will also dismiss the bill of the state of Kansas as against all the defendants, without prejudice to the right of the plaintiff to institute new proceedings whenever it shall appear that through a material increase in the depletion of the waters of the Arkansas by Colorado, its corporations or citizens, the substantial interests of Kansas are being injured to the extent of destroying the equitable apportionment of benefits between the two states resulting from the flow of the river. Each party will pay its own costs."

The last portion of this paragraph is especially interesting as the United States Irrigation Company, a Kansas corporation, has recently started an action against certain Colorado irrigation companies in the Arkansas valley, claiming that they have a prior right to certain waters of the Arkansas.

This involves the broad question of whether priority of appropriation is to apply to the whole stream from source to mouth regardless of state lines, or whether the people of this state, for instance, can appropriate and use all the water to the exclusion of prior appropriations in states farther down the river.

To the person not familiar with the use and distribution of water this may seem to be a very simple matter, and if he has no personal interests at stake he will be apt to decide in favor of priority right on the whole stream. There is, however, another phase of the question, that of maximum beneficial use.

Suppose this case, for instance: A, B, C and D have equal appropriation in the order given. A's appropriation is earlier than B, C or D's, but he is located several miles below them on the stream. Assume that the bed of the stream is sandy, such as is commonly found on the plains. There is sufficient water passing D's headgate to supply three out of four of these rights, but in order to carry A's appropriation down to him we are obliged to run three times his appropriation past B, C and D. That is, we waste twice as much water as we put to beneficial use. Many water commissions in this state have faced a similar problem.

Where there are reservoirs this can be solved by an exchange of reservoir water farther down and nearer A, for the water in the stream near B, C and D. Where no exchanges of this kind can be made the law of prior appropriation requires A to be furnished first, but it would seem that the interest of the public in general would be better served by a more economical use of the water. This matter of interstate water rights has come up between Wyoming and this state in connection with the appropriation on the Larimer river made by the Greeley Poudre Irrigation district.

Also on the Rio Grande river in connection with the Engle dam project of the reclamation service in New Mexico, which was discussed in the daily papers and at the irrigation congress held at Pueblo recently. This is only the beginning of the trouble as the question will ultimately arise between this state and all adjoining states. I would suggest that matters of this kind could be settled far more satisfactorily and with less cost to the states concerned by a commission appointed by each state to be known as the interstate water commission, of the states appointing the same.

In conclusion I would say that while Colorado started on its career as a mining state and has risen to its present importance on that foundation, it does today and will henceforth depend upon irrigated agriculture for its maintenance and further development. —Irrigation Age.

ECONOMY IN THE USE OF WATER.

The science of irrigation is as yet hardly out of its baby shoes, and it goes without saying that the next ten years will witness a tremendous development in this direction. As the principles of irrigation are better understood and practiced, the benefit of them will become apparent more and more. As a matter of fact, irrigation should by no means be confined to arid or semi-arid countries, but can be and should be applied judiciously everywhere, where farmers are raising vegetation. Even countries having an annual rainfall of 40 inches or more will experience at times the effect of a drouth which will cause a complete or partial failure of crops; this could be relieved or entirely prevented where a partial system of irrigation is maintained so that in case of a failure of rains to arrive at the right time the farmer can turn his water into his land and supply the deficiency.

As the irrigated areas are constantly increasing the matter of economic use of water is receiving attention. This is a very important subject and should be followed up with the most persistent efforts. If conservation of natural resources means anything it means that there should be no waste; it does not mean that our forests or water-falls should be fenced in and kept from being used; this would be utterly foolish and keep the people from their heritage; but it means that our national resources should be so handled that they will serve the present generation as well as succeeding generations and hence economy in their use is an important necessity.

Economy in the use of water for irrigation purposes is necessary in order to expand the number of acres available for irrigation. It is easily understood that when the pioneers took hold and developed projects it was done on lines of the least resistance and least cost. Thus water was led along rough ditches to the nearest land and the tracts thus irrigated produced splendid results. No one made inquiries as to the quantity of water which actually leaked away from the ditch and was thus wasted. As the value of irrigated land is constantly rising the value of the water thus wasted becomes apparent and means are discussed and adopted to conserve this wasted water; how to accomplish this result to the best advantage is one of the principal problems in irrigation at the present time. —Irrigation Age.

Drinking a great quantity of water with the meal is a bad habit, for frequently it is taken to wash the food down, and in this way hinders perfect mastication. The diet of the growing child should receive the mother's most earnest care and attention. Variety should be sought for; and salads, highly seasoned meats, pie and all kinds of fried foods should be avoided.

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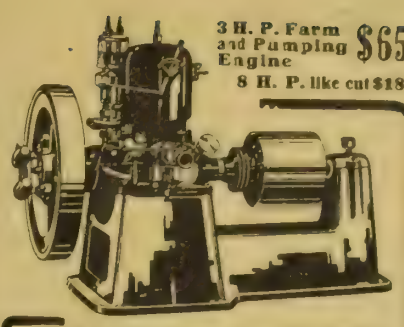

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Entomology and Bees

THE BEST KIND OF BEES.

By W. A. H. Gilstrap, Ceres.

Just what variety of bees to raise or what variety is suited to a given locality, has been very widely discussed. After the black bee was introduced in America during early colonial times, it was simply "Hopkins' Choice," till about 1860, when the Italian bee was safely landed on our continent, and it soon won general preference on account of its many superior qualities. But it was not entirely to the good, as all with which man has to do in this life seems, like himself, to "need fixing."

About 1880 the Cyprian, Holy Land and Carniolan varieties were brought over and later Punics (from Tunis, Africa), Banats, Caucasians and possibly Adells. Adells were bred for years by a man who gave conflicting reports of their origin. They were possibly a sub-variety of Italian or Carniolan. Probably no one now breeds them.

Punic bees were freely advertised about 18 or 20 years ago and sold freely at fancy prices until they became known—that settled them. Still I should like two colonies of them now to build queen cells, which is a very pronounced trait with them and probably the only real superiority of that detestable variety.

Cyprian bees are great workers, but cap their honey with a watery appearance, as the comb is put down on the honey without the usual air space between. Twenty years ago, or more, I bought a colony which was probably pure; they were splendid workers and furious stingers. In my absence some enterprising party wanted their honey and burned the bees to get it. No wonder.

Some years ago I bought Holy Land bees from different breeders, as they were supposed to build queen cells better than Italians, but they proved little ahead with me—not enough to pay for destroying their drone brood every two weeks, and their temper was fierce.

Carniolan bees are better tempered than Italians. When you can handle them without smoke they stick to combs nicely, but are easily shaken off. It does not take much smoke to make them stampede furiously. Their excessive swarming instinct makes strong colonies scarcer than with Italians, despite their wonderful egg laying, when kept in large hives for extracted honey. This is their behavior where the honey flow is light, till July. In that case swarms are due from March to October. Crossed with Italians they are little or no crosser than Italians, do not congest the brood chamber with honey so readily and are surely a pretty bee, but can hardly be trusted in an out yard on account of their swarming, although not so bad in this respect as pure Carniolans.

It is my opinion that Italian bees will maintain their popularity against any bees so far introduced; but it is hard to say what particular type will grow in popularity as the years go by, although Goldens seem to be taking the lead now and there are different degrees of golden. Certainly none of us want bees so dark that they must be filled with honey and placed on a window, as some of the imported Italians are, to see the third ring, unless there is some intrinsic value to compensate. The ability of the Golden Italians to withstand black brood is greatly to their credit. Some bright yellow bees are surely good workers and have good dispositions, while others are not, the same as their darker relatives.

Eight years ago I sold Mr. C. K. Ercanbrack, Lovelocks, Nev., over a hundred queens and was sending more the next spring when foul brood (American kind) broke out strong in my home apiary and I wrote Mr. Ercanbrack that I was done with commercial queen raising on account of the disease; when he replied that he wanted the queens, being satisfied I would use healthy honey in the candy for the shipping cage. This set me to experimenting, reaching the conviction that no variety of bees can withstand American foul brood, and that it is never carried by queens from foul broody colonies if cage provision is healthy. There is no foul brood here of late but I remember it as an enemy.

WHY WOMEN SHOULD "KNOW BEES."

It is very pleasant, indeed, when all the members of a family are interested in the same pursuit. There is a chumminess about it that cannot be obtained otherwise. Take the matter of flowers, for example. If a woman is very fond of them, and her husband regards them as he would so many weeds, then at least a part of her enjoyment in them is taken away. This same truth works out to a greater extent in a business way. Take a bee keeper. If his entire family is interested in bees, his pleasure is greatly enhanced, as well as his profit in the business. No doubt there are many more wives, daughters and sisters of bee keepers that are efficient helpers than we know anything about, for they are very often the silent partners, although their help may be the means of spelling success instead of failure.

In bee keeping, as perhaps in no other business, it is difficult to obtain expert help at the critical time it is needed. So many people are afraid of bees that, indeed, it is almost impossible to obtain any sort of help. In case of sickness of the bee keeper, what a comfort it is if some member of the family is able to run the apiary until he is fully recovered; in fact, that recovery may be materially hastened if the mind is fully at rest in regard to the bees. Indeed, it might in some cases be the deciding factor between life and death, for worry is not an aid to recovery.

Death has left more than one poor woman with an apiary, like a white elephant, on her hands. Perhaps she has been in the habit of doing certain portions of the work successfully, but as to running an apiary independently she is utterly helpless, consequently she must dispose of her bees at whatever she can get for them, and that generally means at great sacrifice. On the other hand, if she is able to care for the bees, she is independent, and can make her own terms. Even if she does not intend to keep the bees permanently, she can hold them until she can dispose of them at a profit.

Wouldn't it be a good plan for every bee keeper to have at least one member of his family perfectly able to care for the apiary in case he should be called upon to do so?

Another important item is well worth considering. Did you ever notice, when two bee keepers meet, how promptly the stream of bee talk begins to flow? One of the chief delights of a bee keeper's life seems to be to talk with some other bee keeper. What a world of comfort it would be to him if a wife or daughter were familiar with the ins and outs of bee keeping, so that he could talk things over whenever the desire should move him.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Loquats Not Bearing.

I have several loquats five years old which have not yet borne. Is there any way to induce them to bear? Trees are healthy and vigorous.—Subscriber, Los Angeles.

Loquat trees should bear at five years of age, though these trees may yet show their quality and prove profitable. The safest way, however, with these trees is to bud or graft to varieties known to bear desirable fruit. Seedlings of loquats, as of other fruits, vary, and while you may secure a superior fruit, it is not probable.

Temperature of San Jacinto.

What is the lowest temperature of the San Jacinto Valley?—Subscriber, Los Angeles.

We will ask some of our San Jacinto subscribers to inform us, if they will, on this point. We have seen orange trees growing in various parts of that section of Riverside County, so we assume it is not very cold, though doubtless there are low sections which might be too frosty for profitable citrus culture.

Citrus Nursery Stock.

Which is the best kind of orange seed to plant for nursery stock?—Subscriber, Visalia.

Probably three-fourths of the nursery stock now being grown is on Florida sour root. In the bearing orchards, the sweet predominates. The greater freedom from gum disease of the sour stock, together with its hardiness and long root system, is causing it to be used more every year.

Bees and Pollination.

Are bees necessary or beneficial in orange or lemon groves? If not helpful to these fruits, what sorts are benefited?—B. B., El Cajon.

We do not think that bees are necessary to the pollination of the blooms of citrus trees, but we do not question they may be an aid to a certain extent. Blossoms of some trees are known to be sterile unless pollen is brought from other blossoms by bees or some insects. This is thought to be particularly true of apples, pears and some others. In any case we would prefer to have the bees around.

Blue Andalusian.

Please give Standard requirements for Blue Andalusian. — Subscriber, Cool.

The Andalusian is next in size to the Minorca, and is larger than the Leghorn. The combs of both male and female are considerably larger than the American type of Leghorn. They are rather more erect of carriage than the Minorca. The shape is a compromise between the Leghorn and the Minorca. While they are Mediterranean in shape, they do not conform exactly to either the shape of the Leghorn or Minorca. They have been bred with a body color that might be described as a soft bluish tint. The main body color is a glossy bluish-black, the feathers edged with a darker shade of color. Beak, shanks and toes of a leaden-blue color; eyes, face, comb and wattles bright red; earlobes white. The most beautiful Andalusians have a softer bluish tint in body color than would be described as a bluish black. This color throughout the female, and upon the breast and underbody of the male, is most attractive. Naturally, the top color of the male is very much darker than the other portions of the plumage. The main tail or sickle feathers are bluish black, which usually conforms to the shade of the breast color. The general description of color for the female would be a lighter shade than the coloring of the male.—Perfected Poultry of America.

Cattle of Denmark.

Answering a query which was made in these columns some weeks ago regarding the breed of dairy animals in Denmark, we have recently been given information by Mr. Pind, a graduate of the University of that country, and he says that the breed is called there the Jylland. It has the black and white characteristic of the Holstein-Friesian, in fact, it may be said to be practically the same as the Holstein-Friesian. Another breed less extensively used in that country is more like the Durham and is a decided red, called by the people there the Angle. Many Jerseys have been introduced, but on the whole the preference is for the larger breed, or, in a word, the dual purpose cow.

Name Wanted.

If "Subscriber, Corning, Tehama County," will write the Cultivator giving his name and sending 50 cents, we will secure for him publication on "Squabs for Profit."

Shoat Blind.

I have a shoat, seven months old, apparently in fine condition, except that whenever he is fed, his eyes, which in their natural position show but slight inflammation, will begin to turn to the rear; this continues until iris and pupil are completely turned back and hidden and only the muscles are seen and fill the eye socket; at first white, when the shoat has fed for a few moments the membrane becomes surcharged with blood and very red; during this time, and until he stops feeding, he is blind. This may be common to you, but as I have never heard of it before I may not be able to help you much in explaining conditions, but I append a few which may or may not have had any influence in the matter: Was not made a geld until he was six months old. Was confined at night with several others in a small, not very well ventilated house where there was considerable crowding. In the field where he and his companions ranged there is a stinging nettle growing, the varfety being unknown to me. All of this lot of pigs were affected more or less in the way of inflamed eyes, but none so much as he. The real cause of his condition may have escaped me entirely, but this is all I can think of, except I might add that they have had but a small ration of corn, most of the feed being rape and vetch.—C. O. N., Bostonia.

This disease is new to me. I should look to the cause as the stinging nettle or some other local condition of irritating dust. I would suggest bathing the eyes with a mild disinfectant. A solution of boric acid is always good. Buy the crystals at the drug store, put into a bottle, and fill the bottle with hot water, then stand it in hot water covered. About 4 per cent will dissolve, which is the right strength to use for bathing inflamed eyes. I should take the pigs out of this pasture until I was sure it was the cause of the trouble. Separate them out, giving the sicker ones the present pen and putting the well

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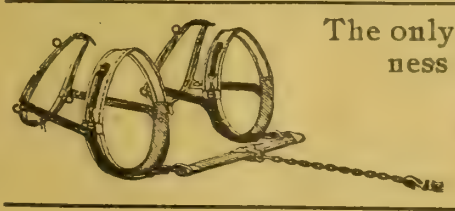

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ones away from them. The turning back of the eyes and bulging of the muscles would indicate a touch of meningitis if it were not for this eye trouble with it. High feeding is sometimes the cause, and if you could stop feeding him at all for twenty-four hours, giving only plenty of water to drink, and then give him green feed entirely for a fortnight, it should change conditions. Tear off some of the boards from the house and put on wire netting in the place of the boards. A pig house ought not in California to have more than three tight sides at any time, and the fourth of netting. This cuts off drafts and makes an airy house.—M. E. S.

Leaf Curling Aphis.

Can I use lime-sulphur spray recommended for leaf curling aphis at this time?—Subscriber, Elk Grove.

This was referred to W. H. Volck, Horticultural Commissioner of Santa Cruz County at Watsonville, and he writes: "The lime-sulphur spray cannot be used after the trees come into foliage, but nicotine spray should be used." The following formula is recommended: "Black Leaf 40" 1 pound (about 1-10 gallon), whale oil soap 10 pounds, water 200 gallons.

Thinning Fruit.

Please give best method of thinning fruit on apricots, also best method of propping or supporting overloaded limbs.—J. W. M., Saticoy.

About the only method of thinning fruit is to thin. Some have gone at it with bamboo poles knocking promiscuously and often removing whole bearing twigs instead of one or two fruits which should be taken off. It is slow and it is expensive, but hand thinning so as to leave a few inches between fruits will give larger and better fruit. The only way to do this is to get right into the trees on step ladders and do the work by hand. If any of our subscribers have a royal road we would be glad indeed to hear from them. Propping may be secured by the use of the ordinary "wire props" which are really short bent pieces of wire so constructed as to slip over a one by two inch strip of lumber or stake. The wire is adjustable so that it may be raised to any height on the strip. The strips are bought by the thousand and of length great enough to reach the higher limbs. Another form of support is a wooden piece shaped so as to fit the limb, attached to which are wires and from them other wires or cords are used to support this limb to another on the opposite side of the tree. These are somewhat cheaper but require longer time to install. This support also claims the advantage of not being displaced by the wind. The use of the ordinary crotched stick is objectionable because of possible injury to bark of the tree, also because of care required to place it firmly.

Branching Young Trees.

I have just set out apricots which I cut back to 20 or 24 inches. Now as the young branches come out on the trunk how long should they be left and how should they be distributed along the trunk?—Subscriber.

The principal factor is to permit those to grow that will make best balanced tree. It is never wise to allow two branches to come out at opposite sides of the trunk. Where this is done the tree is more liable to break. For instance, if four branches are to be allowed to make the foundation of the tree, one coming near the top on the west is balanced by another being allowed to remain a few inches below on the south, still another on the east and again at another place one on the north. Of course, all trees have a character of their own and an ideal distribution cannot always be made. On 24-inch topped trees it would be wise if the branches could be brought out within the upper 12 to 14 inches. The branches should be allowed to grow till the dormant season when they will in turn need topping back, that is, unless one branch seems to be taking all the sap and making all the vigorous growth. Then a pinching back of the vigorous branch should be followed.

Gophers.

What is the best plan for catching gophers?—M., Saticoy.

The best plan for catching gophers is to have a quantity of the best gopher traps the market affords. Some prefer the steel trap; others the box or ordinary wire trap, which has suited us the better. Enough traps should be on hand so that the entire place may be covered at one time. Then an early morning trip over the orchard enables every showing of gophers to be opened up, usually two in each runway. Sometimes a slight excavation above the outside approach is sufficient, but usually we prefer to dig down until the run opens out two ways. A few hours later, or possibly the evening of the same day, a visit will show what work has been effective, and where a gopher has been caught the hole may be closed. There is no necessity of leaving the trap, once a gopher has been secured from a run. If the runs are then tamped shut, any other work will show up the following morning.

A very small quantity of strychnine placed in the middle of a good fat raisin dropped into the run is good for poison. On a very large ranch, where help is limited, poisoning answers very well, but in an orchard where a few hours delay may mean loss of a valuable tree the trap is safer. Instead of the raisin, a piece of potato, carrot, or almost any small similar conveyor for the poison is satisfactory.

Spray for Codling Moth.

Does it require the same strength of Paris green to spray codling moth on apples as on pears? If not, what strength?—Subscriber, Elk Grove.

There would be no material difference in the two cases. We have seen peaches and plums sprayed with the usual strength of Paris green which were injured, but either peaches or pears will stand one pound to 200 gallons unless unfavorable weather conditions prevail. However, we think the arsenate of lead formula given in the issue of November 3 is to be preferred.

Millet.

Will millet do well in this section? How long does it take to mature, and may it be used as second crop after oats?—J. A. M., Tulare.

Millet sometimes does well, but is quite uncertain in its results. On subirrigated land it does better than on land that is not moist enough and has to be irrigated. We have never succeeded in raising it as a summer crop, but have used it for January seeding with good success. Sorghum will give you best success for a second crop here in this region.—M. E. S.

Indigestion.

We have several hundred thrifty appearing incubator chicks from two to three weeks old. Suddenly there will be one or two that look sleepy and full; if let alone they soon become limber and almost lifeless. On examination there proves to be wind in the crop with a dark watery fluid. One that we tried to relieve by massaging the crop got all right, but the others during the same treatment died almost instantly, and from one the liquid ran from the mouth and seemed a little bloody. Pricking the crop to let the air out caused in one instant death. We feed in litter chick food and broken rice, with plenty of grit and charcoal, occasionally boiled rice, corn bread, hard-boiled eggs or cottage cheese for a change. Can you tell us the cause and the cure for chicks thus affected?—G. B. San Marcos.

Your chicks are without doubt suffering from acute indigestion. The usual cause of this in very young chicks is faulty incubation. The chicks have either been chilled or overheated in the last week or the last few days in the incubator. This has so weakened their bowels that they cannot digest the food, which consequently goes bad, ferments, forms gas, the wind in the crop, and finally causes blood poisoning. The sleepiness which you describe is a symptom of poisoning; the limber condition also is another symptom. Older chicks have almost the same symptos from eating musty or mildewed food or chick food that contains bad or spoiled animal food. The animal food may become bad if you have kept it in a damp place, or if mice or rats have run over it. It takes very little to spoil even the best beef scrap if kept in a damp place. Your feeding appears to be all right. Be careful not to cook the cottage cheese too much; it should not be heated above 98 degrees or it becomes so tough and rubber-like that it will give indigestion.

The cure is not easy for any kind of poison; in fact, prevention is here much better than cure. Be very careful to have the food perfectly dry and also smelling sweet and without dust in it. Sometimes a small dose of Epsom salts if the chick seems feverish is a help, and a little bicarbonate of soda in the drinking water, a level teaspoonful to a quart of the water, and a raw egg beaten up with the same amount of olive oil, a small amount of this given every two or three hours. The oil is healing and the egg is nourishing. One teaspoonful of this is the dose for a full-grown hen, and of course less in proportion to the size of a chicken. For a full-grown hen that is suffering from ptomaine poison or limberneck a teaspoonful of castor oil with ten drops of turpentine is the best dose, following it with the egg and olive oil.—A. B.

An Economical Adjunct of the Garden.

Kale.

Will you please give me information about kale, what variety to plant, how much seed to the acre, what time to plant, and its value as a cow food as compared to ensilage?—G. A. O., Oceanside.

Kale is a valuable cow feed, but not as good as corn ensilage—is my impression. I cannot give from memory the names of the stalk variety. Look it up in the nursery catalogues. There is considerable grown around Fresno by Italian gardeners.—M. E. S.

Sulphuring Grapes.

Will you kindly answer if you think it necessary to sulphur Muscat vines that were thoroughly sprayed with bluestone and lime in the winter?—J. H. B., Kingsburg.

I always watch the vines closely. In most of the years the use of sulphur is not necessary, but sometimes there is infection from neighbors, and sometimes the bluestone has been too much washed off by rains in the spring. In twelve years I have had to use sulphur twice in a small section of the vineyard, on eight or ten acres out of two hundred and fifty, so the protection is reasonably certain. After all, in growing a crop of grapes, while we are trying to save all we can, we are not going to lose the grapes for a little extra labor. The Bordeaux certainly does save several hundred dollars every year for us. I hope it may do the same for you.—M. E. S.

Pigs on Alfalfa.

How many pigs will an acre of alfalfa feed when pastured, turning the pigs on when weaned at eight weeks? Will they do well on the alfalfa alone until a few weeks before butchering, or would it pay better to buy grain and feed some with the alfalfa from the time they are weaned until about ten months old? Will have about 100 young pigs, and will have about twenty-five gallons of skim milk a day that we will feed them. Is there danger of cholera in this part of the state, and is there a remedy?—Subscriber.

Twelve pigs at weaning time should find ample food on an acre of alfalfa. It pays well to give them a little grain with the alfalfa to gain increased size and weight. The skim milk is good, and if a handful of rolled barley is added will do finely. Cholera is an introduced disease, and if there is no source of contamination it is not likely to break out. The government has a vaccine for cholera that renders those exposed immune. Write to the Experiment Station, Berkeley, for particulars.—M. E. S.

Locust Posts.

Regarding locust for fence posts beg to say that I have had long experience with all of the hard woods in the East. Also the gum or eucalyptus of this state, and I find that there is no comparison as to keeping qualities when put in the ground, the locus being far superior to any of them I have seen locust post that had been in the ground te nyears and were apparently in as good condition as when put in. As to the time of cutting would recommend the dormant period —S. N. Benton, Azusa.

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Sweeney.

A colt five years old was sweeneyed about a month ago, in the shoulder. Can it be cured?—Subscriber, Orange Vale.

The subscriber does not state whether the animal has been lame. A perishing of the muscle without lameness is not a serious ailment, though sometimes difficult to remedy. Prepare a liniment by mixing turpentine one part, ammonia one part and sweet oil two parts, and apply this twice daily with vigorous hand rubbing. If after three or four weeks this has failed, consult some qualified veterinarian regarding subcutaneous injections.—F. G. M.

Weak Tendons.

A draft colt two days old walks on its ankles or fetlocks. The front cords seem to be contracted, and the back ones relaxed. Kindly prescribe through the Cultivator and oblige.—Subscriber, Winchester.

Young colts with relaxed tendons usually recover without treatment. As the muscles gain strength the tendons gradually assume their functions. However, if improvement is doubtful or too slow, braces or splints may be bandaged to the limbs, extending from a point just below the knee or hock to the bottom of the foot. Guard against excoriating the skin by padding well with cotton before bandaging.—F. G. M.

Abscesses.

A cow five years old, due to calve in May, has two lumps on her side. Eight weeks ago one lump broke and discharged bloody pus, but closed again, and now it has grown to be larger than before.—Subscriber, Porterville.

Puncture the abscesses with a sharp knife, press out the matter, and fill the cavity with a strip of clean cloth saturated with tincture of iodine. Remove and renew the dressing once daily.—F. G. M.

Discharging Sore.

On the dge of my horse's ear near the head is a sore which occasionally discharges pus resembling vaseline. Kindly describe and advise a remedy.—Subscriber, Mt. View.

A deformed tooth sometimes grows on the bones which contain the vital organs of the ear. Fluids forming around the tooth may erupt at the base of the ear. This, the surgeon would consider as one of the possible causes of the trouble. Endeavor to locate the irritant, which may be a thorn, splinter, tooth, etc., by carefully introducing a slender probe into the tract. An operation is the remedy suggested.—F. G. M.

Wire Cut Involving Joint.

About one month ago my horse was cut in front of the hock joint by a barbed wire. The wound seemed to be doing well until a few days ago when a knot which appears to be proud flesh came out of the cut place. Now it has opened at another place on the joint. The joint is swollen and the horse is very lame. In your answer please tell me how to treat proud flesh.—Subscriber, Button Willow.

The symptoms given indicate that the joint is open and the synavia or "joint water" is escaping. If this opinion be correct the horse may not recover. Bathe the limb twice daily with water as warm as can be endured and cleanse the openings by injecting peroxide of hydrogen with a syringe.

Exuberant granulations ("proud flesh") may be removed by the use of powdered bichloride of mercury rubbed into the raw surface every fourth day. Cleanse the surface with dry cotton before applying the powder. Do not apply the powder when the wound is bleeding. Discontinue treatment when the granulations are reduced to a level with the skin.—F. G. M.

Liquid Sulphur?

In prescriptions for the cure of mange and itch you have suggested the use of liquid sulphur. A "Liquid Sulphur Compound," which is a patent preparation, seems to be the only form of liquid sulphur obtainable and this is expensive.—Subscriber, Jamacha.

Presuming that druggists conceded the so-called "Liquid Sulphur Compound" to be practically the same as the concentrated solution of lime and sulphur recommended by the Bureau of Animal Industry for parasites of the skin, it was supposed this preparation would be supplied. The concentrated solution may be prepared by mixing lime (freshly slaked) 10 ounces, sublimed sulphur 16 ounces, then add the mixture gradually to one gallon of boiling water and boil under constant stirring about 1½ hours; allow the solution to stand till clear and pour off the reddish brown liquid for use. When using dilute with two parts, or an equal quantity of boiled oil. An inexpensive but reliable remedy for various skin diseases.—F. G. M.

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Account Due Wife from Husband.

If a woman separated from her husband and he returned and agreed to buy poultry from her at a certain price and took them away without paying for them and later she returned to live with him and he traded the poultry for pigs and later sold the pigs and refused to pay his wife, can she secure payment for her poultry?—C. J. M., Kerman.

A wife has the right to sue her husband for money due her the same as she might sue any one not related to her, and a lawsuit seems to be the only way to finally terminate such family disputes. If they are not amicably adjusted, they generally result in a divorce case in which property rights are settled by the court.—E. L. P.

Location of Corner.

A quarter corner on east side of Section 5 with government mark was found to be 40 feet north and 20 east of where the corner is placed when straight lines are run from section corners established from other government monuments. This stone was found eleven years ago and location recorded by surveyor when surveying the southeast quarter. Witnesses certify that it was loose at that time and the surveyor recommended that it be made secure; it was then cemented in place. Using this stone as corner it makes crooked lines. If the matter is taken to the courts what would be the decision in the case?—Subscriber, Pomona.

I presume that the subscriber desires to know whether the stone monument or the lines as they should be run, govern the description of the lands cornering at the quarter corner mentioned; but he does not state the claims of the respective owners of property cornering at that place, so that it is only possible to answer the question in a very general way. When permanent and visible or ascertained boundaries or monuments are inconsistent to the measurements, either of lines, angles or surfaces, the boundaries or monuments are paramount. Between different measurements which are inconsistent with each other, that of angles is paramount to surfaces, and that of lines paramount to both. As the inquirer seems to know for a certainty that the stone monument is out of place, and as it is apparently not a government monument, but one set in place by some private individual during the course of survey for his own benefit, it might be moved back to its proper place, and in the absence of any objection from adjoining owners, because of adverse possession of land up to the present location of the monument, or for some other reason, the correction might go unnoticed and become permanent.—E. L. P.

Residence in School District.

I am owner of land in two school districts, pay equal taxes in both Have I the right to send my children to either district, or can I be compelled to send children to district I am living in? Live close on line.—Subscriber, San Luis Obispo.

The inquirer is required to send his children to the school in the district in which he resides, unless he obtains permission, for some good reason, to send them to some other school.—E. L. P.

Contract Purchase.

Having purchased land under a time contract agreement, and paid down one-fourth of purchase price, find I can not make next payment on date it falls due but can pay all interest. Can I be put off this land immediately? To whom do the buildings I have erected on this land belong? The contract does not mention them.—H. W. H.

Whether the purchaser can be put off the land, depends entirely on the terms of the contract. A contract usually provides that time is of its essence, and upon a failure to perform any of the conditions required to be performed by the purchaser, the purchaser forfeits all rights and all moneys theretofore paid. Such terms can be waived, and it is impossible to give an answer to the question that would cover all possible conditions without making it too lengthy.

Assuming that you have forfeited your rights to the land under the terms of the contract, any buildings you have placed thereon would belong to the party from whom you purchased, if they are not mentioned in the contract.—E. L. P.

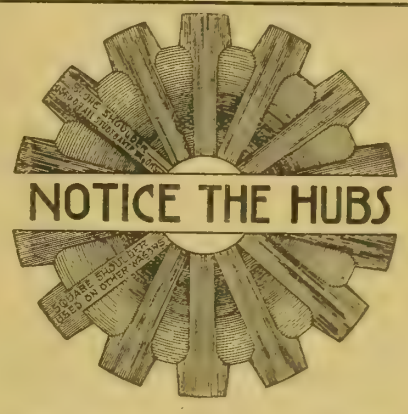
Half Sister's Share in Estate.

A (unmarried) died, leaving no will, and leaving no heirs except a brother and a half-sister. A's estate was acquired by his own earnings. All of A's estate went to A's brother. Was A's half-sister entitled to share in the estate? And if so, how would she proceed?—F. W., Los Angeles.

Kindred of the half blood inherit equally with those of the whole blood in the same degree, unless the inheritance came to the intestate by descent, devise or gift of some one of his ancestors, in which case all those who are not of the blood of such ancestors must be excluded from such inheritance. The sister should have petitioned the probate court in which A's estate was probated, for her rights, and not having done so, provided said estate went through the probate court, she has possibly lost all opportunity. If the estate was not probated, the sister can apply for letters of administration in the county in which the brother died, and can then have the probate court take jurisdiction of the property, and probably divide it. If there were probate proceedings and she had notice of those proceedings and did nothing, it is probably the best thing for her to in person consult a lawyer to whom she can detail all of the circumstances, and there might yet be some opportunity, if all of the facts are stated, to secure her share of the estate, unless she is excluded by the above paragraph.—E. L. P.

CELERY FERTILIZER.

A good celery fertilizer must be rich in nitrogen and potash. Well-rotted barnyard manure and unleached wood ashes are excellent, but where these materials cannot be had, commercial fertilizers containing a liberal amount of the above-mentioned elements will aid the crop beyond the belief of the inexperienced. Nitrate of soda will furnish nitrogen and kainit, sulphate of potash, or wood ashes will furnish the potash.—Michigan Farmer.



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See my article in Covina Argus, March 25th, on this subject.

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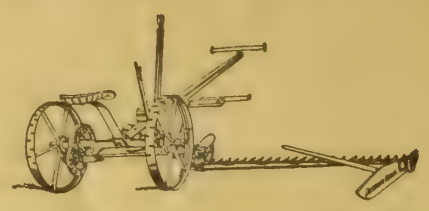

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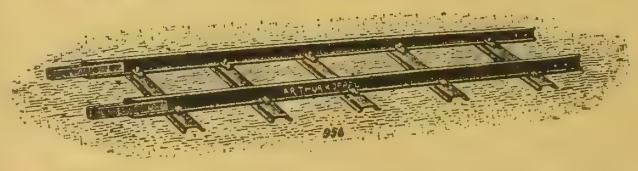

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Timely Ranch Suggestions

CAVE-MAN TO "CHOFER."

By John G. Bramhall.

Nearly fourteen thousand automobile licenses in California last year, and nine thousand the year before; probably twenty-two thousand this year! The honking habit grows with what it feeds upon. Thirty thousand automobiles chu-chuing up and down between San Diego and Klamath! What do you make of it? Is it all up with the horse? And is Ranchero's occupation gone? Not so. If we look carefully we will see that the joy-rider is passing, and the business man, including those of agricultural business, is coming into his own. Time was, when the old farmers shook their heads at the fast horse and the light road wagon, just as they shook their heads at the stage coach, and later the locomotive. And the cave-man, bewailed the reckless tendency of the times when his boy first put a bridle on a horse. But when the men on horseback started out to the hunt, the cave-man got left. Such is life.

"Of all the inventions of man," says Macauley (abbreviated), "the compass and the printing press alone excepted, those which abridge distance have done most for the benefit of mankind." The progressive man seeks to abridge distance and time. Make out as good a case for the tortoise as you can, we all realize that the hare is the superior animal, while alive. With all his reputation for steadiness on the job, there is no record that the shell-back was ever selected for express messenger. And the shut-in man is the cave-man; the man with an auto, whose son is perhaps building an aeroplane, is the free man, who lives and grows in the world of men.

California, thanks to the automobile, is doubling in area. The regions which cannot be reached, or which cannot communicate with the outer world, except in a very limited period of the year, and with much labor, are as if they were not, and their people might be skipped by the census man without much loss. But the power-wagon helps them out. The little gasoline spark is the Promethean torch, and all that sort of thing. One cannot but notice that the automobile, if we strike an average, is losing its character of luxury and exclusiveness and is becoming a business wagon, equivalent to a four or six-horse team. The old farmer never shakes his head at a four-horse team, especially if they are Percherons or Clydes. True, the auto used to get stalled, when it was young, but now it pulls out the stalled team and climbs the hill where the farmer used to lighten his load. The auto gets there, all right. And it brings the isolated valleys to the railroad and doubles the value of the way-back acres.

The Kansas bankers a year ago became conservative and felt it their duty to curb the reckless extravagance of the too prosperous farmers who were crazy (that was the word) to invest in automobiles. No matter if the farmer had a valuable property, clear of mortgage, he was told, gently but firmly, "no loans for motor cars." The farmers resented this guardianship, and many banks lost heavily in deposits. It is very true that "the autos take money out of the state." It is estimated that Kansas despite all remonstrances, has at least 12,000 cars, costing say $1000 apiece, $1,200,000 taken out of the sunflower state and sent east. And Nebraska has about 14,000; Oklahoma, (where the family conveyance consisted of a couple of tent poles drawn by a cayuse) has 8000 honk-wagons; Missouri, 14,000; Texas, 15,000, and so on. Over six million dollars, and half of it farmers' money, sent out of these five agricultural states to eastern manufacturers! But are there no returns, no compensation?

The writer of this talked recently with the manager of one of the leading automobile agencies in California. "Not a single automobile," he said, "so far as I know, has been sold to a man who had to borrow the money, and all paid cash. I am talking of sales to ranchers and farmers. The machines are not bought as a luxury, to satisfy a craving for speed, or an ambition for style, but as a necessity of their business, because gasoline power is cheaper and handier than horse power. The farmer who has once bought an automobile is like a woman who has bought a sewing machine or a power churn; he wonders how he ever got along without it. No, the farmer has little trouble about managing his auto and keeping it in repair; he has less trouble and expense than the city man, by half, because he knows how to handle machinery. I could give you instances by the score of farmers using the auto to carry cream or other produce to market, to go to town for needed supplies, or to carry their children to school. The auto is just as much a necessity for the farmer as is his team and wagon; in fact, it increases the efficiency of his teams without increasing the expense for feed."

And thus the original purchase money is brought back. We do not find people complaining of the extravagance of buying machinery for farm and manufacturing purposes, on the ground that it is sending money out of the country. We applaud every enterprise that tends to increase production and to multiply earning capacity. It is therefore a matter of gratification that the labor saving and time-annihilating automobile is multiplying in the land and that the introduction of power vehicles for freight purposes and general hauling, traction engines for miscellaneous farm work, etc., is growing. At the state and county fairs the uses to which the gasoline motor may be put in threshing, sawing wood, running feed grinders, and dairy machinery, pumping water, etc., as well as plowing and hauling heavy loads over rough surfaces, is practically demonstrated, and the uses of the auto fire engine and the auto school wagon are beginning to be realized.

The Kansas banker, it is reported, is no longer nervous about the farmer's extravagance, and the California banker, so far as we have been able to learn, has manifested no apprehension in that direction.

Are you wishing for something far beyond your reach? Go to work at once to make yourself fitted for that goal. Be true to every duty of today, remembering that it is by doing more than is required that you can fit yourself for a better tomorrow. And it may be when you least expect it that the better days will come.

RURAL SOCIETY.

Prof. L. J. Bailey, Cornell University.

The business side of farming has been so successful that the farmers have been able to move to town at fifty years of age, and so the country has been robbed of their influence in many ways, their farms have gone to tenants, and the social life has been broken up. Our state of civilization has not been successful in developing a type of country life that would wish to remain in its environment.

The easier questions have largely been settled, but we shall never develop a satisfactory system of country life until we settle the hard questions as well, the better schools, better roads, better church and social advantages. We shall even develop a better skill in farming than many of us have ever dreamed of.

I wish to ask you, as well as myself, whether the American farmer will hold his own. Will he be able to so manage his resources and privileges that he shall be able to remain on the land and become a part, an enduring part, of its social civilization? These are some of the most important questions before us today.

Cities always destroy; they never produce. The city sits like a parasite on the face of the country, absorbing the best from the country. The country always contributes to the city; the city never to the country. The cities could not exist but for the country. We have developed the city civilization beyond that of the country.

The first necessity is going to be to send broadly-trained men and women to the country. The weak spot is back of its business conditions. We must seek further than that. Concentration of all the forces that make for social betterment is one of the prime needs. The educational propaganda will be more effective than any other. A large part of the unrest comes from the poor school privileges that are too common in the country.

Let city and country folk work together on every public question; each is necessary to the other. Country people do not have a chance to express themselves by ballot or otherwise on city matters, and the larger proportion of population in the cities dominates the country to a certain extent.

Financial interests are now dominant; we shall pass that stage, and have a better social condition. It will take twenty-five years to balance up our society. Out of the movement will come presidents and country statesmen and a few governors. I hope it will not become a political movement. I will use all my influence to prevent the country life movement from having anything to do with partisan politics, because the movement is founded on facts, and not partisanship. I fear the conservation movement is to suffer by political favor. It is almost impossible to discuss in a sane and unprejudiced and scientific way any public question into which politics has entered. The tariff has been a conspicuous example. It has been impossible to discuss that sensibly for fifty years.

We must develop the ideals in this industrial civilization. There must be something in every business beyond financial gain if it is to make any final contribution to civilization. Developing agriculture is only a part of industrialism. A new social order must be developed in the open country, a new civilization, and every farmer must lend a strong hand.

We have been training our young men to be better farmers, but in that we have trained only one hand, the hand of individualism; we must now train the hand of social brotherhood. The open country must be made over, because civilization must be made over. The next generation must set themselves definitely to this work. In the consolidated school the children of the farm may be given the education suitable to their surroundings, and it may be made a rallying place for the community. The rural library is a fact, and I would not forget the country church as a great factor in what is to be a newer and better social state in the country.

We must develop the fighting edge. When a man ceases to be a conqueror he loses vitality. Militarism must pass out, but this does not mean that mankind must cease to contend. Being compelled to strive makes us strong. The Panama canal is the greatest humanizing experiment of the age. It is worth more in developing the fighting edge than ten times its size of armies. We must develop the fighting edge in argicultural combat, offset the effect of climate, insect enemies and fungous diseases. We may have made a mistake in teaching that farming was an easy occupation, when it is not, and never will be, because nature is its antagonist. It is a constant contest. We are now digging into our young folks the courage of science.

Agriculture is going to attract the hardy and rugged in the future, as it has in the past, who like to steel themselves against a worthy antagonist. I want every farmer to have in him the spirit of challenge, the fighting view. You can never develop a strong civilization until we do it. The open country must solve its own problems. It must have help from everybody and every source, but, after all, the country man must prepare himself consciously for it. This means we must have leaders.—Kansas Farmer.

EXPANSION BY THE GLUCOSE TRUST.

The Wall Street Journal reports that an official of the Corn Products Refining Company has stated that the company has gone into the business of manufacturing jams and jellies and is interested in others in the manufacture of molasses. We don't know how molasses is "manufactured," as we thought that was essentially a by-product of the sugar industry and that molasses could not be made as such. The Glucose Trust, however, is capable of wonderful things. During the last season it acquired the Novelty Candy Company and has been carrying on the candy business and is about to secure complete control of the St. Louis Preserving Company, in which it has held an interest for some time before. This latter company, in the production of jams and jellies, consumes about 25,000 barrels of glucose per year. It is the intention of the officers of the Corn Products Refining Company to erect a new plant for the manufacture of these jams and jellies at Granite City and to begin selling them under the Refining Company's own name. The reason given for entering into these new lines of business is to increase the consumption of glucose. An example is given in the candies of the Novelty Candy Company, in which an average of 50 per cent of glucose is used, while the National Candy Company in its products uses but 15 per cent. Many preserving companies use apple waste in their jams and jelles, because they say the public prefers it. The Corn Products Company uses about 80 per cent glucose in its preserves and is endeavoring to teach the public that its product is the better, by reason of this greater percentage. May the Lord help the consumers!—Louisiana Planter.

The Kerman Creamery has opened a milk-receiving depot at Dos Palos.

In the Cultivator of April 13, Mr. Tuohy, of the Tulare Grange, stated: "Perhaps the best object lesson in Grange co-operation in California is that of Soquel Grange. This Grange has made definite arrangements with the Rochdale store at that place to get certain articles at prices covering the cost of handling only to the Rochdale."

In reference to this, Mr. Arthur May, business agent of Soquel Grange, writes:

"I am not fond of rushing into print, but an article in the Cultivator of April 13 impels me to do so. Mr. John Tuohy, of Tulare, is certainly under a serious mistake. The Rochdale Store of Santa Cruz is not in the least connected with the Soquel Grange. I do the whole of the buying and selling of poultry foods for the Soquel Grange members, and have for over two years."

The foremost method of cultivating alfalfa is with the disk harrow, one of the most excellent farm implements ever invented. Alfalfa sown in the fall is almost invariably helped by disking the following spring, with the disks set quite straight, so as not to cut the crowns but to split them. It is usually well to follow this disking with a tooth harrow, with its teeth set straight. Occasionally in a dry summer the disk may be used to great advantage after the second, and possibly the third, cutting also. Many disk their alfalfa fields every spring, and some after each cutting; others do so only once in every two or three years, owing to weather conditions and the conditions of the alfalfa. In some instances the common harrow is used instead of a disk.

The disking has several beneficial effects. It splits and spreads the crowns, causing more and consequently finer stems to spring up, affording hay of the most delightful quality easily cured; it loosens the soil about the crowns, conserves moisture and destroys the weeds. There need be no fear of killing the plants if the disks and the harrow-teeth are set straight and weighted or otherwise adjusted to give direct and steady forward movement. As an implement for the cultivation and invigoration of an alfalfa field the disk harrow has no equal, and its frequent use is by those who know it best deemed quite indispensable.—From Coburn's "The Book of Alfalfa."

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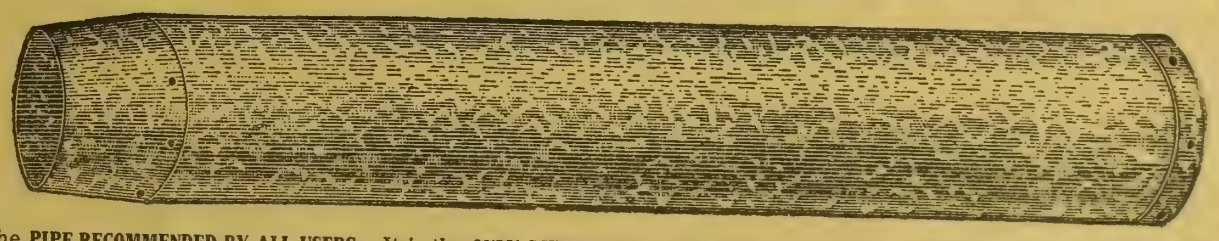

The **PIPE RECOMMENDED BY ALL USERS.** It is the **ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE** on the market. **THERE'S NO ROUND SEAMS TO LEAK,** retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a life-time. For irrigating alfalfa it is the only pipe to use. We make **RIVETED PIPE AND TANKS.** Write for Illustrated Catalogue, also **SPECIAL IRRIGATION FOLDER** which may mean much to you.

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10,000 feet	¼-inch Standard, at	1c per foot
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25,000 feet	½-inch Standard, at	2c per foot
20,000 feet	¾-inch Standard, at	3c per foot
36,000 feet	1-inch Standard, at	4c per foot
20,000 feet	1¼-inch Standard, at	5c per foot
30,000 feet	1½-inch Standard, at	6c per foot
50,000 feet	2-inch Standard, at	8½c per foot
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1,000 feet	10-inch Diamond B. X. 40-lb. Special Casing, good as new	$1.00 per foot
1,000 feet	11⅝-inch Casing, at	$1.00 per foot
1,000 feet	9⅝-inch Casing, at	75c per foot
2,000 feet	7⅝-inch Casing, at	45c per foot
20,000 feet	5⅝-inch Casing, at	32c per foot
30,000 feet	4-inch Casing, at	19c per foot
30,000 feet	3½-inch Casing, at	16c per foot
20,000 feet	3¼-inch Casing, at	15c per foot
25,000 feet	3-inch Casing, at	14c per foot
50,000 feet	2-inch Casing, at	6½c per foot

WATER PIPE—Riveted Dipped Pipe

10,000 feet 24-inch Riveted Pipe, dipped, good as new	80c
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10,000 feet 8-inch Riveted Pipe, dipped, good as new, 16-guage	25c
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20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.	

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20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74310 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—Fine young Jersey bull, dropped August 6, 1909; sires St. Lambert of Ramona, 62633; dam Comma of Ramona, 202577. Solid color and an animal perfect in every particular. This splendid combination of St. Lambert and Pedro stock means a siro fit to head the best thoroughbred herd. See or address W. E. Vallentine, Sterling Milk Co., R. F. D., Corona, Cal.

For Sale—I pair Toggenburg kids, buck and doe, 2 months old. These are from the stock advertised by Mr. Lobingier in the Cultivator last year. Price $10 for the pair, crated and put aboard train. C. E. Strohl, 1236 17th St., San Diego, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Registered Yorkshire Boars. The Yorkshire is the greatest bacon hog in the world. Address Joe M. Regan, De Luz, San Diego Co., Cal.

Berkshire Pigs from registered stock, four months old, both sexes. B. de Groot, Aptos, Cal.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

For Sale—Thoroughbred Cocker Spaniels. They are registered and the best there is. Call or address 1117 Rowan Ave., Los Angeles, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big-paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, L 448 Marden Bldg., Washington, D. C.

Wanted—To rent to a reliable dairyman, an alfalfa ranch of 150 acres; 125 acres in alfalfa, balance pasture; fenced and cross-fenced. New buildings. Abundance of water, both ditch and pump. 7 miles west of Porterville, 1½ miles to creamery, church, school and blacksmith. Will rent for a term of years either for cash or on shares. References required. E. A. Marshall, R. F. D. 1, Box 90, Porterville, Cal.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Wanted—Situation to keep ranch accounts by a competent bookkeeper. Address Thomas W. Ward, 520 15th St., Oakland, Cal.

MACHINERY.

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, harness, disc, gang, walking, riding and side hill plowers; slip, Fresno and wheel scrapers; header, baler, seed sower, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.

8 ft. steel Star, tower, tank, tank house, pump complete, $39.00, or $42.50 on cars; 10 ft. steel Aermotor, steel tower, 3000 R.W. tank, 20 ft. stand, 100 ft. 2-inch galv. pipe at ½ new price; also many others. Several gasoline pumping plants.

TANKS, TANKS, TANKS.

50 gallons to 50,000. Special price on 25,000, 30,000 and 50,000 gallon; 15,000 on 20-ft. stand, 5,000 and tank house. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—Complete pumping plants, new and second-hand. Electric and gas engine driven. All sizes. Send us your details for our recommendations, irrigating appliances and pipe molds. We can save you money on your installations. H. U. Roeding & Co., Foxcroft Bldg., San Francisco, Cal.

For Sale—Self-feeding Southwick hay press, good as new, with derrick, new cable, good Jackson fork, scales and buck rake. All for $200.00. Also three other good second-hand presses cheap. Address Frank M. Jones, R. F. D. 3, Box 487, Los Angeles.

For Sale—25 H.P. distillate engine, thoroughly overhauled and guaranteed for year. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—9 H.P. Foos engine. If you want a genuine bargain you cannot afford to miss this opportunity. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles Phone Sunset Main 7496.

NURSERY STOCK.

For Sale—Sour Orange Seed Bed Stock. Clean and thrifty, having excellent fibrous roots. $3.00 per hundred, $25.00 per thousand. We ship safely to all parts of the country. Armstrong Nurseries, Ontario, Cal.

For Sale—Orange seed bed stock of the Sweet and Trifoliate varieties. Write for prices. L. L. Thomas, Exeter, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Barbara, Cal.

For Sale—1000 first-class 2-year-old Valencia orange trees. Stock on Greystone Ave., Monrovia. Address for particulars, W. S. McQuilling, 125 N. Fair Oaks Ave., Pasadena, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

For Sale—Choice Fawn and White Indian Runner Ducks from prize pen. Eggs $1.00 per 13. W. E. Hunt, Hemet, Cal., R. F. D. 2.

TREES.

500 Washingtonia Robusta Palms in 5-gal. cans for sale at a bargain; also Washington Navel and Eureka Lemon trees for sale. We still have a quantity of Eucalyptus Rostrata and Tereticornis which we are offering at a sacrifice. Write at once for our prices. Covina Nurseries, Covina, Cal.

For Sale—About 3000 each of Washington Navels and Valencias, 1 to 2 ft. high, at 35c each. Also several thousand each of Washington Navels and Valencias, 2 ft. high and upwards, branched, at 50c each. All the above are 1-yr.-old buds; guaranteed clean, healthy, vigorous trees. Carroll B. Smith, Box 9, Redlands, Cal.

One thousand one and two-two Eureka Lemons, two thousand two-year Valencias, sweet and sour orange seed bed trees, five hundred camphor trees. Southland Nurseries, F. H. Disbrow, Prop., R. D. 1, Pasadena.

Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seed bed stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For Sale—Very cheap, 2000 choice navel or lemon trees, early 1912 delivery; care guaranteed. Half cash deposit required. O. E. Van Slyke, Glendora, Cal.

For Sale—1500 1-year-old and 800 6-months-old Eureka Lemon trees in good, healthy condition. W. N. Kenyon, 609 Lorena St., Los Angeles. Phone Home 41767.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

MISCELLANEOUS

Panama Canal—Panama and Canal reproduced. 100 pages. 20 illustrations. Map and profile. Sent postpaid for 25c. C. C. Muldner, Publisher, 2861 Laclede, Maplewood, Mo.

Make Your Own Fireless Cooker. Illustrated full instructions and plans 10 cents. Information free. Write today. Address, Eureka Supply Co., 427 Pacific Building, San Francisco, Cal.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nursery, Pasadena, Cal.

FARM LANDS WANTED.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 12 Palace Bldg., Minneapolis, Minn.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Bronze Turkey eggs $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J Rhode Island Red and White Leghorn eggs and baby chicks.

White Holland Turkey Eggs from large, vigorous stock, 35c each. Poults, May 16th, 50c each. Also gobblers, $7.00. Mrs. Hocking, Guasti, Cal. Winner of 1st prize, Los Angeles, 1911.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

Agricultural Implements—Vehicles.

Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

For Sale—One 5-passenger Winton auto, extra tires and inner tubes. Also one autocar runabout, fully equipped. M. Jacobs, 201 Howard St., San Francisco, Cal.

POULTRY

Lasher's Hatchery, 15 Kent St., Petaluma, Cal.—Why my chicks live and grow in the hands of my customers, they are all hatched from free range stock, bred right, mated right, fed right. I have the most up-to-date hatchery building in the country, built of brick, with dead-air space in wall, giving me a uniform heat that means strong, healthy chicks; 16 years in the hatching business, 10 years at present stand. It is no experiment or guesswork with me. Prices per 100, White Leghorn, $7.25 and $8.50. Leghorn-Minorca cross, $7.25. Black Minorca, $10.00. Terms, cash with order.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

White Orpington and White Wyandotte eggs for hatching. My winnings at Los Angeles 1911 were 1st cock, 1st hen, 1st and 2nd cockerel and 1st pullet on White Wyandottes. White Orpingtons, 1st, 3rd, 4th and 5th pullets, and 2nd and 4th hens. Eggs sell at $3.00, $5.00 and $10.00 per 15. Order direct from this ad and your order will receive my most careful attention. A. W. Huskins, 713 Waterloo St., Los Angeles, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Buff and White Leghorns of good quality. Best yard of White Leghorns, headed by a cockerel from Knapp Bros.' Buff Leghorns, Demlow's strain. Eggs for hatching $1.00 per 15. A. C. Hayes, St. Helena, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. Eggs for hatching $5.00 per 100. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

White Rocks and R. I. Reds—A few select cockerels for sale. Will make grand breeders. Stock Hoganized and bred to lay. Prices reasonable. A. G. Lyle, Cupertino, Cal.

Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene, Waukena, Tulare Co., Cal.

Eggs from our famous winter laying strains of trap-nested bred to lay Rose and Single Comb Rhode Island Reds. $1.50 per 15, $6.00 per 100. A. L. Harmon, Glen View Poultry Yards, Pasadena, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

The Goodacre Strains—Send for our new mating list with illustrations of Goodacre Quality Buff Orpingtons; R. I. Reds; White Leghorns; Anconas; White Runner ducks. Goodacre Bros., Compton, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Petaluma Hatchery—Capacity 50,000 eggs. We are booking orders for spring. Write for circular. L. W. Clark, 615 Main St., Petaluma, Cal

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Baby Chicks—White and Barred Rocks, White Leghorns and Black Minorcas. Eggs from my own hens, and incubated right. They will live and grow. J. W. Lyon, R. D. 1, Gardena, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock L. V. Peterson, Guerneville, Cal

Very Fine Strain Barred Rock, S. C. Black Minorca, R. I. Red. Chicks $14.00 per 100; eggs, $1.00 per setting of 15. All pure thoroughbred, guaranteed. R. B. Sherman, Newcastle, Cal.

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox Box 302, San Luis Obispo, Cal

Houdan Eggs, $1.50 per 15, $4.50 per 50. Pen headed by prize winner. Mrs. Hocking, Guasti, Cal.

For Sale—Day-old chicks. Rhode Island Reds, 12½c, and Barred Rocks, good stock. S. Stone, Moneta, Cal.

White Wyandotte Eggs, bred only from 200-egg birds. 15, $2; 100, $10. Hand & Hand, Inglewood.

White Leghorn Baby Chicks, $8.50 per hundred. Eggs $4 per hundred. A Frederiksen, Arroyo Grande, Cal.

Kellerstrass White Orpington Eggs, $2.00 per 15; $12 per 100. R. L. Warren, National City, Cal. R. F. D. 1.

POULTRY

1889-1911—Barred Plymouth Rocks, Ocean Blue Strain. Birds of our breeding made a phenomenal record in the hands of our customers this season. Won first place at five of the largest Coast shows, besides many shape and color specials. Fourteen silver loving cups were won by this strain. We won in every class at the big Los Angeles Show—something no other exhibitor of Barred Plymouth Rocks can claim. Every female in pullet pen for this season is a winner either in pens or singles. Every male heading cockerel mated pens this season is a winner either singly or in pens. We are ready now for your egg orders. Same old price—$3 and $5. Mr. and Mrs. D. T. Wieland, Moneta, Cal. Take Redondo car via Moneta avenue. Get off at Illinois street, right on ranch.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

This is My Last Notice for the Season. Those who desire eggs from either "Kellerstrass" White Orpingtons or Buff Wyandottes should write at once and book orders. Orpington eggs 20c each, Wyandotte 10c straight. Good stock. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

White Leghorn and Black Minorca hens, one year old; fine layers. B. de Groot, Aptos, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Barred Rocks exclusively. Eggs $1.50 and $3.00 for 15. Hatched chicks 15c and 20c each. Fine young stock later. Correspondence solicited. G. L. Hawley, Madera, Cal.

Single Comb Brown Leghorn Eggs—$5 per hundred, $1.50 single setting. Mrs E. Foran, Box 445, Visalia, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

FARM LANDS FOR SALE.

Owens Valley offers to the farmer unusual opportunities for diversified farming. With the elevation of 4,000 feet, no fogs, abundance of mountain water running by gravity, a disintegrated granite soil, having been washed from the mountains for centuries, a growing condition is created, the results of which are almost unbelievable.

Alfalfa, as high as four tons to the cutting; timothy with 10-inch heads; from 350 to 500 bushels of potatoes to the acre; as fine Spitzenberg and Winesap apples as grow in Washington and Oregon; a hog, cattle and poultry country that we believe is superior to anything in the State, and, on top of this, the most delightful climate and wonderful scenery.

Surely any farmer figuring on making a change should at least investigate Owens Valley before deciding. Buying a farm is buying a home, and it may be that you will spend the rest of your days on the next farm you buy. Certainly it is worth very serious thought. We want to mail you booklets and pictures, which will tell you a complete story of Owens Valley. The James R. H. Wagner Co., 329 S. Hill St., Los Angeles. Room 10.

40 Acres, near Dinuba, Tulare County, ¼ mile from Southern Pacific, 3 miles from Santa Fe, within 3 miles of three towns; all dry. Accredited high school, telephone, rural delivery. First-class soil, level and under irrigation in best and cheapest irrigation district in this state. Water right with land. Produced 14 tons dried peaches and 25 tons raisins in 1910. 2 acres variety fruits and nuts, over 100 varieties. 2 acres pasture. Plastered cottage, large tank house with 3 finished rooms. Excellent water piped to house and barn. Work shop, fruit, poultry and wood houses. Fully equipped for fruit drying with trays, boxes, transfer fruit car and steel track throughout. Everything about place in first-class shape. $1500 worth personal property. Everything goes with ranch, including furniture. Price $14,000. For terms address owner, Chas. F. Collins, Dinuba, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $120 per acre; your crops pay for the land. Rich level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

Dairy Ranch For Sale—160 acres in San Joaquin Valley; 7-room house, stable, fenced and cross-fenced. Plenty of flowing water to irrigate the 160 acres. 80 acres in alfalfa, balance alfalfa land 12 miles from R. R. Good roads. $100 per acre, ½ cash. Will also sell the cows if desired. Inquire of Geo. W. Berry, of Berry's Market, Whittier, Cal.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property to value of $8,000 or $10,000. Price $6 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

200 Acres Good Level Land—13 A. orchard, shade trees; 12-room house; 2 barns, windmill and tank house; fruit houses, cream separator; engine; etc. Price $21,000. 12 A. orchard home, good house, 4 rooms and bath, barn, fruit houses, windmill, equipment; complete place. $3600. Yolo & Solano Counties. Wyatt & Wilson, Winters, Cal.

20 Acres, adjoining the Roeding and Woo Nursery land, 1½ miles S.E. of Exeter best of soil, good location; fine for orange or lemons. Pumping water at shallow depth, road on both sides, high schoo Price $175 per acre, $2000 cash, balance and 3 years, interest 7 per cent net. Fre M. Hart, Exeter, Cal.

FARM LANDS FOR SALE.

For Sale—15 acres good land, perfectly level, 2½ miles N.E. of Orange, near foothills. Fine location on main street. 15 shares water stock in Santa Ana Valley Irrigation Co. Cement pipe to place. 1000 Eureka lemon trees ready for setting. Price $500 per acre, $4000 cash, balance to suit at 7 per cent. No trade. Call or write S. P. Harriss, Orange, Cal.

For sale—80 acres of land, four miles south of Hanford in the heart of the dairy belt, nearly all in alfalfa. Good buildings, fences and water rights. All checked and leveled. Telephone and rural mail delivery. Address Frank McClellan, Hanford, Cal.

Pacific Coast Lands—Farm lands appraised for prospective investors. Reports on agricultural projects, soils, irrigation, drainage, etc. Paul Goodloe, 1049 Phelan Bldg., San Francisco, Cal.

For Sale—48 acres, all in alfalfa, good buildings, fenced and cross-fenced under the ditch; ¾ of a mile from Newman; $300 per acre. Box 133, Newman, Cal.

For Sale—7-acre general fruit ranch near Los Angeles on new boulevard. W. C. Showalter, Downey, Cal.

Eighty acres finest eucalyptus land, 4 miles from Santa Maria, Santa Barbara County, about one mile from railroad; price $2000, if sold at once. A. Frederiksen, Arroyo Grande, Cal.

Farms for rent or sale on crop payments. J. Mulhall, Sioux City, Ia.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

FARM LANDS FOR SALE.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

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WICK'S WHITE FOWL FARM, Moorpark, Cal

"I am a candidate for your hand."

"But my parents have endorsed another young man."

"All right; I'll run as an insurgent."

Who will not mercie unto others show,
How can he mercie ever hope to have?
—Spencer.

So perish all, whose breast ne'er learned to glow,
For others' good, or melt at other's woe.
—Pope.

General Household Notes

A HAMMOCK EPISODE.

Marian, with her "once-in-a-while,"
On a summer evening sat,
In a hammock, while he held her hand,
Now what do you think of that?

He stroked her cheek in a gentle way
And caressed her home-grown hair,
Then he kissed her lips that were plump and red,
Little thinking that she'd care.

But she was a most peculiar girl,
Just imagine his surprise,
When she cried: "How dare you, sir," with grief,
While the teardrops filled her eyes.

She tried to tear herself away,
But his wrist was cramped, I guess;
So he held her fast in a vice-like grip
For a moment—more or less.

"I don't like you any more," said she.
Now just think of language, such.
When he kissed away her tears, she said:
"But I like you just as much."
—Chas. H. Meiers.

SINGLE LIFE.

"Single life is all very well for a while," said the young married man. "A fellow who has always been used to a bachelor existence—going around with the boys and all that sort of thing—after he's been married for a while begins to ache for a little freedom. I don't mean to say that he isn't free just because he's got a wife, you understand?"

"Certainly not," agreed his elderly friend. "We all understand that."

"And it's good for him to have it," continued the young married man, seriously. "You know I think that most married couples stay together too much of the time. It's a good thing for a woman to take a little vacation once in a while and let her husband kick up his heels a little if he wants to. It gives him time to realize that she is necessary to his happiness; perhaps it gives her time to realize that he is kind of handy to have around, too, eh?"

"I think at times they do regard us as a convenience," said the elderly friend. "Your wife's away?"

"Yes," replied the young married man, with a sigh. "She's away and I think it about time she was getting back if you ask me. I didn't mind it at first. When she wanted to know if I'd mind her going to see her mother I told her certainly I didn't. Her mother was sick, you know. It wasn't anything serious, but she felt a little nervous about her, the wife did. So I told her to go along by all means. Well, I went to the theater the first night with Jimmy Burdon and Phil Thomas. Had a bully good time, too, and a nice little supper afterward. Well, sir, I enjoyed it. But somehow it's got so that it sort of palls on me. By the way, the service here isn't what it used to be, nor the cooking either for that matter. All of the restaurants seem to be running down. I believe I'm losing flesh."

"I hadn't noticed it," said his friend.

"Well, I don't mind that so much, but I'm getting a trifle lonesome by this time. The boys are all right and they've certainly done their best to give me a good time, but their idea of a good time isn't mine. I'm afraid Phil drinks a little more than is good for him. Jimmy, too."

"Poor, besotted wretches!"

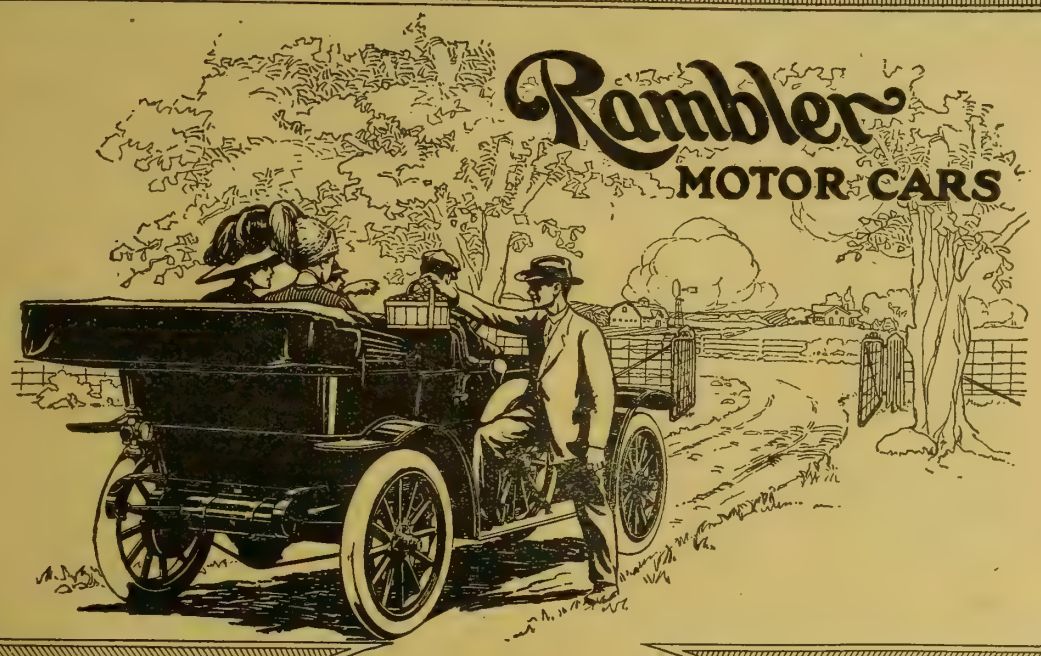
"Yes, they talk about bachelor freedom. Well, that's all right. I can enjoy it, too, about as well as anybody. A man doesn't want to stick at home too closely. He gets narrowed in a way. You know there are some little things—. Well, when I first got home the other night after my wife left it seemed rather good to be able to do just as I wanted to without interfering with anybody else's comfort. But it got old pretty soon. I'm thinking of going to a hotel tonight. When I open a closet door and see her gowns hanging around and the pins and things on her dressing table and realize that she isn't anywhere around and not likely to be for a while it naturally makes a man feel lonesome."

"She isn't coming back for a while?"

"Well, she wired me to say that she would be home tomorrow evening. But something may happen to keep her longer."

"How long do you say she's been gone?"

"She's been gone three days now," said the young married man.—Chicago Daily News.



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Wheels

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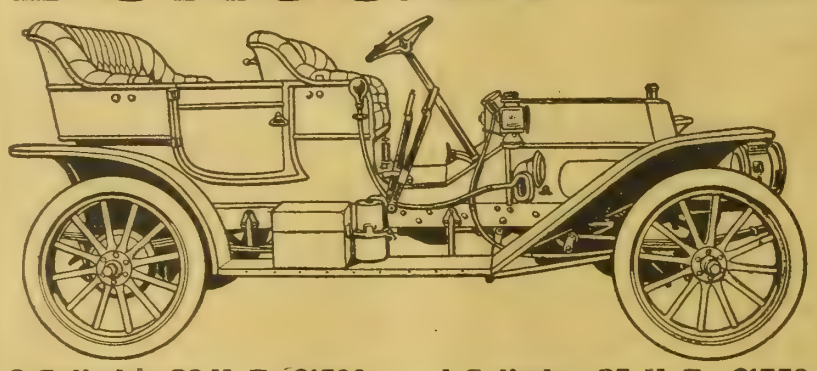

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SEEING ABOUT AN AUTO.

By Oscar E. Youmans.

"I think I'll buy an automobile," remarked Jenkins to his wife, as he sat reading his paper one night after supper. "We might as well be like other folk. I know lots of people who own autos who are not as well off as we are. How do you suppose they manage it?" and he looked inquiringly at his wife.

"How should I know?" returned his better half, who, to tell the truth, was far from being auto crazy. "But how could you get an auto? All our funds are tied up at present."

"Oh, that part doesn't worry me in the least," replied Jenkins. "You forget, perhaps, that Jones' mortgage comes due next week. He told me this morning that he was prepared to pay it. One ought to get a pretty good car for two thousand dollars."

"Yes, but in my opinion the money could be put to a better purpose," she retorted, taking up some fancy work, evidently wishing to dismiss the subject.

"I don't think so," responded Jenkins. "We might as well enjoy a little luxury and pleasure in this life; we'll be dead long enough."

"As for that matter," returned his wife, with a toss of her head, "if you're foolish enough to carry out your idea, it won't be long before we're both dead."

"Nevertheless, I intend to see about an auto tomorrow," replied Jenkins, decisively. "I shall have a good many trial rides, anyway, even if I don't decide to get a car. That experience will be worth something;" and evidently considering the matter settled, Jenkins again took up his paper and settled himself comfortably in his easy chair.

* * * * * * *

"I came to inspect your cars," Jenkins said, entering the automobile shop.

"Certainly, sir," answered the obliging manager. "I'll call a chauffeur and he can take you out for a trial spin in one of our latest models," and he touched a bell.

Now Jenkins had seen all sorts of chauffeurs, but none like the one who answered the bell had ever before crossed his line of vision. He had on a bright green suit, while his trousers were tucked into bright red boots, reaching almost to his thighs. His hands and arms were encased in bright yellow gauntlets, reaching almost to his shoulders. On his head was a policeman's helmet, fiery red, surmounted by a plume of long green feathers. His eyes were protected by goggles of a yellowish hue.

"Come with me," said this gaudily-dressed individual, leading Jenkins to a waiting car.

The car was all right, at least so Jenkins thought, only it looked more like a cross between an omnibus and a moving van than an automobile. Getting into the machine, Jenkins sank down on the soft cushions. Down, down he went; he was about to cry out, when he finally stopped, nearly up to his chin. The cushions fitted about his form, holding him fast.

"That's our patent clutch," explained the chauffeur in a strange, faint voice, that sounded to Jenkins as if it came over a telephone. "Once in its clutch, it is impossible to get loose."

Jenkins agreed with him. The chauffeur than went around to the front of the car, where he took hold of a handle that resembled one on a meat grinder, and commenced to wind up the machine. After turning long enough to have ground at least ten pounds of steak, there came a whirring rattle, followed by several loud explosions. Jenkins looked around, expecting to see a regiment of soldiers; instead, the chauffeur sprang into the car, threw over a dozen or two levers, and the machine started off.

Jenkins watched the chauffeur as he grasped the wheel, and, with a few vigorous turns, deftly swung the auto around a corner. He only collided with a lamppost in the operation.

"Ha! Ha!" laughed the chauffeur, without once glancing back to see what damage had been done. "That is only the beginning!"

If that was only the beginning, Jenkins was far from being elated over the prospect. But he had other things to think about. He was astonished to find that he no longer rested up to his chin among the cushions. Instead, he found himself perched upon a high stool much resembling a piano stool, that slowly but surely turned on a pivot, and necessarily he turned with it.

You are now using our patent revolving, sight-seeing stool," explained the chauffeur, seeing Jenkins' wondering look. "That attachment you'll not find on any other make of machine."

Jenkins was glad to learn that, mentally resolving that some other make of machine would receive his time and attention, if he was lucky enough to land on terra firma once more. The next moment he was startled by seeing a trolley car bearing down upon them. The auto was going at such a terrific rate of speed that a collision seemed certain. But the chauffeur made no attempt to stop the car when Jenkins frantically called his attention to the approaching peril.

Should there be a collision, what a fall he would have from that high stool, thought Jenkins. Horrors! Desperately he clung to the stool, but with a soft, mushy sound they passed right through the car. There was no shock at all.

"You have just observed the workings of our patent jar absorber," the chauffeur explained in the same far-away voice. "With it in good working order, it is possible to pass through anything."

Jenkins relaxed his grip, the danger being past. What a wonderful auto it was! He must surely have one. At that moment they topped a long hill. To Jenkins' astonished eyes, the wheels of the auto flattened out, under the magic touch of the chauffeur, a stream of oil shot out of two pipes that projected in front of the auto, and upon this greased path the car slid down the hill at a terrific pace.

"That's our patent sliding-gear," explained the chauffeur. "No other machine has it."

Jenkins didn't blame the other machines for not including the wonderful patent in their make-up. On his high, revolving stool he swayed dizzily. True, he could see a good deal of the surrounding country, but he would gladly have sacrificed that to get nearer the earth.

At last the bottom of the hill was reached, and the auto reduced its speed. Jenkins noticed that they were far out in the country. Finally the chauffeur stopped the car. Then, touching a button, the high, revolving stool upon which Jenkins sat slid noisily down, and Jenkins was allowed to alight.

"You are now about to witness one

of the most remarkable inventions of auto construction," said the chauffeur. "This one invention puts this machine in a class by itself."

Jenkins' eyes opened wide. The possibilities of that auto seemed limitless.

"You'll notice that all the tires are bursted," went on the chauffeur, in his faraway voice. "Now, look sharp"—and he pushed four buttons simultaneously. Instantly every old tire disappeared and a new one appeared in its place.

"Our invisible tire-changing device," explained the chauffeur, when Jenkins had somewhat recovered. "But, come, we must be on our way."

Jenkins once more entered the car. The chauffeur again manipulated the meat grinder in front. Several loud reports followed, and the machine once more was in motion.

After a few minutes Jenkins noticed that they were approaching a large body of water. There was no bridge. He called the chauffeur's attention to the danger ahead, but the latter only smiled.

"I will now show you our patented non-sinkable device," and, touching a spring, four air-tight rubber cushions shot out under the car, while small paddles appeared beside the wheels. Under this power the auto skimmed over the water like a duck. Jenkins was somewhat disappointed that the car didn't turn into a full-rigged ship.

"We will now start for home," announced the chauffeur, when they finally reached the shore, and the car had again resumed its normal appearance. "How do you like it? Don't you want one of these machines?"

"Yes," answered Jenkins. "It's just what I've been looking for."

"You'll be the first man to own one of these wonderful cars," went on the chauffeur. "They have just been put on the market. They certainly have some wonderful improvements, don't you think so?"

Jenkins did. He also knew he would never forget them, either. He was also glad they were going home. The road was straight, but far ahead Jenkins saw that a large red barn obstructed the road. He asked the chauffeur if he saw it, but received no answer. On, on they rushed, never slackening up.

"I've left this, our grandest and most wonderful invention, for the last," explained the chauffeur. "Our patented disappearing wings will now appear, enabling us to clear that obstruction easily," and, under his magic touch, wings sprang out on both sides of the car. Under their powerful force the auto rose gracefully in the air. It had almost reached the top of the barn when something went wrong. The car turned several graceful handsprings, finally reaching the ground with a fearful thud.

That car's career was ended then and there. When Jenkins came to he found himself on the grass, unable to move. The chauffeur and another man stood over him.

"Is he hurt much, doctor?" the chauffeur asked.

"No, not much. He only has both arms and legs broken. I can soon fix him up," and taking a saw from his instrument case, he began to saw away upon Jenkins' leg. Poor Jenkins was powerless to resist. There, one leg was off, and the doctor tossed it aside like a piece of wood. With a chuckle he began on the other, when—

* * * * * *

"Wake up, Henry!" cried his wife at that moment, giving him a vigorous shake. "Do you think you can sleep there all night? You must have been having a frightful dream by the way you've been carrying on. It's past ten o'clock."

Jenkins rubbed his eyes sleepily, but was overjoyed to find that it had only been a dream after all. "I don't think I'll buy an auto, after all," he declared, as he started up the stairs. —Country Gentleman.

THOSE PUZZLING SHOE NUMBERS

We have always believed that those puzzling numbers were invented for the confusion of customers who insist that they take a certain size, whether it fits or not. We do not know of any other reason, but we find that when we ask for our accustomed size we are fitted without trouble, even though the number marked in the shoe looks like the license number of an automobile. It is quite safe to order shoes by the old numbers, as the new numbers are merely synonymous for them; the shoe dealer knows what is meant, and so long as they fit, the obscurity of the new numbers does not matter. Of course there is sometimes difficulty in fitting where there is a great change in model of last, and we sometimes find that slippers and ties, especially, are more comfortable when one size longer and one width narrower than the accustomed size is selected. Indeed, short shoes are always both uncomfortable and disfiguring. We would keep on ordering by the old numbers, and let the seller struggle with the new ones. Rural New Yorker.

Don't crowd; the world is large enough
For you as well as me;
The doors of all are open wide—
The realm of thought is free.
—Charles Dickens.

Unless you bear with the faults of a friend you betray your own.—Latin Proverb.

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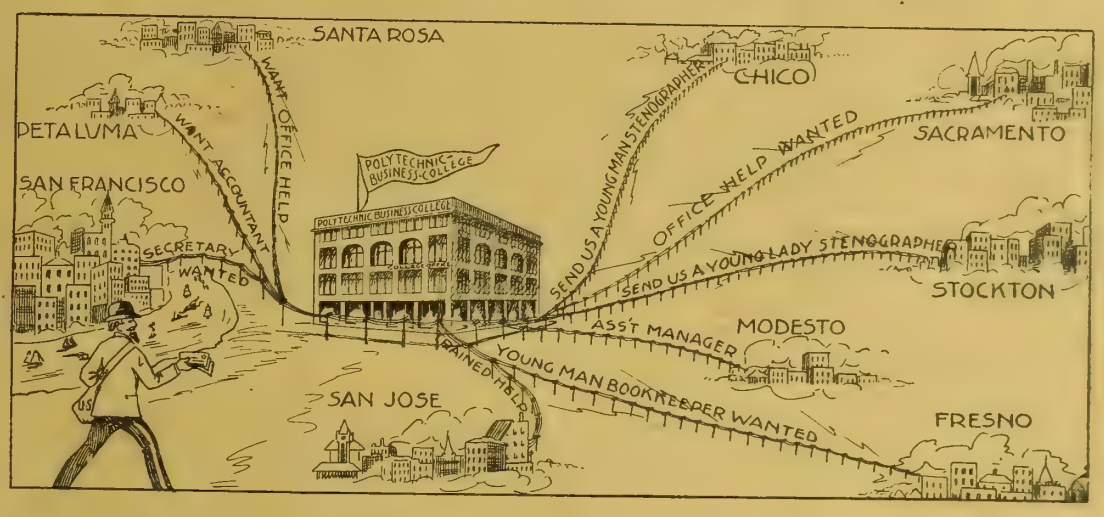

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 3, 1911.

Butter.

Butter arrivals are heavy—nearly 70,000 pounds daily—yet prices have advanced slightly and the market is very firm.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	22½
Firsts	21
Ladies	18
Country	14

Cheese.

Oregon Daisy	16½@17
Northern	15
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Eggs declined slightly, then advanced again yesterday to last week's quotations, excepting the Easterns, which are one cent in advance of last week.

Paying price f. o. b. Los Angeles is:

Local ranch candled	24
Case count buying price	20
Northern	18@22
Eastern	21

Dealers pay for live poultry f. o. b.:

Hens, per lb	19
Roosters	10
Broilers	27
Fryers	24
Roasters	20
Turkeys	23@25
Ducks	21
Geese	17
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Salinas	2.60@2.65
Highlands	2.25@2.40
Oregon	2.50
Lompoc	2.85@3.00
Idaho	2.25@2.35
Sweets, yellow, cental	8.00
New potatoes, lugs	1.35@1.75

Onions.

Wholesale quotations:

Oregons	3.00
Imperial, crates	1.75
Northern	3.00
Australian browns, Northern	4.50
Nevadas	3.00@3.25
Texas Bermudas	1.75
White Wax	1.80@1.90
Garlic	10@12

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	50@80
Asparagus, lb	3@6
Beets, doz bunches	35
Brussels sprouts, lb	12
Bell peppers, lb	25
Beans, lb	10@12
Green chilis	25
Cucumbers, doz	90@2.50
Cabbage, sack	90@1.00
Celery, crate	3.50@4.00
Cauliflower, crate	2.00
Carrots, sack	90@1.00
Egg plant, lb	10
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, doz	40
Lettuce, crate	2.00
Oyster plant, doz	40
Peas, lb	4@7
Parsley, doz bunches	35@40
Parsnips, doz bunches	50@60
Radishes, doz bunches	20@25
Rhubarb, Strawberry	1.00@1.25
Rhubarb, crimson winter	75@90
Spinach, doz	20@25
Squash, summer	1.50
Tomatoes, Mexican, crate	2.00
Turnips, doz	40

Ctrus Fruits.

Navels	2.50
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.75
Tangerines	1.75@2.00

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Spitzenbergs	2.50@4.00
Pearmains	2.75@3.00
Newtown Pippins	2.25@3.00
Bananas	4½@5
Loquats, lb	3@5
Pineapples	10
Strawberries	5@6

Dried Fruits.

Wholesale prices are:

Apricots	14@16
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	9@10
Nectarines	10
Pears	13@14
Prunes	10½@13½
Plums	10

Beans Dried.

Wholesale quotations:

Limas	6.75
Black eyes	7.50
Pinks	6.00@6.25
Lady Washington	4.25
Small white	4.00
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
No. 1 hard shell walnuts	14
No. 2, all kinds	13
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10½
Extracted light amber	9
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.00

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.60
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.55
Broom corn	1.50

Feed Stuff

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.65
Cracked wheat	1.90
Shorts	1.85
Bran	1.60
Oil cake meal	2.50
Feed meal	1.70
Rolled barley	1.55

ALREADY OUT OF COMMISSION.

The front door bell was out of repair. Mother in a hurry instructed John to put up some sort of a notice to that effect, so that the visiting public would be notified. John is long on football and short on the mysteries of punctuation. He finally evolved this sign, which a startled neighbor brought in to the mother: "Please Knock the Door Bell Out of Order."—Woman's Home Companion.

San Francisco Market

SAN FRANCISCO, May 2, 1911.

Butter.

Holders are insisting on 23 cents, but general quotations have been 22½ cents since Thursday. Firm condition prevails.

Price to trade 2½c in advance of the following Produce Exchange quota-

California extras, lb	22½
Prime firsts	22
California firsts	21½
Seconds	18½

Cheese.

California firsts	21½
Cal. Y. America, fy, new	11½@13½
Oregon fancy	12½

Eggs and Poultry.

Eggs declined early last week, and have stood at 20 cents for extras since. Shipments are coming freely at this writing.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	20
Firsts	19½
Seconds	18½
Hens, doz	5.50@12.00
Select pullets	18
Fryers, doz	6.50@7.50
Ducks	6.00@10.00
Broilers	2.00@3.50
Roosters, doz	5.00@10.00
Geese	2.50@3.50
Pigeons	1.50@2.50
Squabs	2.00@2.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6½
Cows and heifers	4@5½
Calves, lb	5½@7
Hogs	5@7¼
Milk lambs	5¾@6
Wethers, No. 1, unshorn	5@5¼
Ewes, No. 1, unshorn	4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

River White, cwt	2.15@2.25
Salinas Burbanks, cwt	2.85@3.00
Oregon Burbanks, cwt	2.60@2.75
Lompoc	2.85@3.00
Sweets, cental	5.00@6.00
New potatoes, lb	3@5

Onions.

Onions	3.00@3.25
Australian brown, crate	3.75@4.00
Bermuda seed	2.00@2.25
Garlic, lb	4@5

Vegetables.

Wholesale quotations:

Asparagus, box	1.00@1.75
Beans, string	15@35
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	50@1.00
Celery, crate	1.50@2.50
Beans, string	10@20
Chili peppers, lb	10@25
Egg plant, lb	10@15
Lettuce, crate	75@2.00
Peas, lb	3@5
Rhubarb	65@1.00
Summer squash	1.00@1.50
Tomatoes, Mexican	1.75@2.00
Turnips	60@75

Citrus Fruits.

Navels, new	1.25@3.00
Grapefruit	75@2.50
Lemons	1.50@3.50
Limes, Mexican	4.50@5.00
Tangerines, halves	1.25@2.00

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	1.25@1.50
Apples, Bellflowers	1.00@1.35
Newtowns	1.25@1.50
Spitzenberg	1.50@2.75
Bananas, Hawaiian	75@1.25
Strawberries, Southern, crt	1.00@1.25
Strawberries, Lgwths, ch	8.00@13.00
Malindas, chest	5.00@8.00
Cheneys	8.00@10.00
Pears, Bartletts	1.50@2.00
Winter Nelis	2.00@3.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb.—Apples, 11½@13c; Apricots, 10¾@13¾c; do, Moorparks, 14c; Peaches, 6½@7½c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 9¾@10c; Figs, 1911, 4@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: London Layers, in 20-lb. boxes—3-crown layers, $1.10; do, 2-crown, $1. Seeded, per pkg.—Fancy, No. 16, 6¾@7c; Choice, No. 16, 6¼@6½c. Loose Muscatels, in 50-lb. boxes—Standard, 4-crown, 5½@5¾c; do, 3-crown, 5@5¼c; do, 2-crown, 4¾c. Dried Grapes, 2¾c. Seedless—Muscatels, 4¼@4⅜c; Sultanas, 5@5½c; Thompsons, 5½@6c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shall	14½
Almonds, '10 N P U	13¼
Almonds, '10 Nonp	15¼
Almonds, '10 I X L	14¼
Almonds, Peerless	12
Pecans	14@17
Chestnuts, California	6@8

Beans Dried.

Limas	6.25@6.35
Pink	5.35@5.55
Black eyes	6.50@6.75
Small white	3.40@3.50
Large white	3.40@3.45
Kidneys	6.25
Garbanzos	2.75@3.00
Bayou	4.60@4.75
Horse beans	2.50@2.70
Red Mexicans	5.25@5.40
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	19@22
Hops, 1911 contracts	14@16
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Receipts of hay for the past week amount to 2,299 tons, practically the same as last week. The market in this city continues along about the same. There has been fair inquiry on the market, although trade about town, we think, is lighter than we have ever seen it before, and if the receipts were any larger it would be almost impossible to move them.

Even with the advanced figures in the country, we note several sales in the past week which have been made at prices on a higher basis than the San Francisco market, which would indicate that the purchasers expect a raise in the market shortly. There has practically been no export trade during the week, and very little demand for alfalfa, as stock is feeding off grass.

Fancy wheat	13.00@13.50
No. 1 wheat or wh and oat	10.00@11.00
No. 2 wheat or wh and oat	9.00@10.00
Choice tame oat	10.00@11.00
Other tame oat	7.50@9.50
Wild oat	7.00@9.00
Stock hay	5.00@6.50
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Barley, fancy	1.48¾
Barley, good to choice	1.45@1.47½
Barley, poor to fair	1.40@1.45
Oats, white	1.50@1.60
Rye, new crop	1.40@1.50
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	26.00@27.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00

Rolled barley, ton	31.00@32.00
Rolled oats, ton	27.50@29.00
Middlings	32.00@33.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	22.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	27.00@27.50

Citrus Fruit Market

LOS ANGELES, May 3, 1911.

There are not as many Navels on trees to ship as last year this date. This situation is rather of a surprise to all excepting those who have kept in closest touch with conditions. Still better, the prices being received are remarkably good. At this moment extra choice Navels are commanding $3.00 to $3.10 f. o. b. East. Seedlings, Mikes and other than Navels are also being well received; a few Valencias are occasionally going forward, but the promise of more satisfactory prices later will hold these up. It now appears that Navels will be cleaned up prior to June 1.

The number of Mediterranean lemons afloat and on the New York piers is little more than half that of last year. In addition, the quality of the imported bears no comparison to the California stock. Liberal cuttings of fruit are being made constantly, and the promise is for a fairly heavy picking so as to reach market at about the right time to command best prices. Of course there is some danger that low-grade stuff from the Mediterranean, damaged by the cold spell, may come in, but that situation is so generally understood that it is not thought the market will be affected.

Shipments.

Shipments of oranges to date since November 1, 1910, 23,745; lemons, 2,926; total, 26,671. To same date last season: Oranges, 16,042; lemons, 2,253; total, 18,295.

LOS ANGELES, Monday, May 1.—Two cars navels, 1 blood, 1 seedling sold.

BLOODS—	Avge.
Heap Good Fy Or Riverside, shipped April 28, precooled, iced	1.47½
NAVELS—	Avge.
Sweetest Yet Fy Or Riverside, not shipped	1.85
Sweetest Yet Ch Or Riverside, not shipped	1.75
Golden Pheasant, Xc Or Alhambra, shipped April 29, iced	1.67½
SEEDLINGS—	Avge.
Heap Good Fy Or Riverside, not shipped	1.45

NEW YORK, Monday, May 1.—Forty-one cars navels, 5 seedlings, 1 Joppa, 1 St. Michael, 4 lemons sold. Market higher on navels, unchanged on lemons. Fair and warm.

NAVELS—	Avge.
Swastika Iced LVW Brown	2.80
Sunset Iced	2.85
Elephant Iced Elep Orch Or	3.30
Elephant 2nds Elep Orchard Or	2.50
Green Banner Iced Sutherland	2.90
Valle Vista Iced Sutherland	2.50
Blue Banner Iced Sutherland	3.20
Valle Vista Iced Sutherland	2.60
Green Banner Iced Sutherland	3.00
King Iced Upland MOA	3.40
Sultan Iced Upland MOA	3.10
Regina Iced Fy Growers F	2.80
Euclid Iced Or Growers F	3.60
Uplander Iced Growers F	3.25
Twin Peaks Iced Growers F	3.45
White Cross Iced Growers F	3.10
Regent Iced Sd Growers F	2.75
Orchard Or National O Co	2.70
Robusta Iced AH Ex	2.90
Segunda Iced AH Ex R	2.75
Hobo Iced A HEx	2.60
Hobo Iced F Ex	2.75
Pet Iced SA Ex	2.95
Sunlight RH Red Iced	2.45
Golden Circle Iced	2.35
Homer IMP Iced QC Corona	3.30
Camel IMP Iced QC Corona	3.05
Camel Iced QC Corona	2.90
Red C Iced Covina Ex	2.65
Cougar Iced Covina Ex	2.50
Queen Bee Iced QC Corona	2.90
Sunset Iced QC Corona	2.95
Carmencita Iced ST Ex	2.40
Butterfly Iced Covina Ex	2.80
Green Crown IMP Iced ACG Ex	2.55
Blue Globe Iced Riv Ex Riv	3.25
Cal Orange Iced Riv Ex	2.85
Outing Iced Rix Ex	2.75
Green Crown Iced ACG Ex	2.75
Green Crown Iced ACG Ex	2.60
Knight Iced ELY Gilmore	3.00
Bishop Iced ELY Gilmore	2.85
Golden Orchard Iced Ind F Co	2.85
AUSTRALIAN NAVELS—	Avge.
Colombo Iced ST Ex	2.50
BLOODS—	Avge.
Majesty Iced OK Ex	2.75
Queen Bee Iced QC Corona	3.10
SEEDLINGS—	Avge.
Titus Ranch Iced San Marino	2.50
El Toreador Iced Sd San Marino	2.35
Hemet Iced	2.30
Santa Anita Iced	2.55
El Toro Iced	2.25
Trumpeter Iced	2.00
Independent Iced Growers F	2.65
Beauties Iced	2.50
Golden Trout Iced	2.75
Mallard Iced Randolph F Co	2.65
Iris Iced DM Ex	2.90
Violet Iced DM Ex	2.75
Red Globe Iced Riv Ex	2.65
SWEETS—	Avge.
Trumpeter Iced	1.80
Glendora Hgts Iced ACG Ex	2.65
ST. MICHAELS—	Avge.
Mother Colony Iced ST Anah	2.80
Carnival Iced ST Anah	2.65

SEEDLESS GRAPEFRUIT — Blue Banner iced, 2.25; Green Banner iced, 2.05; Valle Vista iced, 1.85. GRAPEFRUIT SEEDLING — Blue Banner iced, 2.45; Valle Vista iced, 1.85; Hemet iced, 1.90. NAVELS HALVES—Mahala iced, 1.60; Heart of Gold iced, 1.45; La Mesa iced, 1.55. BLOODS HALVES—Kenilworth iced, 1.50; Bear iced, 1.60; Kenilworth iced, 1.50; Homer iced, 1.55; Camel iced, 1.45; Homer iced, 1.55; Queen Bee, iced, 1.55; Blue Globe iced 1.60. SEEDLINGS HALVES — Santa Anita iced, 1.25. JOPPA'S HALVES—Trumpeter iced, 1.10. ST. MICHAELS HALVES — Green Banner iced, 1.50; Trumpeter iced, 1.20. TANGERINES HALVES—Mahala iced, 1.60; Euclid iced, 1.70; Lotus iced, 2.00; La Mesa iced, 1.60. LEMONS—Native iced, 1.70; Excelsior, iced, 2.85; Sunrise iced, 2.70; Euclid, 3.45; Flower, 2.95; Plain, 2.50; Pet, 3.35; Arab, 3.20; Greyhound, 2.75; Trail, 2.90; Canon, 2.55; Red Globe iced, 3.10.

CLEVELAND, Monday, May 1.—Seven cars navels, 1 lemons and 2 mixed cars sold. Market practically unchanged on oranges, higher on lemons. Raining.

NAVELS—	Avge.
Pointer, A C G, Latin S	2.95
Holly, Covina Ex	2.65
Searchlight, S S Orange	2.90
Royal Knight, R H, Red	3.10
Jasmine, D M, Mon	2.75
Canon, A C G, Lamanda P	2.80
Prong Horn, Xc, O K Ex	3.30
King, S A Ex	2.35
Red C, Covina Ex	2.40
S S Brand, S S, Orange	2.65
Newsboy, R H, Red	2.85
Trail, A C G, Lamanda P	2.75
Moose, O K Ex	3.40

LEMONS—Pet, S A Ex, 3.65; Arab, 3.45; Pup, 3.00. SEEDLINGS—Belt, 2.15. SWEETS—S S Brand, 2.50. ST MICHAELS—Or S S Orange, 1.30. BLOODS—Trail, 3.00; Canon, 2.80. HALVES—Trail, 1.45; Canon 1.40.

PHILADELPHIA, Monday, May 1.—Eight cars navels, 6 mixed cars sold. Also 10 cars Floridas: Oranges, 1.50 to 4.35; average, 2.85. Grapefruit, 2.30 to 4.80; average, 3.25. Market strong.

NAVELS—	Avge.
Euclid, Or Growers F Co	3.30
Native Sons, King F Co	2.90
Salt Lake, King F Co	2.80
Freedom, Xc, Ind F Co	2.45
Del Oro, Sparr F Co	1.70
Uplander, Or Growers F	3.05
Salt Lake, King F Co	2.85
Golden Pheasant, Xc, Ind F	2.75
Circus, Xc, Sparr F	1.75

BLOODS—Salt Lake, 3.00@2.90; Pointer, 2.90; Whittier, 3.05. VALENCIAS—Pointer, 3.25. SWEETS—Whittier, 2.95. ST MICHAELS—Whittier, 3.15; Mother Colony, 2.80. HALVES—1.55; Carnival, 1.50. SEEDLINGS—Carnival, 2.60; Pointer, 2.90. TANGERINES, HALVES—Stag, 1.10; Stag King, 1.60.

NAVELS—	Avge.
Campfire, S T, Nordhoff	2.15
Pico, S T, Whittier	2.40
Hunter, A C G, Azusa	2.65
Moose, O K Ex	3.40
Newsboy, R H, Red	2.65
Pointer, A C G, Lateen S	2.45
Pointer, I M P, A C G, Lateen S	2.90
Hunter, A C G, Glendora	2.10
Whittier, S T, Whittier	2.80
Pointer, A C G, Latin S	2.45
Pointer, I M P, A C G, Latin S	2.90
Prong Horn, O K Ex	3.10
Campfire, S T, Nordhoff	2.65
Hunter, A C G, Latin S	2.60
Pointer, A C G, Glendora	2.60

ST. LOUIS, Monday, May 1.—Raining. Market easy account of weather. Ten cars oranges, 1 lemons sold.

NAVELS—	Avge.
Searchlight, S S, Orange	2.05
Martha Wash, S S, Tustin	2.20
Hunter, A C G, Glendora	2.00
Sunlight, R H, Red	2.80
Orchard Run, Mupu C A, Santa P	2.35
Cougar, Covina Ex	2.50
Superior, Benchley F Co	2.50
George Washington, S S Tus	2.30
Cowboy, S S, Tustin	2.20
Parrot, S A Ex	2.70
Golden Circle, R H, Red	2.45
Red C, Covina Ex	2.70
Royal Pack, Randolph F Co	2.35
Premium, Benchley F Co	2.65

LEMONS—Mission, S T, Santa Barbara, 2.85; Festival, 2.75; Blondina, 2.60. SWEETS — Searchlight, 2.10; Red C, 2.70. ST MICHAELS—Sunlight, 3.00. SEEDLINGS—Havana N W B, 2.40; N W B stock label, 2.25. SWEETS—Sunlight, 2.80. JAFFAS—Red C, 2.65. BLOODS—Red C, 2.75.

BOSTON, Monday, May 1.—Twenty-four cars sold. Cloudy, muggy. Market strong, higher.

NAVELS—	Avge.
George Washington, S S, Tustin	2.90
Echo, S T, Pasadena	2.75
Tournament, S T, Pasadena	2.60
Monogram, O K Ex	3.10
Laurel, QC, Corona	3.35
Pinnacle, O K Ex	3.50
Linnet, O K Ex	3.15
Red X, O K Ex	3.10
Peasant, A H, Riv	3.05
Standard	3.05
Rialto Crest, Growers F	3.00

LEMONS—Rossmoyn, 3.30; Quaker Girl, 3.60; Lochinvar, 3.50. SEEDLINGS—Gold Buckle, 2.95; Santa Anita, 2.75; Victory, 2.65; Del Oro, 2.40; Trumpeter, 1.30. BLOODS, HALVES—Golden Cross, 1.50; Red X, 1.40; Kenilworth, 1.50.

PITTSBURG, Monday, May 1.—Fifteen cars sold. Market strong on oranges, steady on lemons. Warm.

NAVELS—	Avge.
Red C, Covina Ex	2.80
Golden, Riv Ex, Riv	2.90
Whittier, S T, Whittier	2.65
Golden Rule, Riv Ex, Riv	3.20
Crystal, Riv Ex, Riv	2.65
Foothill, Riv Ex, Riv	2.20
Golden, Riv Ex, Riv	3.05
Owl, O K Ex	2.40
Senorita, Sd, Sparr F Co	2.60
Owl, O K Ex	2.60
Crystal, Riv Ex, Riv	2.75
Jasmine, D M, Duarte	2.85
Golden, Riv Ex, Riv	2.85
Jasmine, D M, Mon	3.00
La Paloma, Riv Ex, Riv	2.30
Crystal, Riv Ex, Riv	2.85
Circus, Xc, Sparr F	2.65

LEMONS—Planet, 2.70; Searchlight, 2.05; S S brand, 1.95; Commercial, 2.35. SWEETS—Pico, 2.35; Whittier, 2.00; Pico, 2.00. ST MICHAELS—Pico, 2.35. BLOODS—Pico, 1.85. HALVES—Gavilan, 1.30.

CINCINNATI, Monday, May 1.—Cool. Market steady on oranges and lemons; 6 cars navels, 1 lemons, 1 Floridas sold; 1 car lemons withdrawn.

NAVELS—	Avge.
Hawk, S A Ex	2.35
Hunter, A C G, Oak	2.55
Parrott, S A Ex	2.85
Prairie Chicken, A H Arl	2.45
El Capitan, A C G, Charter O	2.45
Possum, A C G, Oak	2.15
Squirrel, A H, Arl	2.70
Pet, S A Ex	2.70

LEMONS—Bridal Veil, 3.60; White Cross, 3.30; L Co, Sd, 2.30.

CHICAGO, Monday, May 1.—Lemons are held firm. The trade is moderate and they are in ample supply. Boxes, California fancy, 3.50@3.75; choice, 3.00@3.25.

Oranges are in good demand and firm. Receipts are rather light. Grapefruit sells well when desirable size. Boxes, California navels, sound or made sound, extra fancy, all sizes, 3.25; extra choice, 3.00; choice, 2.75.

Business

THE RIGHT REMEDY AT THE RIGHT TIME.

A little knowledge of the horse, his ordinary diseases and ailments and remedies to be applied, may be of valuable assistance to many of our readers.

A little book, "A Treatise on the Horse and His Diseases," contains an index of diseases, which gives the symptoms, cause, and what is said to be the best treatment of each and will be sent free to any of our readers. It is published by the Dr. B. J. Kendall Company, Enosburg Falls, Vermont, the makers of Kendall's Spavin Cure.

It is well to be prepared to apply the right remedy at the right time, and when in doubt to be guided by the satisfactory experience of others.

SPRING TRADE GOOD.

Inquiry among the Los Angeles agricultural implement dealers elicits the information that spring trade is in full swing. Good sales of Deering Mowers have been made during the last two weeks, one purchaser, the Cudahy Ranch Co., having more than duplicated their orders of last season for these high-grade machines, according to Mr. F. W. King, of Hawley, King & Co.

This firm also reports much interest being shown just now in the "Flour City" Gasoline Traction Engines and the Southwick Hay Presses, their new hay press and engine catalogues being in demand, and prospects being bright for many sales in the near future.

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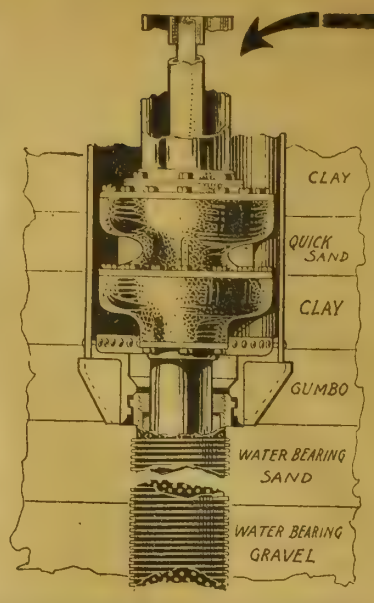

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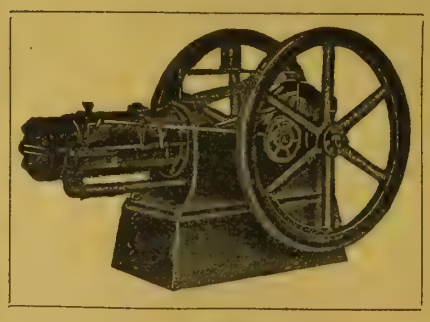

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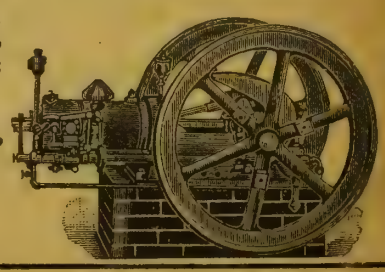

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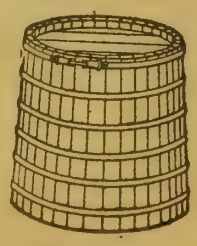

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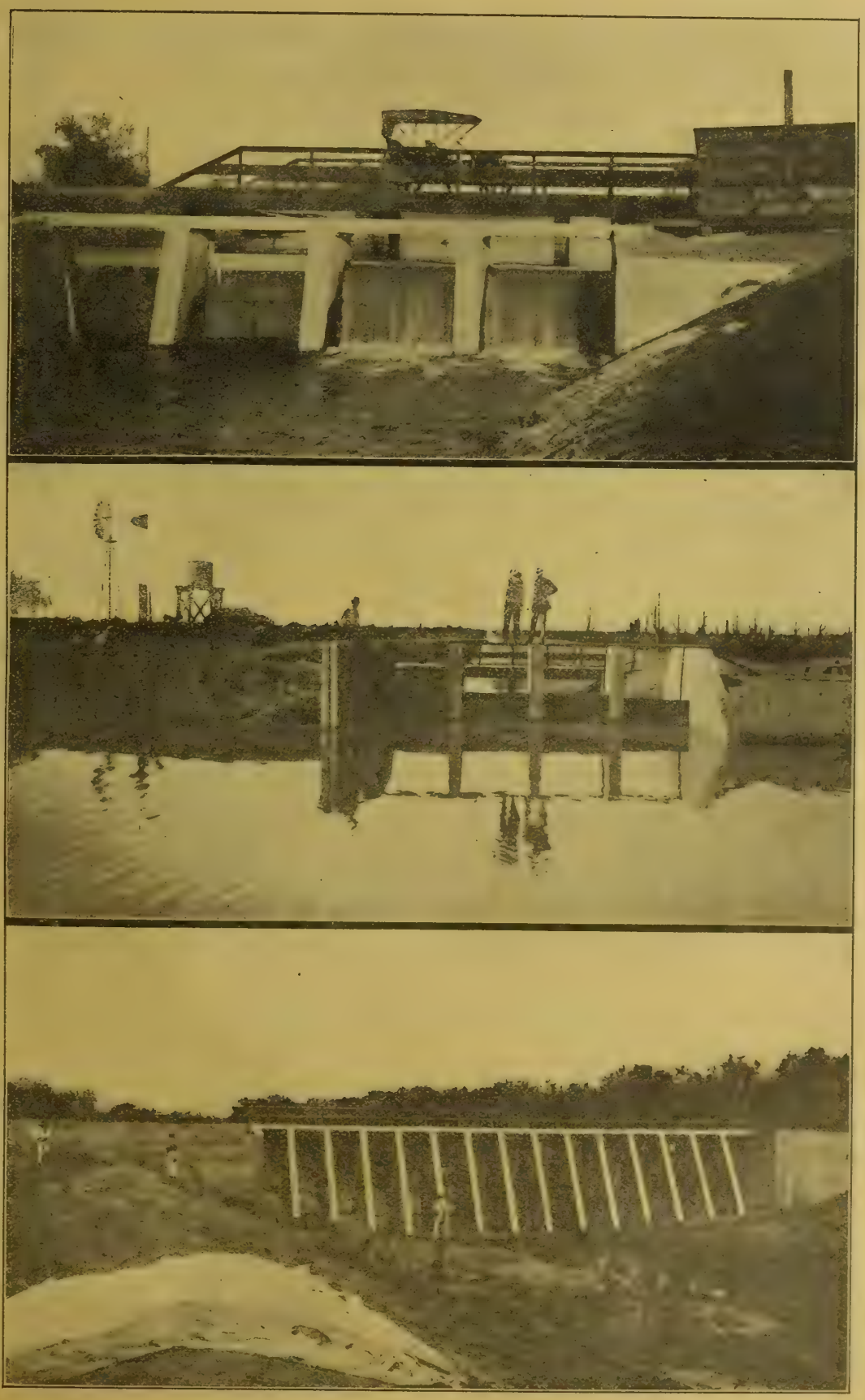
Irrigation Headgates in Yaqui Valley, Mexico



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California Cultivator

Vol. XXXVI. No. 19. LOS ANGELES: THURSDAY, MAY 11, 1911 One Dollar the Year

Scientific Methods of Irrigating Orchards

By Samuel Fortier, Chief of Irrigation Investigations,
U. S. Department of Agriculture

Care and good judgment should be exercised in the selection of an orchard tract. If it turns out well the profits are high, but if it fails the losses are heavy. It involves the setting aside of good land, the use of irrigation water, and somewhat heavy expense in purchasing trees, setting them out and caring for them until they begin to bear.

Assuming that the climate and soil of the district selected are adapted to the kind of trees to be grown, the next important things to consider are good drainage and freedom from early and late frosts. Low-lying lands under a new irrigation system should be regarded with suspicion, even if the sub-soil be quite dry at the time of planting. The results of a few years of heavy and careless irrigation on the higher lands adjacent may render the low lands unfit for orchards. On the other hand, the higher lands are not always well drained naturally. A bank of clay extending across a slope may intercept percolating water and raise it near the surface. Favored locations for orchards in the mountain states are often found in the narrow river valleys at the mouths of canyons. The coarse soil of these deltas, the steep slopes and the daily occurrence of winds, which blow first out of the canyons and then back into them, afford excellent conditions for the production of highly flavored fruits at the minimum risk of being injured by frost.

Proper exposure is another important factor. In the warmer regions of the West and Southwest a northern exposure is sometimes best, but as a rule the orchards of the West require warmth and sunshine, and a southerly exposure is usually most desirable. Natural barriers frequently intercept the sweep of cold, destructive winds, and when these are lacking windbreaks may be planted to serve the same purpose. Depressions or sheltered coves should be avoided if the cold air has a tendency to collect in them, a free circulation of air being necessary to drive away frost. The low-lying lands seem to be the most subject to cold, stagnant air.

While experience has shown that the orchard trees of nearly all kinds can be successfully grown on soils that differ widely in their mechanical and chemical composition it has also shown that certain types of soils are best adapted to particular kinds of trees. Thus the best peach, almond, apricot and olive orchards of the West are found on the lighter or sandier loams; the best apple, cherry and pear orchards on heavier loams, while walnut, prune and orange orchards do best on medium grades of soil. The requirements of all, however, are a deep, rich and well-drained soil.

Formerly most Western orchards were supplied with water through earthen ditches. These leaky, unsightly channels, by reason of their cheapness, would have been quite generally retained had it not been for the increasing value and scarcity of water. The value of water for irrigation purposes has increased beyond the average of that given by the census report of 1902 over 300 per cent. In many localities there is likewise great scarcity at certain times. These rapidly changing conditions have induced many water companies to save some of their heavy losses in conveying water supplies by substituting pipes for open ditches in earth, or else by making the ditches water tight by an impervious lining.

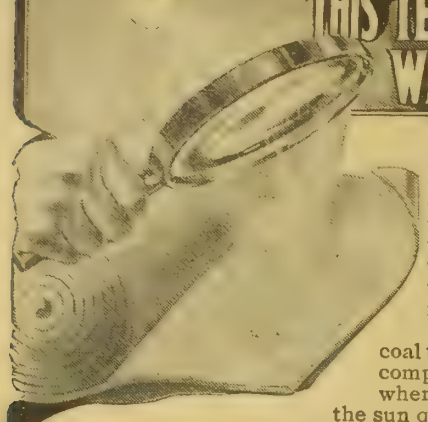
The high value and scarcity of the water in natural streams have likewise induced orchardists to install pumping plants to raise water from underground sources. It was estimated that in 1909 20,000 of these plants were in operation in California alone. In other parts of the West reservoirs are being built to supplement the late summer flow of streams which fail to provide enough water for all.

The few typical examples which follow may not only give the reader an idea of how orchards are supplied with water, but also indicate the customary division into tracts to serve this and other purposes.

The Lewiston Basin is located where Clearwater River flows into the Snake River in Western Idaho, and varies from 700 to 1900 feet above sea level. A few years ago water was brought from neighboring creeks and stored in a reservoir. The water required for orchard irrigation is conducted from this reservoir under pressure in two lines of redwood stave pipes over the rolling hills which separate the reservoir from the orchard lands. On these lands contour lines were first established, and each quarter section was afterwards divided into forty-acre tracts by sixty-foot streets. These were further subdivided into eight five-acre tracts, with a twenty-foot alley through the center. The large conduits from the reservoir are connected to smaller lateral pipes laid in the alleys, and these in turn are tapped by three-inch pipes, which furnish water to the five-acre tracts.

The town of Corona, California, is hemmed in on all sides by lemon and orange orchards. The chief water supply for these groves comes from Perris Basin, forty miles distant. The Temescal Water Company owns 3600 acres of water-bearing lands in this basin, and at favorable points pumping plants have been installed. These plants are operated by motors supplied with current from a central generating station located at Ethenac. The discharge from each pump is measured over a rectangular wier having an automatic register. Device is shown in Figure 1. Small lined channels convey the water from the pumps-

Irrigating From Cement Flume in Los Angeles County. —Courtesy L. A. Chamber of Commerce.



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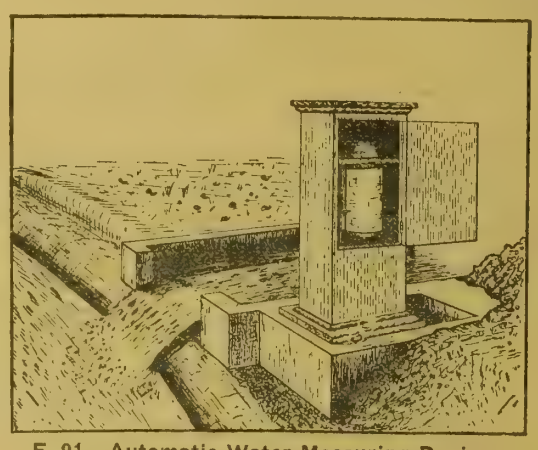
to the main conduit. The concrete lining of this conduit is composed of one part cement to seven parts sand and gravel, having a thickness on the slopes of two and one-half inches and on the bottom of three to four inches. The lining is rendered still more impervious by the addition of a plaster coat one-fourth of an inch in thickness, composed of one part of cement to two parts of sand. The cost was five and one-half cents per square foot, or fifty-five cents per linear foot. The main conduit consists of about thirty miles of lined canal and ten miles of piping thirty inches in diameter. The groves are laid out as a rule in ten-acre tracts, and piping of various kinds conveys the water from the main to the highest point of each tract, from which it is distributed between the rows in furrows.

A large part of the water used by the Riverside Water Company is pumped from the gravelly bed of the Santa Ana River. From thence it is conveyed in a main canal to the orchard lands and distributed to the groves in cement and vitrified clay pipes. The owner of a tract, whether it be ten, twenty, thirty or forty acres



F. 91. Automatic Water Measuring Device.

in extent, receives his supply at the highest corner through a hydrant box. Each hydrant box not only allows the water to pass from the end of a lateral pipe to the head flume of the tract to be irrigated, but also measures the amount in miner's inches under a four-inch pressure head as it passes through.

On the Gage canal system in Riverside, California, the water supply for the tiers of forty-acre tracts is taken from the canal in riveted steel pipes, varying from six to ten inches in diameter. These larger mains are connected with four, five and six-inch lateral pipes of the same material, which convey the water to the highest point of each ten-acre tract.

As a rule fruit trees are planted on land previously cultivated and cropped. One of the best preparatory crops for orchards is alfalfa. This vigorous plant breaks up the soil and sub-soil by its roots, collects and stores valuable plant foods, and when it is turned under at the end of the second or third year leaves the soil in much better condition for the retention of moisture and the growth of young trees.

In recent years large areas of wooded lands in both the Hood River and Rogue River Valleys of Oregon have been cleared in order to plant apple trees. One of the methods employed in the Hood River district to rid the land of its growth of fir, pine, scrub oak and laurel is by boring into stumps or trees and burning. Another method consists in splitting open the stumps with giant powder and then pulling out the roots with a stump puller. Stump pullers of various kinds are used in California for a like purpose.

An effort should be made to establish a fairly uniform grade from top to bottom of each tract. This is done by cutting off the high points and depositing the earth thus obtained in the depressions. The length of the furrows should not exceed one-eighth of a mile, and in sandy soil they should be shorter. As a rule it is not difficult to grade the surface of an orchard so that small streams of water will readily flow in furrows from top to bottom.

In setting out orchards which are to be irrigated the elevation of the surface of the ground should first be ascertained. This is usually done by making a contour survey by which each tract is divided into a number of curved strips or belts by level lines. With these as a guide the direction of the tree rows can readily be determined. Where the trees are watered in basins or checks flat slopes are not so objectionable, but in furrow irrigation a slope of about two inches to the one hundred feet is necessary to insure an even distribution of water. When streams are to be run in the furrows the slope of the furrows may be increased to eight, ten and even to twelve inches to the 100 feet. On slopes varying from ten to forty feet to the mile the tree rows may, therefore, be located at the proper distance apart down the steepest slope. Under such conditions the trees are most commonly planted in squares. The location of the trees can be best fixed by the use of a surveyor's transit and steel tape. When these are not available a woven wire cable about three-sixteenths of an inch in diameter will answer the purpose. If apple trees are to be set out, and it is desired to have them thirty-two feet apart tags are inserted between the strands of the cable to mark this exact distance. A base line at the proper distance from the fence or one margin of the field is then laid down and long sighting stakes driven at each tag. The corner is then turned and a similar line is laid out. This process is continued until the location of the trees around each of the four sides of the tract has been fixed. The corners can best be turned with a 100-foot tape or link chain. First measure from the end of the base line a distance of thirty feet. Hold the one hundred end of the chain at this point, and the ten-foot link at the corner; take the tape or chain at the fifty-foot mark or link and pull both lines taut. A stake driven at this vertex will establish a point on a line at right angles to the first. When stakes have been set on all four sides the intermediate locations for the trees can readily be ascertained by sighting between corresponding marginal stakes.

Where the slope is steep and difficulties are likely to be encountered in distributing water the equilateral, hexagonal or septuple method of planting, as it is variously termed, should be adopted. It will be observed that in this method the ground is divided up into equilateral triangles, with a tree at each vertex. The trees likewise form hexagons, and when one includes the center tree at each hexagon they form groups of sevens.

The chief advantage of this mode of planting in irrigated districts is that it provides three, and often four, different directions in which furrows may be run. Having the choice of so many it is not difficult to select one which is best for any particular tract. The ground can likewise be cultivated in more ways, and about one-seventh more trees can be planted to a given area than is possible in the square method.

In the past the trees of irrigated orchards have been planted too close. This is made clear to even the casual observer who visits the old orange groves of Riverside, California, the deciduous orchards of the Santa Clara Valley, California, or the apple orchards of the Hood River district in Oregon. Under irrigation systems peach trees should be spaced twenty to twenty-two feet; olive, pear, apricot and cherry trees from twenty-two to twenty-eight and thirty feet, orange trees twenty-two to twenty-four feet, apple trees thirty to thirty-six feet and walnut trees from forty-eight to fifty-six feet apart.

On the Pacific Coast the tendency toward wide spacing has induced many growers to insert peach fillers between other slower maturing trees, such as the apple and walnut.

The usual way of irrigating orchards is by means of furrows. These vary in depth, length and distance apart, but this diversity does not tend to create different kinds of furrow irrigation. The division of this subject is rather due to the means employed in distributing the water from the supply ditch to the furrows. In some cases the distribution is effected by making openings in an earthen ditch, in others by inserting wooden or iron spouts in the ditch banks, while in many others flumes having the desired number of openings, or pipes with standpipes, divide the supply among the requisite number of furrows.

Permanent ditches at the head of orchard tracts should be located by a surveyor. The proper grade depends chiefly on the soil. If the soil is loose and easily eroded a slow velocity is best. On the other hand, the velocity must be sufficiently rapid to prevent the deposition of silt and the growth of water plants. In ordinary soils a grade of two and one-half inches to one hundred feet for a ditch carrying two cubic feet per second is not far out of the way. The amount of water to be carried varies from one-half to two or more cubic feet per second. A ditch having a bottom width of twenty-four inches, a depth of six inches and sloping sides ought to carry one and one-half cubic feet per second on a grade of half an inch to the rod, or three inches to one hundred feet. Such a ditch may be built by first plowing four furrows and then removing the loose earth either with shovels or a narrow scraper. Canvas dams, metal tappoons or other similar devices are inserted in the head ditch to raise the surface of the water opposite that part of the orchard where furrows have been made, and which is about to be watered. The chief difficulty in this mode of furrow irrigation arises in withdrawing water from the ditch and in distributing it equally among a large number of furrows. A skillful irrigator may adjust the size and depth of the ditch bank openings so as to secure a somewhat uniform flow in the furrows, but constant attention is required in order to maintain it. If the water is permitted to flow for a short time unattended the distribution is likely to become unequal. Parts of the ditch bank become soft, and, as the water rushes through, the earth is washed away, permitting larger discharges and lowering the general level of the water in the ditch so that other openings may have no discharge. Some of the orchardists of San Diego, California, insert in niches cut in the bank pieces of old grain sacks or tent cloth. The water flows over these without eroding the earth. Another device is to use a board pointed at the lower end and containing a narrow opening or slot, through which the water passes to the furrow. Shingles are also used to regulate the flow in the furrows. The thin ends of these are stuck into the ground at the heads of furrows.

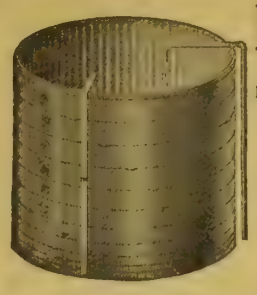
In recent years short tubes or spouts have been used in many of the head ditches of orchards to divert small quantities of water to furrows. These tubes are usually made of wood, but pipes made of clay, black iron, galvanized iron and tin are occasionally used.

For nurseries, and young trees especially, and also for mature trees, a cheap and serviceable tube may be made from pine lath, such as are used for plastering. The four-foot lengths are cut into two equal parts and four of these pieces are nailed together to form a tube. One of these tubes, when placed with its center two inches below the surface of the water in the head ditch, discharges nearly three-quarters of a miner's inch of water. In some of the deciduous orchards of California a still larger wooden tube or box is used. It is made of four pieces of three-quarter by three and three-quarter inch redwood boards of the desired length. The flow through this tube is regulated by a cheap gate, consisting of a piece of galvanized iron fastened by means of a leather washer and a wire nail.

In making use of tubes of various kinds to distribute water to furrows it is necessary to maintain a constant head in the supply ditch. This is done by inserting checks at regular distances. These distances vary with the grade of the ditch, but 150 feet is not far from being an average spacing. In temporary ditches the canvas dam is perhaps the best check, but in permanent ditches it pays to use wood or concrete. In this the opening is controlled by a flashboard, which may be adjusted so as to hold the water at any desired height and at the same time permit the surplus to flow over the top to feed the next lower set of furrows.

Formerly head flumes for orchards were built of wood, but the steady increase in the price of lumber and the decrease in the price of Portland cement have induced many fruit growers to use cement instead.

A head flume composed of cement, sand and gravel costs, as a rule, about twice as much as a wooden flume of the same capacity, but the early decay of wood, especially if it comes in



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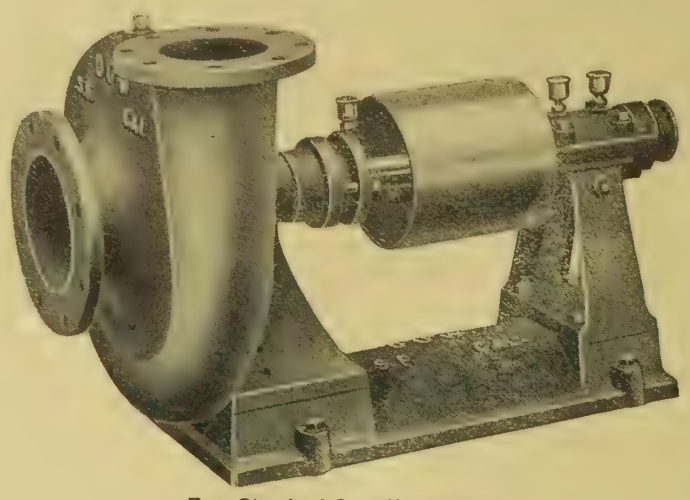

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contact with earth, makes the cement flume cheaper in the end.

For large head flumes and laterals many fruit growers first carefully prepare an earthen ditch which has carried water for at least one season and afterwards line the inner surface with cement concrete.

Head flumes, being placed on the surface of the ground, interfere with the free passage of teams in cultivating, irrigating and harvesting the crop. Dead leaves from shade and fruit trees also clog the small openings in the flumes. These and other objections to flumes have induced many fruit growers of Southern California to convey the water in underground pipes and distribute it through standpipes placed at the heads of the rows of trees. Both cement and clay pipes are used for this purpose.

The former are usually molded in two-foot lengths, with beveled lap joints, and consist of a one to three or one to four mixture of cement and fine gravel and sand. The most common sizes are six, eight, ten and twelve inches in diameter, having a thickness of shell in the twelve-inch pipe of one and one-half inches, which is reduced to a trifle more than one inch in the six-inch pipe. Piping of this kind, when well made and carefully laid, will withstand a head of ten to sixteen feet. The clay pipe is similar to that used in cities for sewers and, having stronger joints, withstands a greater pressure, but costs more. A line of pipe is laid about two feet below the surface from the feed main and measuring box across the top of the orchard, and as each row of trees is passed a standpipe is inserted. Various devices are employed to convey the water from the pipe to the surface of the ground at the head of each tree row and divide it up evenly among four to six furrows. One of the most common consists of a series of standpipes, the top of each set rising to the same elevation. At each change of elevation special standpipes are used, and in these are inserted gates provided with overflows. Occasionally a high pressure pipe is substituted for cement and clay.

The length of the furrow is often governed by the size of the orchard. The rows of citrus trees seldom exceed forty rods in length, but the apple orchards of the Northwest are larger as a rule. Even in large tracts it is doubtful if it ever pays to run water in furrows more than about 600 feet. Where the soil is open and water sinks readily through it short furrows should be used, otherwise much water is lost in deep percolation on the upper part of the tract.

The grade of furrows varies quite widely. In flat valleys it is often not possible to obtain a fall greater than one inch to 100 feet, while on steep slopes the fall may reach twenty inches per 100 feet. On ordinary soils a grade of three to four inches is to be preferred, and where the fall exceeds eight to ten inches to 100 feet the trees should be set out in such a way as to decrease the slope of the furrows.

The furrowing implement most commonly used by the orchardists of Orange County, California, consists of a sulky frame, to which are attached two or three double mold-board plows. Those who prefer a small number of deep furrows use a twelve to fourteen-inch corn lister. The space between the furrows is four and one-half feet and the depth is regulated by the lever arm of the cultivator.

Paine's Pruning Method

We have a letter from Mr. Chas. R. Paine of Crafton in which he refers to a report in the Redlands Facts of an address by Dean Wickson in which Mr. Paine's methods of pruning are referred to as the "opening of the outer wall of foliage" by the removal of the older and somewhat useless portions of the side branches. That is established usage in pruning and will never lose its value, for, as long as life in the tree is active, it is necessary to rid it of the old parts that room may be made for the new.

Mr. Paine's method includes the additional feature of opening the top of the tree by cutting out upright central limbs or branches of the upper side limbs that overhang the middle portion of the tree.

The work looks destructive at first view, but when the results appear from giving, for a long period, the opportunity for a rich and lively growth, all along both good and poor branches, the owner is satisfied that the work was not wasteful. The main part of such work need not be repeated, because the weight of branches and fruit serves to continue the opening; thereafter, only the too vigorous growth tending to close the top opening needs to be kept down.

The method is of great value in trees that are weak and poor from any cause, and of special value in trees that are decadent. This is so because, in all such trees, terminal growth is crowded because of its quantity and poorly nourished in all its parts, for the same reason; this is indicated by small, yellowish leaves and by dead twigs and wood throughout the tree. Such a state of the tree leaves unused a large store of plant food, gathered during its previous life, existing in trunk and limb; whereas the top opening, by always affording free access of the energy of light and free circulation of air, from which half of the plant food material is derived, gives opportunity for abundant growth of fruit wood, chiefly, and revives all parts, save the exhausted end twigs, which ultimately should be cut off.

The total absence of dead wood, the vivid green of the new inside foliage as contrasted with that outside, the tendency of this new growth to fruitfulness of high quality and the rarity of sucker growth, unite to convince the man who has practiced the method of its value and importance.

Recently thirty-two hours of work by men wholly inexperienced fully prepared three hundred and ten good-sized orange trees for renewing life, and little more than six minutes of time was used on each tree; in side limb pruning—always a useful process—a man in nine hours ordinarily prunes from ten to fifteen trees. The latter method is seen to be much more expensive and is far from being as beneficial, and may be neglected if the open top method is practiced.

Because this is the season to experiment or to proceed to make a regular use, as some have, of this method, now proven to be so effective and economical, is the reason many have visited Mr. Paine's orchard and are making a test of the merits of his pruning methods in their own groves this spring.

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For example, Likfreshed peaches or apricots soaked in cold water, then eaten with sugar and cream, will taste as if just picked from the tree. Apple sauce made of Likfreshed apples, has the flavor, firmness, and appearance of sauce made from the fresh article. Likfreshed roasting ears, cabbage, string-beans, cauliflower, pumpkin, squash, rhubarb, strawberries, loganberries, raspberries, etc., will have the appearance, flavor and in every way resemble the fresh article when cooked.

This means higher prices for your cured products. Cheaper production and higher prices mean more profits for you.

Inquiries have been received from all over United States and Canada, asking for samples and information as to where the product can be bought in large quantities. The market is ready—it is time for you to make ready to supply the demand.

We install your plant for you ready to run. We build the first fire, test the machine and teach you to run it. In short, turn the plant over to you in perfect running order and under your control.

Every fruit man should see the Likfreshing machine in operation. You are invited to visit our demonstrating plant at Berkeley, bring something with you and watch it put through, bring as much as you like.

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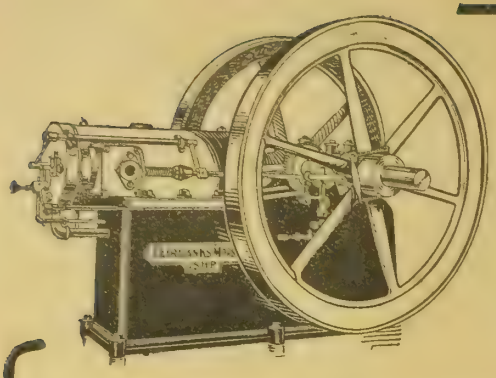

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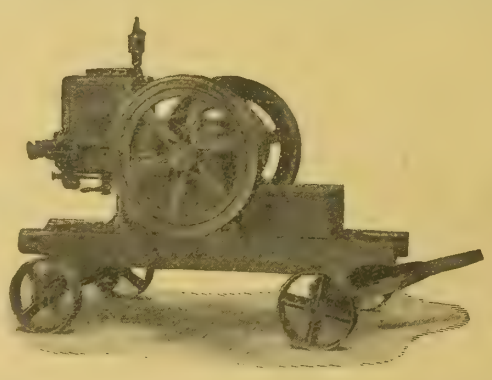

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We have something to show you which will keep the boys at home and the housewife happy. No more turning the grindstone and washing machine until the back aches. Let the little engine do it. This little

Triumph Engine

Is no common, cheap thing. It is made like a watch, handsome enough to put in the parlor. A ten-year-old child can haul it around and set it in operation. Such a labor-saver! It will pump the water, churn the butter, run the washing machine, the cream separator, the corn sheller, the feed grinder, grind bones for the chickens, milk the cows, freeze the ice cream, rock the cradle, run the wood saw, spraying outfits, grinding mills, horse clippers, drill presses, printing presses and hundreds of other things. Only $65.00 for 1 H.P.; $75.00 for 2 H.P. Don't fail to call and see them, or send for circulars.

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Irrigating Texas Oranges

From the Citrus Fruit Grower of Texas we note the following regarding the irrigation of oranges in that state:

Flooding.

This system of irrigation is recommended only for soils to be newly planted with some crop—it is a very rapid way to get water over the land. The irrigator has to work in the water and has to use all his strength and speed to help the water reach all points, which however, it never does in equal volume. Flooding is adapted to lands that will take water rapidly and where the run is short; the land level and the borders high enough to hold sufficient quantity of water for vertical percolation.

Check System.

This is a modification, and is a great improvement, of the flooding system—it is really flooding. By the use of ridges or levees thrown up 6 to 12 inches in height; the size of the checks can be made 6 to 12 feet square, depending on the size of the trees to be watered; if the trees are very large all the land in the orchard can be checked off so that all the spaces between the trees can be irrigated; this method makes it possible to know that a certain amount of water has actually been applied, because it is easy to see the depth of water which stood in the enclosure; it also enables the irrigator to quickly spread a considerable depth of water over the surface, and facilitates the use of a large run of water in a very short time.

The Furrow System.

The small furrow system is the best. The furrows are made with a single plow, or several plows attached to a frame—from four to twelve plows can be used. The plows are set about one foot apart on the frame; one or two good sized wheels can be set a few feet apart in front on a shaft ahead of the plows to steady and regulate the depth. It is important that the land should have equal areas and that the surface should be free from depressions to prevent the water from collecting until it rises above the furrows and running together in a pond; the furrows should run on a very light grade through the orchard, which allows the water to soak in better; the furrows can be run on the contour lines or at right angles. On hill sides and heavy slopes or where there is considerable drop, flumes should be used from one level to another; these are made from steel pipe, terra cotta pipe, concrete or lumber, with gates or check valves at different intervals to regulate the flow of water.

Remarkable Area Mapped

The United States Geological Survey's topographic map of the Mount Lyell quadrangle, California, which was recently brought up to date by field surveys has just been reprinted. It shows a fine piece of mapping of a remarkable part of the High Sierra. The area mapped affords one of the best illustrations of the old lowland plain which, uplifted in early geologic time, now forms the crest of the Sierra in California to the west and south of Mount Dana and Kuna and Koip peaks. The quadrangle contains a portion of the famous Mono Lake, which is about 15 miles in diameter. This lake has no outlet and lies in a beautiful mountain valley where there are perhaps 20,000 acres of volcanic land that under irrigation will yield large crops of alfalfa, grass, and other products. To the west and southwest extends the great backbone of the Sierra with a multitude of peaks which tower to heights of 10,000, 11,000 12,000, 13,000 feet, and even higher. South of the lake are the Mono craters, once active volcanoes, and one or more similar craters are probably covered by the lake itself.

Water Power Streams.

Tuolumne, Merced and San Joaquin rivers head in this high mountain region. The Tuolumne flows through the beautiful Hetch Hetchy Valley and the Merced through the more famous Yosemite Valley in the Yosemite National Park. On all these streams there are splendid water powers; indeed the Tuolumne and the San Joaquin, whose waters merge in the region of the northwest of the Mount Lyell quadrangle, have probably as great if not greater possibilities for the development of water power than any other two streams in California. Portions of the Mono and Sierra national forests are included in this area.

The fine forest area on the west slope of the mountains is one of the most striking examples of beautiful rugged mountain country west of the Sierra divide, where there is abundant verdure and ample water power. Immediately to the east, in Pumice Valley and around Mono Lake, is the border of the great Nevada desert. Looking down upon this desert country and upon Mono Lake is Mount Dana 13,050 feet in height, the descent from its peak to Mono Lake, a distance of 8 miles, being 7638 feet.

Glaciers and Trout Streams.

Many examples of fine glacial sculpturing are seen in the Mount Lyell quadrangle and the region abounds in large and small glacial lakes and streams which are alive with trout of many varieties. A number of picturesque glaciers contribute to the water supply.

Lyell Canyon, heading on Mount Lyell at an altitude of 13,090 feet, is a splendid U-shaped glaciated canyon, the original V-shaped gorge having been scoured and ground out into its present form by the irresistible forces of the ice flow. In the southern portion of the quadrangle is the Devil's Post Pile, a great mass of basaltic columns rightfully regarded as one of the natural wonders of the Sierra. In the vicinity of Iron Mountain and the Minarets is a highly mineralized section in which gold, silver, copper, and iron show good prospects.

The quadrangle is traversed by many trails and some good roads, which are frequented each year by mountain-loving tourists. In 1909 the state built a road from Leevining

Creek to the Tioga road, leading to Tioga Lake, making a through route across the mountains. This road opens easy communication from the entire Nevada desert country, including the Mono Lake, Tonopah, Goldfield, Death Valley, and Owens River regions, through to the coast. The only other available wagon roads are those over Sonora Pass, 50 miles to the north, and Walker Pass, 200 miles to the south.

The Mount Lyell map is sold by the Geological Survey at Washington at the nominal price of 5 cents. A portion of the quadrangle is included in the area shown on the Yosemite National Park administrative map, the pocket edition of which, bound in covers, is sold at 35 cents singly, or 21 cents each if at least fifteen are purchased.

Irrigating the Fig Tree

By G. P. Rixford.

Among our deciduous fruit trees the fig is conspicuous in thriving vigorously over a large portion of California without irrigation, while in the hot, dry valleys it flourishes with a moderate quantity of water, applied for a short time only. This is what would naturally be expected considering the prevailing arid conditions of its early habitat in the old world. The tree has been cultivated from the earliest historic times over a broad belt commencing in eastern Persia and extending through Arabia and Egypt and along both shores of the Mediterranean as far as the Azores Islands.

In the drier portions of the great valley of the state water in early summer is indispensable. A successful Symrna fig grower on the eastern side of the San Joaquin Valley conceived the idea that his crop would be improved by withholding water entirely. So last summer he gave his forty-acre orchard of eight-year-old trees, planted on red clay loam, no water whatever. The result was a light crop of undersize figs.

In the central San Joaquin Valley where the Smyrna fig industry has its greatest development, the tree requires some irrigation in early summer to keep it in vigorous growth and to produce large fruit, but should not be watered after August 1st. Many growers never irrigate after June 1st and others stop at the time of caprification in June, but the time for withholding water is regulated somewhat by the weather and the character of the soil on which the trees are planted. The reason for stopping irrigation in midsummer is to allow the new growth to ripen and be better prepared to endure the winter frosts. The succulent growth of the fig tree is very sensitive and if kept pushing by continual applications of water until the hard frosts occur, the tree will suffer severely. Trees seven or eight feet high in this condition are sometimes killed to the ground, while if the wood is well hardened it will endure without injury a temperature of twelve to fourteen degrees of frost.

Each irrigation should be followed by cultivation and the last time by the disk or other tool that will leave a mellow surface upon which the ripe and partially dried figs may fall.

Some Fundamentals

By J. B. Neff.

Before beginning irrigation we should know something about the movement of water in the soil and the amount necessary to produce a given crop. Prof. King of Wisconsin has spent much time in making experiments to determine the amount of water used in the growth of plants and has concluded that it requires from 300 tons to as much as 750 tons of water to produce a ton of dry matter, and this in addition to the moisture that goes off from the ground without passing through the leaves of the plants. Since it is not possible to prevent some evaporation from the ground it will be seen that a quantity largely in excess of this is required. Enough water to cover an acre one inch deep will weigh about 113 tons, so that if there is to be one ton of hay grown on an acre there must be from three acre-inches to five acre-inches of water applied at the proper time in excess of that wasted by evaporation. The amount required by trees is not so readily determined, but the soil must be kept continually moist and it has been found that in order to have the best results in localities where there is an average of fifteen inches of rainfall, and when good cultivation is done to prevent excessive evaporation, from twelve to fifteen acre-inches of irrigation water is necessary to carry a walnut orchard fifteen years old through the summer. About five acre-inches is needed for oranges and from five to ten inches more for lemons.

The free water which forms the visible liquid layers on the soil grains or occurs between them is pulled down by gravity and eventually goes out into the country drainage if there is an excessive amount of water applied. The water which is held by the soil particles against the force of gravity is called capillary water. This cannot be seen as liquid water, but may be recognized by its effect on the color of the soil. It is free to move in any direction and it is from this water that cultivated plants and trees get most of the water necessary to their growth.

There is no fixed rule as to the time of irrigation nor the amount to be applied at one irrigation, but it must be borne in mind that water enough must be applied to thoroughly moisten all the soil of the orchard to a depth of five feet and that all the water that goes more than two feet below the feeding roots is likely to be lost and to take with it some of the soluble fertilizers of the soil.

Water that is applied in furrows will not usually percolate sideways more than 18 inches from the furrow, so in order to moisten all the ground the furrows must not be more than three feet apart. A common practice is to make four to six furrows between

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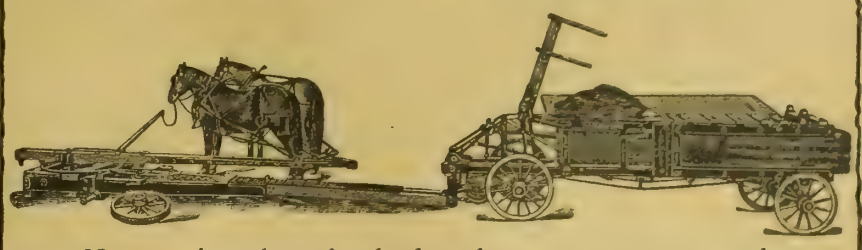

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Get your order in to us quickly, as it will soon be too late to secure them in time for this season's baling.

We also have the Sandwich Engine-power Belt Presses—splendid machines of wonderful capacity; also smaller presses—all-steel, self-feed.

Here is one of the many testimonials which have been given us:

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I have worked on a Southwick horse-power press for twelve consecutive seasons, and now own one which I bought from you two years ago. I have baled as high as 40 tons in one day. On one occasion we baled 20 tons before noon, and last season I averaged 32 tons per day for the entire season's run, during which time I baled 2060 tons of all kinds of hay. I would not have any other kind of Hay Press.

Yours very truly,
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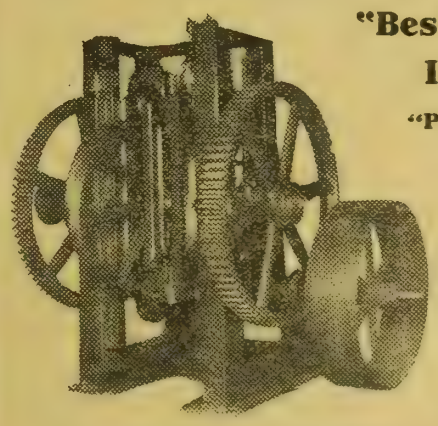

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"Luitwieler pumps are equipped with adjustable sliding bases for quick handling over the well. Pump may be removed in a few minutes. Also note that it does not require the services of a skilled mechanic to take apart and put together again when replacing leathers on the plungers."

"Luitwieler pumps apply the power uniformly and do not break rods. We guarantee absolutely against rod breakage. We also guarantee the least power consumption of any pressure pumping method. We further guarantee our cams and rollers against ever wearing out. No time limit."

"There is a reason for our success. Our pumps are most economical and most durable. Give us a trial to be convinced by your own experience. Established 1877.

LUITWIELER PUMPING ENGINE CO.

LOS ANGELES

the tree rows, leaving a space of six to twelve feet in the tree row without furrows. In such cases there will be a space of several feet in width which is too dry to furnish plant food and is of no benefit to the owner during the dry season.

When furrows are used to distribute water they should be as deep as can be conveniently made and should not be so long that the water will go too deeply at the upper end of the orchard before it is sufficiently deep at the lower end. This can be avoided by making more head ditches and shorter runs. If basins are used a certain amount can be run into the basin the opening stopped and the water allowed to stand until it enters the soil.

The only sure way of determining where the water is going is to dig short trenches across the furrows about 24 hours after the water has stopped running, or to dig a number of holes, and in this way see how much of the soil is moistened. Soil that is moist to the depth of four feet at that time will be sufficiently moist and will not have any excess of water that will go below the feeding roots of which fully ninetenths are within four feet of the surface.

Irrigation of Covina Valley

By Ben F. Thorpe, Covina.

The irrigation of the Covina valley is provided for by the Covina Irrigation company and the Azusa Irrigation company. Both of these companies are incorporated, and their stock is held by the owners of land in the district. Water stock in the Azusa Irrigation Company is appurtenant to the land, three shares belonging to each acre in the district. They have a fine system of pipe lines which take the water of the San Gabriel river above Azusa, and thence conduct it to the stockholders of the company. Their territory extends from Azusa on the north to the Covina city limits on the south, and west to the lower end of Irwindale. This company is noted for having the best system of pipe lines, and distributing boxes with measuring gates, of any district in Southern California.

The Covina Irrigation Company is a stock company, and also takes its water from the San Gabriel river near Azusa. Its lines extend east to Charter Oak, and south to the Baldwin ranch, and they have a good system of pipe lines for distributing the water to the users, and large reservoirs for storage of water, near the town. Both of these companies own large wells and pumping plants, as an auxiliary supply when the river water is insufficient, and these two sources give Covina one of the best water supplies of the citrus belt in Southern California.

Methods of irrigating the orchards vary. In the localities where the soil is heavy, the furrow system is extensively used; other growers use the zig zag system, which is used by the majority, and in some of the lighter soils the basin system is used to good advantage. The orchards are irrigated about every thirty days during the summer months. Japanese labor does most of the work.

On the lands south of Covina on the Baldwin ranch the irrigating is done by means of pumping plants which furnish a good supply of water, and have made possible the planting of hundreds of acres to orchards that were formerly used to grow hay and grain, and have worked a transformation in this locality.

COMING BULLETIN.

The United States Department of Agriculture will shortly issue a report entitled "Irrigation in San Joaquin Valley, California," by V. M. Cone, which is available for free distribution as long as the supply lasts, on application to U. S. Irrigation Investigations, Berkeley, Cal.

This report gives an account of the physical and industrial conditions in San Joaquin Valley and describes present irrigation on each of the present streams of the valley. There are over 7,000,000 acres of land in the floor of San Joaquin Valley, of which about two-thirds are irrigable, and more than a million acres now irrigated.

In connection with previous irrigation bulletins issued by the United States Department of Agriculture, this report provides a fairly complete statement of the irrigation conditions and problems of this important part of California.

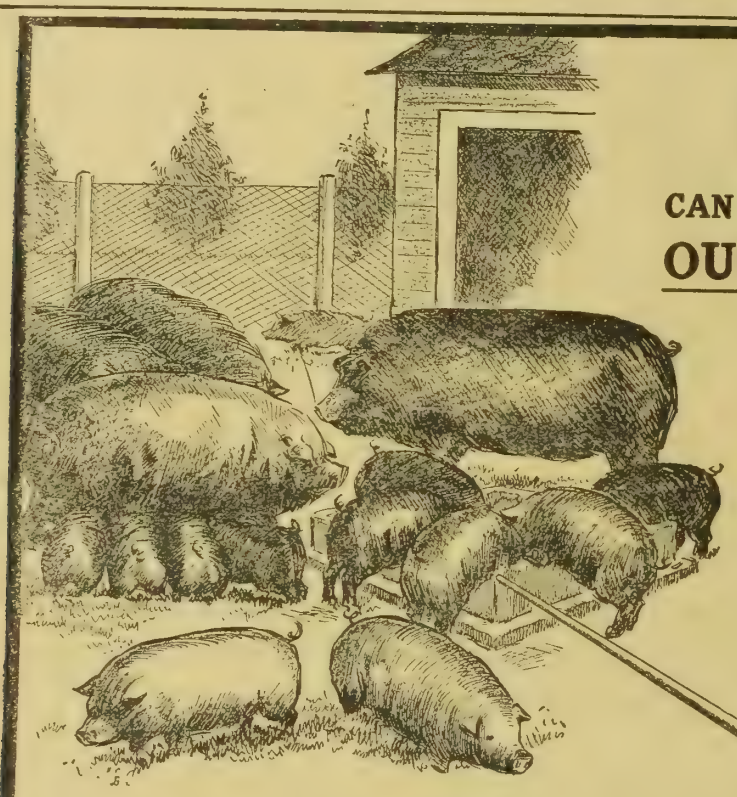
WAY TO MEASURE WATER.

The quantity of water running in a large or small stream or in a ditch can be measured very simply without the use of a weir, if an approximation of the flow will suit the purpose. First secure the mean velocity in feet per minute by throwing a floating body such as a straight straw or thin stick of wood into the center of the stream, where, of course, the water is flowing the fastest. The stick should be thrown some distance above the point to be measured, so that by the time it gets down it will have acquired the velocity of the water. Measure off fifteen or twenty feet, and take the time consumed by the stick in going this distance. This velocity is much more than the mean velocity of the stream. In fact, take 83 per cent of this velocity as the average. Next secure the cross section by getting the average depth, which can be found by measuring the depth in a number of places at equal distances across the stream, adding them together and dividing by the number of measurements taken. This will give the average depth, which should be multiplied by the width of the stream at the surface for the cross section. Thus if it is found that the float traveled twenty feet in ten seconds, then the stream is flowing two feet per second. If you desire to be more exact, take 83 per cent of this velocity. Then multiply by the cross section and you will have the cubic feet per second.—Exchange.

One Colorado inch equals 17,000 gallons in twenty-four hours.

One second-foot equals 59½ acre-feet in thirty days.

One million gallons equal 3.069 acre-feet.



PIGS

CAN BE RAISED CHEAPER ON

OUR SMALL FARMS

In the SACRAMENTO VALLEY

CALIFORNIA

than in any other known section of the United States. This fact is due to the large quantities of alfalfa that can be grown here and the even temperature, which makes it possible for pigs to forage in the field every month in the year.

Packing houses in Sacramento and San Francisco will contract for all the hogs you can raise—the market is always short on hogs, and good prices prevail.

Hog raising is one of the most profitable industries in the Sacramento Valley, owing to the long growing season, the mild winters and the bountiful yield of alfalfa and grain.

A good stand of alfalfa, a year old, will support from 12 to 25 hogs on an acre throughout the year. Good sows will average 5 to 6 pigs each litter and will bear twice a year. In from 10 to 12 months' time, a hog raised on alfalfa alone should weigh from 200 to 250 pounds. Hogs meet with a ready sale at from 5 to 8 cents a pound. A little figuring will show you the possibilities of 20 to 40 acres of alfalfa one year old stocked with hogs. Stock can be raised from birth to maturity "without a shiver."

You can purchase one of these small farms on very liberal terms—

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By making this small cash payment any man who is willing to work will win; every month in the year he can produce from this fertile soil some article of food that can be converted into immediate cash.

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There is a charm to the life of a Sacramento Valley farmer; work is a pleasure out in the open air. He is king of his own little kingdom. In acres he knows that

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The Sacramento Valley Irrigation Company will sell you from 20 to 80 acres of their great project on very easy terms. $15 an acre as a first payment and the balance spread over ten years—$125 an acre in all. Ten years to make good. Could you ask for a better opportunity to meet success face to face? Write today for full information.

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Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

THE NECESSITY OF LIBERAL FEEDING.

Not long since an Eastern gentleman was looking over the Hoard's Dairyman herd. He remarked to us that he had rarely seen so many two-year-old Guernsey heifers in milk that showed the same size and vigor, and he asked us to explain how it was done.

We replied that the only explanation we could make was that it was a settled policy on our farm to feed and nourish the young heifers well from calfhood up. Also that having an abundance of alfalfa hay, that of itself was a great aid to such a result. We have often observed in these columns that a good cow was either made or unmade in the first two years of her life. This question should occupy the attention of dairy farmers more than it does. Dr. Hopkins, in his book, "The Story of the Soil," states the question well as follows:

"As a matter of fact there is a time in the life of the young mother, as with the two-year-old cow, for example, when she must abstract from the food she consumes sufficient phosphorus for the nourishment of three growing animals—her own immature body, a suckling calf, and another calf as yet unborn."

Now, phosphorus, or phosphate as it is ordinarily termed, is one of the principal elements of nutrition to both plants and animals. We can only get a true understanding of these things by a study of the scientific side of farming. Any man of average intelligence can absorb such knowledge if he will but read and study on those subjects. Then he begins to understand what true farming means. When he hears or reads about nitrogen, or protein as it is sometimes called, and phosphate, and potassium, or potash as it is more generally called, he does not turn aside and say "no book farming for me."

The true farmer provides himself with books and papers that contain such reading. He nourishes his mind just as he knows his soil and his animals must be nourished. What a difference there is between farmers in this respect! You will see here and there one with a well-nourished, well-stored mind; others with half-starved minds; and their soils and animals show the effect of this mental nourishent or starvation in either case.—Hoard's.

KEEP THE COLT UP.

Nearly everyone aims to give his brood mares about a week's rest after foaling, but on few farms are sufficient horses kept so that they can be allowed a longer period of rest than this.

When the mare is again put into the fields, shall the colt be allowed to follow the mare, or kept in the barn?

The latter is the better plan in many ways. If the foal is allowed to follow its mother to the field, to trudge after her all day long, it will be completely tired out long before the day's work is ended.

It is also in danger of being injured in various ways. It would be far better off left at the barn, in a lot, or, if the weather is bad, in a box stall, where it can do itself no harm.

After the first day the colt will cease to be restless, and will become perfectly contented as soon as its mother is taken out of its sight.

Also, under this plan, the mare will work as well as usual, after the first day or two, which would not be the case if the colt were in the field where she could keep it in sight most of the time.

The first week, of course, it will be necessary to unhitch the mare in the middle of the forenoon, and again in the middle of the afternoon, and take her to the barn and allow the colt to suck, but this is not one-half as inconvenient as having the colt in the field to get in the way and to keep its mother in a flutter of excitement. It will not be long before the colt can be left away from its mother half a day at a time, and then the mare can be worked without any inconvenience whatever.

If there are two or more colts, put them in a lot together when their mothers go to the fields, and they will be more contented.

When there is any necessity of having the brood mare away from home all day, the colt should be haltered to her side. If on the road, there will then be no danger of the colt running back, or up branch roads, or following other mares.

Haltering the colt to the mare is a particularly wise precaution when a trip is to be made to town, or anywhere where railroads have tracks to be crossed.—Journal of Agriculture.

COWPOX.

Place the affected cow by herself or at end of row of cows in stable and milk last or have her milked by one who does not come in contact with the other cows. The disease is contagious and spread by the medium of the milker's hands. Twice daily bathe the udder with a solution of half an ounce of hyposulphite of soda in a quart of water and paint the sores with glycerite of tannin as often as found necessary. Let the milker wash his hands in a similar solution and after milking each cow.—Farmer and Stockman.

HIGHEST IN TWENTY-NINE YEARS

The Thirty-ninth annual report of the Elgin board of trade shows that the average price for butter for the year 1910 was the highest that it has been in twenty-nine years. The average price was 29.8 cents. In 1882 the average price was 33 2-3 cents, the lowest average price was in 1896 when it was 17.8 cents.—Hoard's Dairyman.

Writing of general conditions in Sacramento County, Mr. H. L. Murphy, owner of the Brighton herd of Shorthorns at Perkins, says that his little advertisement in the Cultivator brought him many letters and has resulted in much business. On the fruit situation he says the outlook is good. Farmers are all cutting alfalfa now and there is a fine yield. A recent sale of grade dairy cows of over 70 head, averaged $100 per head, one selling at $210.

The Brighton herd has just been increased by a bunch of fine registered Berkshires of over 50 head brought in from the East. They are all of the best breed, one September pig topping the scales at 225 pounds. This fellow cost $150. Mr. Murphy predicts "The largest showing of Berkshires at the next state fair ever known."

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

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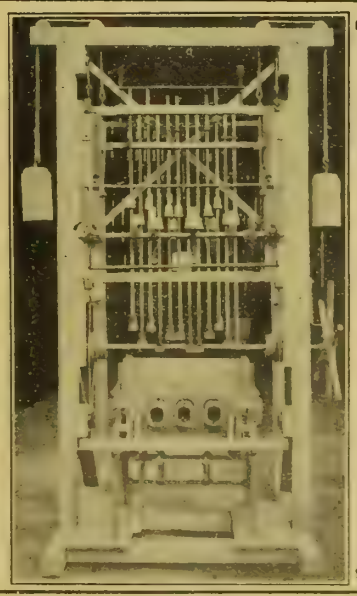

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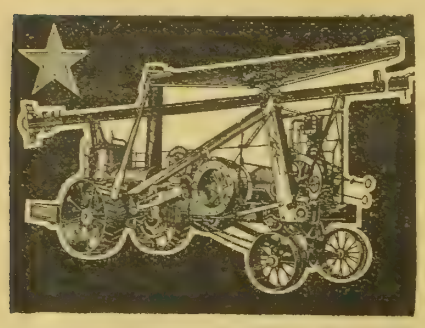

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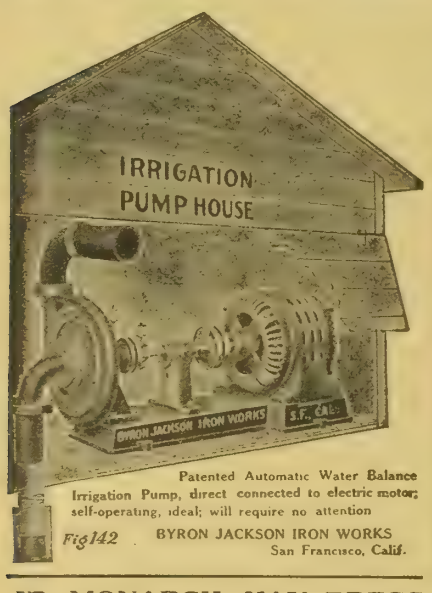

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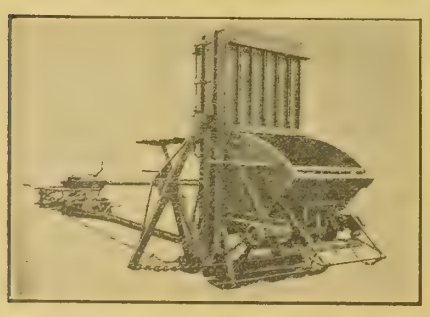

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COTTONSEED MEAL FOR HOGS.

Many of the experiment stations in the north and the agricultural press and others have sounded a warning in regard to the danger in feeding cottonseed meal to hogs in the usual way of feeding, but it has been found by practical experiments, that it can be fed safely to hogs according to directions given below, and that it is one of the cheapest grain foods that can be furnished at present prices, taking into consideration the nigh per cent of protein carried by it.

Make a mixture in bulk, about one-third cottonseed meal and two-thirds corn chops, whole corn, wheat bran, or shorts; mix with water to a thin mush in two vessels (an old barrel sawed in two is good), and leave to sour or ferment, which will take from twelve to forty-eight hours, according to the weather and other conditions; then feed from these alternately, using the contents of the one while that of the other is left to sour.

A good growing ration may be based on one pound of dry mixture per hundred pounds of live weight. For quick fattening this may be doubled, quadrupled, or even more largely increased. Indeed, the Texas Experiment Station fed as much as seven and a half pounds per day to 150-pound hogs, though this is extreme and uneconomical, if not positively dangerous.

When ready to feed add fresh water to the feeding ration sufficient to bring to a thin slop, about the consistency of sweet milk, and give the hogs all they will clean up.

All hogs eat it greedily and all thrive on it from the lordly head of the herd, to the tiniest grunter. But for "piggy" or suckling sows it is especially valuable, giving to the pigs, both before and after farrowing, a growth and vigor attainable with no other feed on earth.

In an experience of over twenty-five years I have never seen a hog refuse to eat it, or injured by it. Indeed, it is not only the best and cheapest feed on earth, but it is an efficient prophylactic and hogs fed on it seem entirely immune to many of the common ills that hogs are heir to.

As to feeding value of cottonseed meal compared with corn, chemical analysis, confirmed by years of practical tests, answer thus: A hundred pounds of corn contains from six to ten pounds of protein, four to six pounds of fat and about sixty-five to seventy pounds of carbohydrates. A hundred pounds of cottonseed meal contains from forty-five to fifty pounds of protein, from eight to twelve pounds of fat and about twenty-five pounds of carbohydrates.

The agricultural experiment stations and the agricultural text books, all teach us these things:

First. To feed a balanced ration.

Second. That a balanced ration is one in which the three important food elements, protein, fat and carbohydrates, are combined in such proportions as to meet the needs of the body in the best way at the lowest cost.

Third. That protein is the most valuable food constituent, supplying growth, muscle, bone and lean meat, and by it the value of all feed is measured.

Fourth. That fat in feeds supplies heat and energy and builds up fat in the body, but makes no muscle or flesh.

Fifth. That under the general term carbohydrates are classed in the starch and sugars present in all feeds, forming the cheapest and most abundant feeding material and, like fat, giving heat and energy, but making no flesh, bone or muscle.

Sixth. That a balanced ration for hogs should contain about one pound of protein to every five pounds of fat and carbohydrates.—American Swineherd.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

LIVE STOCK INVESTIGATIONS.

All experimental work that goes beneath the surface is beset with obstacles in which many sciences are intricately entangled. Every technical problem in agriculture yields both definite and indefinite results under scientific investigation. Not only are the data themselves surcharged with subtle differences, oppositions, interrogations and contradictions, but the attitude and the personality of investigators are factors in the difficult search for truth. It is not improbable that experiments sometimes produce more positive or negative information than can be accurately interpreted by inexperienced students, especially in cases where popular notions or prejudices exert a powerful influence.

It is obvious that scientific investigations in agriculture cannot be conducted or measured by fixed rules; in the maze of conditions which surround every quest for the elusive truth there is much variable groping in dark places even by the most enlightened explorers. But there are types of research work which because of their many-angled complexities require more time for study and yield less popular information than some other lines of inquiry. Perhaps the most difficult of all branches of work in which scientific men are engaged is that which has to do with live stock. In pursuing it they encounter a stubborn combination of all the puzzling physical, chemical and biological conditions which in the field of the narrower specialist are less troublesome.

Americans are too impatient, too insistent on immediate dividends, to give science the time and aid which it requires to dig out fundamental truths in the practically unplowed field of animal husbandry. Serious, competent men no more than begin an investigation than the public clamors for definite results by which it may justify its support of the work. If a prompt response offering revolutionizing finalities is not forthcoming some "practical" legislator moves that financial encouragement of the investigation be withdrawn or decreased. He finds in soil investigations, for example, that their economic value to the state in a few years amounts to infinitely more than their total cost. Using this net result as a standard by which to judge, he finds that live stock investigations have not paid. Moreover, he probably concludes that it is much more important to increase and conserve soil fertility than to find out how farmres may utilize this raw wealth to the best advantage in making meat, milk, wool—and men.

If we are to get anywhere in live stock investigations we must put more money into them, quit prodding experimenters for "facts and figures," and grant science the busy leisure which it demands in its slow, tedious search. And the public should understand that the scientific man who is large enough to make an important nnd in any field of research never announces his discovery with a tom-tom. Beware of the brass-band spirit in all scientific endeavors.——Breeders Gazette.

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.

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THE SUPPLY OF BACON MATERIAL

For several months past the underweight hog has been in the center of the market spotlight. The less weight a shote has carried the more clamorous has been the bidding for it. Pigs have sold at an extravagant premium, viewed in the light of market precedent, and bacon-curers have been at their wits' ends securing the raw material they needed. Even the bacon hog of regulation weight has been in most cases a chubby butcher pig, remote in general make-up from the ideal baconer.

For this the abundance of corn has been solely responsible. Despite the premium on underweights, the process of converting corn into pork has been at all times too profitable to warrant the sacrifice of the porcine digestive machinery capable of such a transmutation process, but, like the scarcity of lard hogs a year ago, it is a mere temporary condition and one that furnishes little logic to strengthen the position of the bacon hog specialist. In days of plenty the bacon-curer found abundance of material in that portion of the pig crop culled at a tender age to reduce the farm herd to winter feeding proportions, and the same condition will recur. Hog trade history, like all other brands, repeats at regular intervals, and the time is not far distant when there will be light hogs on the market in abundance, with some to spare.

THE SHROPSHIRE.

A Shropshire fleece is fine in texture, dense, bright, of good length, and with a uniform close crimp. There should be a dense wool covering on the belly and inside the legs as well as on the body because this not only increases weight of fleece, but it is protection from all troubles due to lying on wet ground.

There should be no dark fiber in the fleece and as little as possible on top of the head. Wooling should extend well down on the legs, and in ewes strict femininity must be sought for. It is well to place much stress upon the breeding and the advantages obtained by going to an old flock when making purchases.

Pedigree is simply the record of an animal's ancestors, and a sheep whose sire, dam, grandsire, grandam, great grandsire, great grandam, etc., have been noted sheep with exceptional merit, will surely give better results in the breeding flock than one whose ancestors have been practically unheard of or unknown altogether. Successful breeding of live stock is a life work and the foundation must be laid slowly and well. By founding a flock with judicious selections from the best breeder the greatest factor is achieved —a sure and certain basis upon which to build up a flock of the highest class. Many breeders have never been able to eliminate the results of a bad start with the ewe foundation, despite the fact that they have used high-class rams for many years. The right sort must be selected even if an apparently high price has to be paid. We say apparently because the best specimens of the breed rarely prove to be dear in the long run, while the second-rate ewes are not cheap at any price and may be a constant source of disappointment.—Howard A. Chandler, in Coleman's Rural.

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Skims the cleanest, Turns the easiest,
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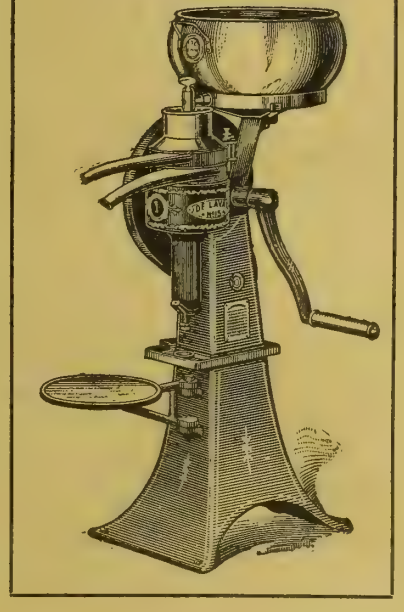
If there is any doubt in your mind when you make this test as to the comparative skimming of the two machines, take a sample of skim-milk from each separator and send it to your State Experiment Station. They will tell you which sample contains the most butter-fat.



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If you are interested in the purchase of a cream separator, be sure to write for our new catalog which illustrates and describes in detail the features which have made the DE LAVAL the universal favorite among dairymen all over the world.

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SHEEP SHEARING.

From a Los Angeles daily we take the following interesting account of a San Diego County sheep shearing:

It is sheep-shearing time at the Bernardo ranch near Escondido, several thousand acres of which is leased by Matt Casou, a cattle and sheep man of the Escondido country, and the scenes so interestingly depicted in Helen Hunt Jackson's novel, "Ramona," during the sheep-shearing time when Alessandro made love to Ramona at Senora Moreno's ranch, are taking place.

The sheep shearing band, numbering fifteen, is composed of Indians from the Rincon Reservation, a few miles northeast of Escondido. Pete Benado takes the character of Alessandro, captain of the sheep shearers, in the real work, his duties being to look after the men and to sweep the stray locks of wool into the fleece piles as the Indians ply the shears. The character of Luigo, the paymaster, is taken by an Indian, the foreman of the Cassou holdings, he being the man who passes out the equivalent of a 5-cent piece to each man as he comes to the table, outside the shearing shed, with his fleece of wool.

In the novel it is related that five minutes was required by the experts of Capt. Alessandro's band for the shearing of a sheep, going to show the truth of Alessandro's contention to the effect that he had a band of the best shearers in San Diego County. Capt. Pete Benado thinks that he has the equal of the Alessandro band, and in truth, some of his men can remove the fleeces at that rate. Fifty, however, is considered a very good day's work. The fleeces which are tied up, two or three fleeces in a bundle, are thrown into a huge sacking bag and made ready for the shipment to market.

In the story as told by Helen Hunt Jackson, the Indians used to work from sunrise to sunset, with only time enough off to eat the midday meal. The Indians at the Bernardo ranch work from sunrise to 5 o'clock in the afternoon. From the larger pens about fifty sheep are driven into a little enclosure near the sheep-shearing brush arbor, these being worked upon until the list of the candidates is exhausted, when another lot is let in. The Indians take their pick of the creatures as soon as they are ushered into the yard, taking, of course, the best in the first onslaught. Gradually the easier ones are eliminated, and toward the last the tough ones are left, causing the work to drag and the men to become impatient. The men, to whose lot falls the drawing of the last three or four sheep, usually get the merry laugh from their fellow shearers.

Like Senora Moreno, Mr. Cassou will have none other but Indians to do his shearing, and as he doesn't have to explain his acts to Juan Can, or any other persons, his wishes carry. Mme. Benado, wife of the captain of the sheep-shearing band, is the cook of the camp, and the Indians live in tents. By Monday night the shearing for this half of the year will be ended and the young and old bucks of the reservation will be wending their way back to the mountains with their pockets full of the coin of the realm, as the result of their three weeks of toil.

Established 1889. Twenty-third Year.

The California Cultivator

A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all corespondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,422 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, May 11, 1911

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CONSERVATION.

The conservation of our natural resources perhaps does not appeal more strongly to Californians than to residents of any other section of the country, but the matter of conservation of watersheds is of such a vital concern that it has been given more general study than in any other section of the United States, unless it be in a small portion of the Appalachians which has suffered such fearful destruction from flood waters as to compel the people to consider how they may be held back in the mountains instead of being poured over the valleys to the vast damage of farm and city. In California the aim is not only to prevent flood damage in winter time but to conserve water for summer use. This is accomplished in several different ways.

The most tangible and immediate results are secured by construction of storage reservoirs on the few natural sites. Amongst these are the Sweetwater in San Diego County, Hemet in Riverside County, and Bear Valley in San Bernardino County.

Another method of holding back flood waters and one which can be followed on all watersheds is the maintaining of a forest or brush growth which prevents rapid run-off of rains. The enemy of this method is the midsummer forest fire. The vast majority of watersheds are only supplied with the covering given by nature, but thousands of acres have been planted to forest growth, and the effort, though often resulting in failure, has proven the possibilities of the work in adding wonderfully to the moisture supply. One section of Southern California has entered into the work by putting up dollar for dollar with the government in planting forest reserves. Many counties up and down the state have also joined with government forces in appointing rangers whose duties are to act with the regular rangers in fire protection. This fire protection is also helped by construction of firebreaks by cutting out along the ridges great lanes 70 to 100 feet in width and often miles in length.

Another step in saving water is taken by the diversion of mountain streams to great areas of gravel lands. This has been done in San Bernardino County to the end that wells and the lower stretches of the Santa Ana River have been kept flowing much later than naturally would have been the case. This method has the objection of being expensive and of being of necessity repeated every year.

Similar to the above is the diversion of flood waters of winter flowing streams directly to the orchards and storing a supply directly where the trees need it. After thorough saturation perfect cultivation enables the trees to have abundance of water until ripening time without any later irrigation.

NEED OF REVISION.

It has been said that "no question relating to irrigation in California or other states approaches in importance the speedy and certain determination of water rights." The laws are in a most unfortunately jumbled condition, though somewhat cleared up by court decisions. The effort has been repeated many times to have California's irrigation laws gathered together and made more perfect in one coherent enactment, but some of the strongest men in the state have feared the result of such effort would be to renew litigation which many years would be required to finally settle. For the owner who has established water rights on which a ruling has been secured this would be cause for concern, for these same owners have spent millions of dollars in litigation to protect their rights in this state. On the other hand, future litigation could be much lessened by enactment of carefully considered legislation. As a general thing, the northern part of the state, where local practice in irrigation has not been so fully established, is more favorable to the proposed change than are irrigators of the south.

In 1878 the legislature passed the first law designed eventually to provide proper public control of water. This was the law that created the office of state engineer, one duty of which is the "acquirement of data upon which the state might formulate a policy and frame legislation respecting irrigation matters." The engineer's first recommendation in 1880 was strongly in favor of revision; in fact, at that time he suggested the advantage of forming irrigation districts, made possible seven years later by the enactment of the Wright act. Other recommendations made have never been acted upon by this state, but have been made the basis of excellent laws in other states.

The next movement looking towards a change of water rights was in 1903, when an exhaustive examination of irrigation conditions was made. This was joined in by the United States Office of Experiment Stations and the Geological Survey. A bill was formulated, and its passage urged, but it was defeated in the legislative committee. This was reintroduced in 1909, but its passage not pressed.

DRAINAGE.

Many California farmers have referred to the fact that the cost of irrigating in California is to a limited extent offset by saving in drainage which is necessary on many eastern farms. This is true on most of the loam and gravel soils of the state, but there are other soils on which drainage is fully as beneficial as on the eastern blue clay. In some sections, especially in portions of the San Joaquin Valley, drainage is absolutely essential. Extended investigations were made there after thousands of acres of vineyards had been destroyed by seepage waters from irrigation canals and a great system of drainage mapped out. Some of these plans have been carried out; more are yet to be completed. This work will probably be done under the act approved March 20, 1903, which makes provision for the formation of districts for the reclamation of agricultural lands "other than swamp and overflowed lands, which are susceptible of one general mode of drainage by the same system of works." The majority of the voters within the boundaries of the district is sufficient to establish such drainage district.

CARELESS CAMPERS.

At the risk of being charged with harping on the same old strain, we must pass on the warning again to every reader of the Cultivator to use greatest caution in the starting of fires in field and on mountainside. All of us feel that fire is the last thing with which we should be careless, but the untold millions of dollars fire loss annually in California, a greater part of which results from carelessness, is proof that we are weak on this line. It is easier to leave a burning campfire than to carry water sufficient from spring or far-away stream to make sure all fire is out. Not only should we be impelled to exercise greatest care because of our interest in the welfare of our state, but because of the good stiff fine to which we are liable. Bear in mind that the fine may be imposed even if the fire has not escaped and done damage; this has been done in many instances. The careless hunter and the smoker, and all others as well, should remember that this is the beginning of the danger period and join in exercising greatest care and in spreading the gospel of fire protection.

READ THE ADVERTISEMENTS.

If you do not read the advertisements in the Cultivator you lose much that tends toward better homes, happier children and a greater revenue. We search the entire state for things that are worth while; for the things that mean advancement, economy and betterment.

The advertisements are intensely interesting. They open the way to greater doing, higher thinking and better living. An advertisement is a commercial introduction. Our advertisers have something of interest to the agricultural poulation and they take the Cultivator as the best means of reaching the well-to-do people of the state. They are reliable merchants and manufacturers. You can save money, get better goods and secure better treatment from Cultivator advertisers than from any other source. Try it and see. When you want something, look through the Cultivator. Perhaps you will find it or an improvement that you had not thought of.

A catalogue is issued by most of our advertisers. The books are interesting and instructive and are sent to any address for the asking.

Commissioner Loeb and other officers of the treasury have visited certain vessels carrying Mediterranean lemons to the port of New York in order to ascertain the percentage of rot, to determine duty. Inspectors have taken about 5 per cent of the cargo and dumped the fruit, and from these ascertained the rot and made allowances. This practice caused the importers to rebel, as they felt the proportion of fruit dumped was too large, as it necessarily sold at low prices. If the importers wish the advantage of the decay reduction, they must be content with proper examination.

The southern berry crop is much less than usual. From Wilmington, North Carolina, up to May 1, usually about 800 cars have been shipped; this year to same date only 100 cars were forwarded. The reduced shipments are due largely to frosts, which also ruined thousands of acres of cucumbers, beans and other early vegetables.

An excellent article on irrigation of sugar beets by Mr. R. L. Adams may be found on page 600 of this issue. Mr. Adams speaks from an experience of years. By mistake another article by him was omitted from last week's issue, though referred to on the editorial page. This will appear in a later Cultivator.

The recent snowfall in North Dakota is commented upon by the North Dakota farmer as being most acceptable, "putting the land in splendid shape and promising much to the farmers whose lands were becoming dry." California starts the season at a disadvantage, not having had a recent snowfall.

Agricultural News Notes of the Pacific Coast

Northern California

Napa observed a rose festival last week.

Suisun's first shipment of cherries was on April 25.

Only about 300 bales of hops remain in Sonoma County.

Indications point towards fancy prices for the 1911 hop crop.

Willows, Glenn County, is making plantings of lemon orchards.

The people of Winters will observe their Water Carnival on July 4th.

Biggs, Butte County, has subscribed nearly $9,000 for an alfalfa meal mill.

Biggs, Butte County, has produced rice that is now for sale in the open market.

The City of Roses, Santa Rosa, Sonoma county, observed May Day last Monday.

The Sebastopol Grange was recently reorganized with thirty charter members.

Preliminary work on the big valley irrigation project in Lake County is being done.

It is estimated that $140,000 was invested in hops in the Sacramento Valley last week.

Courtland, Sacramento County, claims the record for the first shipment of cherries.

Many farmers in Gridley and Biggs, Butte County, are already beginning spring irrigation.

The ice houses between Truckee and Verdi are filled with ice, over 134,000 tons being stored.

Chicago capitalists are buying lands for subdivision in the neighborhood of Red Bluff, Tehama County.

Berkeley has a poultry yard of nine hens which laid in 31 days of March an average of 20 5-9 eggs per hen.

The state horticultural commissioner is continuing a most energetic fight against the potato eel worm.

Alfalfa growers at Biggs, Butte County, are raising a fund for the establishment of an alfalfa meal mill.

Thompson Seedless growers at Yuba City are contracting to dispose of the coming crop at $15 to $20 per ton.

Red Bluff is awake to the necessity of a creamery, and is taking steps to incorporate a concern for its construction.

United States engineers are making preparation for the dredging of Suisun Slough, for which Congress appropriated $25,000.

Vacaville, Solano County, opened the fruit season for 1911 by sending out three boxes of cherries on Tuesday, April 25.

Poultrymen of Santa Rosa held a meeting last week and changed the bylaws so as to eliminate any branch associations of the Co-operative Association.

Manager McKevitt appeals for cooperation on the part of all fruit shippers. The Distributors represent nearly 75 per cent of the green deciduous fruit of the state.

The Placer Herald, of Auburn, reports "a few orchardists have lost their entire crop of peaches, pears and plums. As a whole it is safe to place the output at 60 per cent."

Central California

Tulare County is shipping out its Valencia oranges.

Tulare Grange is discussing the matter of mutual fire insurance.

Fishways are to be placed in the Kings River to enable ascent of the fish.

The rainfall at Prunedale, Monterey County, for the season is 18.52 inches.

Large tracts of orange land in Tulare County are being picked up and planted.

Some snow fell last week in Crane Valley, on the Tule River, at a 3,400-foot elevation.

The Armour Company will build a large brick warehouse at Porterville, Tulare County.

The State Grand Master visited the last meeting of the Grange at Greenfield, Monterey County.

The Fresno Republican reports "Muscat vines showing more frost damage than expected."

Farmers of Santa Clara County are preparing for a fair to be held in San Jose beginning August 26.

Four of the leading fruit companies of Lodi are planning for precooling of all shipments of table grapes.

Ten thousand acres of Egyptian corn are to be planted between Lemoore and Coalinga in Kings County.

The Sanger News finds that trellised vines showed less injury during the cold snap than the lower trained ones.

Kings County Horticultural Commissioner Sharp gives warning of the appearance of mildew, and urges early sulphuring.

The International Land Company at Fresno has 6,000 acres near Clovis which will be improved, Smyrna figs being the principal planting.

Commissioner Schulz of Tulare County reports concerted action in the destruction of mistletoe which has afforded breeding place for many scale pests.

County Bee Inspector Chrisman, of Fresno, reports a total of 2,664 colonies inspected during the month, of which 922 contained European foul brood.

Porterville citrus growers are discussing the matter of reducing the shipments of poor oranges, which it is admitted have seriously injured the industry.

Fresno proposes a universal crusade against the ground squirrel, and has requested the federal government to detail experienced men to assist in the work.

Pomona Granges of Tulare County are to picnic May 20 at Mooney Grove, the new county park. Four Granges are members, Visalia, Tulare, Dinuba and Orosi.

With raisins at four to four and a half cents, and the vines seriously injured by the cold weather, it is definite that big prices will obtain for the holdover yet in growers' hands.

Mr. George C. Roeding, of Fresno, finds that an experimental frost-fighting campaign during the middle of April frost easily saved forty acres of Muscat grapes. He will be better prepared before another spring.

Southern California

Montecito, Santa Barbara County, is considering a $400,000 road bond.

A horticultural thief in Orange County proceeds to dig up trees recently set.

A summer squash grower at Coachella netted fifteen cents per pound for his first crates.

For the first time a large acreage of beans will be planted at Calabasas, Los Angeles County.

The experiment station at Brawley, Imperial County, is planting 210 varieties of Persian grapes.

The regular meeting of the Tri-Counties Reforestation Committee was held at Anaheim May 4.

Negotiations are under way for a half-million-dollar sugar factory at Clearwater, Los Angeles County.

The supervisors of Riverside County contemplate appointing two men to aid in the patrol of mountain forests.

A cotton gin has been erected at Coachella to care for the 700 acres already planted in that section this year.

Escondido's lemon packing house has sent out thirty carloads of lemons to date, and still has fruit stacked to the roof.

Carload shipments of berries from Los Angeles will not be so extensive this year as last. The quality is above the average.

Farmers near Blythe, in the Palo Verde Valley, eastern Riverside County, are making extensive experimental cotton plantings.

A satisfactory offer has been received by the Orange County Dried Fruit Association for all apricot pits produced the coming season.

Onion growers at Coachella, Riverside County, are shipping car lots of White Bermuda onions through the California Vegetable Union.

Coachella Valley cotton growers are proposing to capture the silver cup at the Inland Irrigation Exposition to be held in New York in November.

The Indio Date and Cotton Company is making extensive plans for date planting on lands recently purchased in the Coachella Valley.

A meeting of apricot growers will be held at Ventura next Saturday, at which time it is hoped to perfect a permanent county dried fruit association.

Three irrigation companies of Orange County have begun suit to prevent the diversion of the Santa Ana River to non-riparian lands in San Bernardino County.

The manager of the Curtis Oil Company of Bloomington, San Bernardino County, recently returned from an Eastern trip, reports market outlook good for olives and oil.

With severe losses in the Mediterranean lemon-producing sections because of cold weather, California lemon producers can see only strong demand for the remainder of the output.

The Orange County Dried Fruit Association elected the following board of directors for the coming year: Victor Montgomery, J. G. Berneike, C. F. Bennett, W. C. Crawford, W. F. Greenleaf.

The Coast

Arizona is organizing a good roads association.

The next Spokane Poultry Show will be December 12-17.

Lacrosse, Washington, ships about 1,000 cases of eggs daily.

North Yakima and Zillah, Washington, held a blossom festival last week.

One concern is growing 100 acres of broom corn near Prosser, Washington.

North Yakima, Washington, estimates an output of 3,000 cars of apples.

The next Spokane Poultry Show will be held in that city December 12-17.

The Verde Valley in Arizona has the greatest acreage under cultivation this year.

A snowstorm covered the ground to the depth of two inches at Rigby, Utah, last week.

The food and dairy commission of Salt Lake City is making a campaign on dirty dairies.

Grain growers at Pendleton, Oregon, have ordered sacks for the next season, paying 6⅝ cents.

Fruit growers of Pomeroy, Washington, estimate the frost damage only nominal, with average crops promised.

A big dam on Umatilla River, near Pendleton, Oregon, stores waste flood waters to make 10,000 acres productive.

Farmers near Pilot Rock, Oregon, will handle their own grain this season through the Farmers Co-operative Union.

A speculator from Portland has purchased practically all of the old hops in Western Oregon and Northern California.

The University of Arizona has extended a call to Dr. A. H. Wilde of the Northwestern University to become its president.

Wenatchee, Washington, is preparing exhibits for the Dry Farming Congress to be held this summer at Colorado Springs.

Crane Creek Irrigation Company at Weiser, Idaho, is constructing a system which will deliver water to 30,000 acres of land.

The premium list for the next Interstate Fair at Spokane, Washington, which will occur on October 2-8, has already been issued.

The Sheep of Arizona are freer from scabies this year than for many years past. Examination of 400,000 failed to discover a single case.

The Northwestern Fruit Exchange of Portland, Oregon, estimates only slight damage to the apple crop because of the cold wave.

That irrigation is advancing is proved by the receipt recently of a carload of pumping machinery at Wenatchee, Washington.

Owing to some flaw in the title, four men at Toppenish, Washington, have made filings on close-in farms valued at over $300 per acre.

Kingman, Mojave County, Arizona, has promise of an excellent grazing season, owing to ranges being in splendid shape. Sheep shearing practically finished.

Baby Chicks

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(Egg capacity 100,000)

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White Indian Runner Duck Eggs	$3.00 per 13

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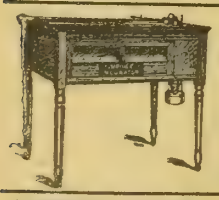

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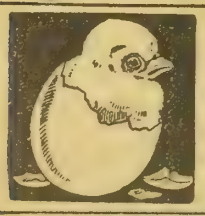

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Practical Poultry Culture

BRINGING UP THE BABY TURKEYS.

By Mrs. A. Basley.

A subscriber writes: "You tell us a lot about chickens, can you tell us how to raise turkeys? We are having poor luck with them though we try hard and take good care of them, have lost twelve before they were two weeks old. We took them from the turkey hen and tried to raise them in a brooder; should we have left them with the mother?"

Letters of inquiry that come without signature are usually consigned to the waste paper basket, for the rule is to take no notice of anonymous letters but as a reply to this inquiry may help others this rule will for once be overlooked.

One of our correspondents asks if "chick feed" is a safe or proper food for little turkeys, and another requests me to tell exactly how I feed and care for little turkeys.

"Chick feed" is neither a safe nor a proper food for little turkeys, although it is a most excellent food for little chicks. In fact you may be sure of success when you feed it to little chickens and sure of failure if you feed it to little turkeys.

Now as to my way of rearing little turkeys, I do not pretend to say that mine is the only way, but I do say that not only do I succeed in raising little turkeys, but those who have followed my directions are as successful as I have been, and those that make a failure, did not follow my plans. I have been criticised as being too fussy and particular about little details, but I think it pays to take good care of the little things for a few weeks, for turkeys are delicate only when they are little, and if properly cared for then, will be strong and hardy when they mature.

The way I feed and have fed for years is as follows: When the little turkeys are twenty-four hours old, I put freshly laid eggs into cold water and boil them for half an hour; chop them up fine, shell and all; add equal parts of bread crumbs; feed dry, taking away what they leave, feeding the mother separately.

The next day I feed the same adding very finely chopped lettuce or dandelion leaves or young green mustard leaves and tender young onion tops. This is their breakfast and supper. For dinner they have a little curd, cottage cheese some call it, made from clabber milk. In a few days I add cracked wheat to their supper and if I am short of dry bread crumbs, I add rolled breakfast oats to the egg and bread crumbs. I always chop up an onion a day with egg and bread crumbs unless the onion tops are very young and tender. Onions are an excellent tonic for the liver and kidneys, preventing worms and curing colds, so I use onions freely. In a few days I commence to add wheat to their food and at two weeks of age I gradually arrive at giving them wheat or rolled oats for breakfast, in the middle of the forenoon a head of lettuce to tear up and eat; at noon cottage cheese, and at about four or five o'clock, their supper of egg, bread crumbs or rolled oats, lettuce and always the chopped up onions. I give them clean water three times a day in a drinking fountain and a similar fountain of sweet skimmed milk.

A word about the cottage cheese. I am very particular in making it not to allow the clabbered milk to become hot. I use either a milk thermometer, letting the heat only come to 98 degrees, or I keep my finger in the milk and as soon as it feels comfortably warm I take the milk off the fire, pour the curd into a cheesecloth bag and leave it to drain. If the milk scalds or boils the curd will be tough, hard like rubber, and indigestible enough to kill little turkeys or chickens. When I lived in the home of the wild turkey, Oklahoma and Kansas, I learned much about tame turkeys. There "Corn is king," but I was cautioned never to give corn to the young turkeys until after they "sport the red." That is until their head and wattles become red, which happens at about three months of age, for it was said that corn always sours in their stomach. It was there that I heard of a man who brought up his turkeys on nothing but onion tops, curd and grit, and they did well.

One of my experiences in the land of the wild turkey may serve as a warning to others. I had a good old Buff Cochin who was mothering a brood of nice little turkeys. She was most assiduous in her care of the turkeys, she clucked to them all the day, called them up to eat all the time and it was surprising to see how those little fellows grew at first, but one after another drooped and died till only one was left. The others under turkey mothers were doing well, so I took the lone little one out at night and put him under a mother turkey in the meadow and saved his life. The old hen had overfed the others. Chicken hens are too anxious to feed the little turkeys. They scratch for them, coax them to eat, and the little turkeys are such greedy voracious little things that they overeat, and in consequence die. I much prefer to bring up little turkeys under turkey hens or even in a brooder rather than under a chicken hen. The best way of managing a hen is to keep her in a coop, letting the little turkeys run outside, or else tie the hen under a tree by her leg. I only feed the little poults three times a day just what they will eat up clean in ten minutes. With a turkey hen I can leave wheat in a trough always accessible and she will never overfeed the young. The turkey mother will take a few mouthfuls herself and then move slowly and deliberately away, and her babies will follow her, having only taken one or two grains each. This is more like the nature of the wild turkey, and the nearer to nature one can keep in raising turkeys the better will be our success.

Nature's wild turkeys are only hatched in the spring when there are grubs and worms in abundance, with plenty of green grass leaves and no grain but what is sprouting, and above all nature never mixes mashes to turn sour and ferment on the little stomachs. The hard boiled egg and the curd take the place of the bug and the grub, for we cannot supply the turkeys with anything like the amount of grasshoppers, grubs, worms, larvae or insects which nature provides in the home of the wild turkeys. Another lesson we may learn from nature's book: Wild turkeys are only to be found where there are springs and streams of pure water, and they never wander away from the water. Give the turkeys plenty of clean, pure water to drink.

There are two chief causes of mortality in little turkeys—lice and overfeeding. Before giving the turkeys to the mother to care for dust them well with buhach, and continue to do this once a week until they are too large to handle. Look for lice on the head and on the quill feathers of the wing and rub the powder well into them.

Don't use grease, or you will kill the turkeys. Lice and overfeeding kill thousands of little turkeys; overfeeding kills more than lice, and if it does not kill them it stunts their growth, and unfortunately until they begin to die at about six weeks of age, one scarcely realizes that they have been overfed.

I can tell you just how overfed turkeys will die. First, they will commence to walk slowly, lagging behind

the others as if tired, then the wings will droop and they will look sleepy and will not eat, will look at the food as if they wanted it, but were too lazy to pick it up, then diarrhoea will set in, the droppings will become yellow, and sometimes green, and death will soon follow. If you hold a post-mortem examination, as you should do over everything that dies in the chicken yard, you will find the livers of these little turkeys have yellow or white spots on them, and on cutting into them you may find that these spots are small ulcers that extend through it. Sometimes these ulcers are quite offensive. This comes from overfeeding which gives the liver more work than it can do, and it breaks down.

The liver is the largest organ in the turkey's body and it seems to be the most delicate. If you can keep that healthy you will have healthy turkeys. Onion and dandelion leaves are tonics for the liver and the green food keeps it healthy, whilst the animal food and a small amount of cereal will make the frame of the turkey.

But suppose you should see one little turkey in the brood beginning to walk slowly, what should you do? I would catch that little turkey and give it a liver pill such as we use in the family, and follow this with a one-grain quinine pill every night for a week. And as if one turkey commences to feel ill, the others are almost sure to follow, I would give a little Epsom salts in the water to the whole flock and cut off some of the grain in the feed. You will probably save the flock, but they may be stunted in their growth, and their livers many months later may break down from being weakened by that first attack of liver trouble.

Chick Feed Is Bad for Turkeys.

Now about the chick feed. It is composed of a number of different grains. Some of these grains are extremely difficult of digestion for turkeys. The chief of these are cracked corn, Kaffir corn, Egyptian corn, sorghum seed, millet, etc. I could scarcely believe this until I had an actual demonstration of it. Then I discovered that the cracked corn does not commence to digest in the crop, as the gastric juice of the crop does not seem to have any influence on it. It passes through the crop and on through the proventriculus to the gizzard, arriving there hard, and not in the least softened or digested, and there it commences to ferment, causing diarrhoea, or else passing away without digesting. I am not scientific enough to know the reason for this, nor why wheat should be softened in the crop and partly digested before reaching the gizzard, but I know that it is so. They told me in Kansas that corn sours on the turkey's stomach, but it does not exactly sour, it ferments, and there is where the trouble comes in. Sour milk is sour, but this is from lactic acid, and lactic acid seems beneficial to turkeys, whilst the souring of grain, bran, cereal of any kind, bread or cornmeal is a ferment, and ferments are very injurious to fowls of all kinds, and especially so to turkeys.

Mrs. Charles Jones, the best authority on turkeys in the United States, agrees with me about feeding turkeys. She writes: "A diet of part corn agrees with chickens, but I have never yet fed corn in any form to young turkeys but that sooner or later they would give up the unequal contest. A little neighbor girl who had a great deal of the care of turkeys said the least little bit of corn meal makes them die. She had learned this while watching them as she fed them."

There are many beautiful valleys in California where turkeys may be grown to great advantage, but even on small ranches a few may be kept. The climate of the Imperial Valley seems especially well adapted to turkey raising. The raisers of large numbers of turkeys should remember that most likely there is something lacking in either the soil, climate or water. In most places in the Imperial country there is not sufficient grit, that should be supplied artificially. One breeder I know there goes once a year to the mountains taking sacks and two sizes of screens with him. There he digs out and screens all the disintegrated granite that he needs for chickens, ducks and turkeys, for a whole year. This and turning his turkeys out on the alfalfa keeps them perfectly healthy and he has no trouble whatever in raising them.

In many of the other beautiful valleys of California turkeys can be raised without any cost to the farmers by turning them out to rustle for a living if they can have an alfalfa patch to graze upon or wheat stubble to glean over. They fatten extremely well where they have acorns to eat or walnuts and olives and apple orchards where they can find the fallen fruit. It is surprising to see how large an amount a full-grown tom can swallow whole. Wild turkeys that fatten on the pinons, the seeds that fall from the pine cones, or those that eat the pecan nuts in Oklahoma and Texas, are most delicious, but those that fatten here in California on the gleanings of the olive trees, the fat ripe olives that fall to the ground in the early spring, equal in flavor and delicacy those wild ones. I wish more farmers in California would keep turkeys.

FEATHERS.

When you don't give much don't look for much in return.

Don't hold the market turkeys too long, sell three weeks before the holidays, or else hold until February.

Look over the market reports of last year, this will enable you to sell when prices rule highest.

Keep account of sales made, number of head, number of pounds and price received for same; if account is kept of cost of the feed, as it should be, you will know how much profit or loss you have sustained.

It is impossible to be too well posted, but the great value of knowing will not amount to much unless the knowledge is put in practice.

An ax is the best remedy for roup; in short the only remedy, if the "cured" birds are meant for the breeding pen. Such strenuous measures will save disappointment another season.

Scared hens are never profitable.

Many find employment and profit in pigeon rearing. If it can be arranged, they would give employment to the restless boys and girls.

Fix up all the leaks in the roof, if too far gone to mend with a few boards or shingles, nail roofing paper over the old roof. If given a coat of tar and then sanded, such a roof will be weatherproof for years.

This also makes a fine lining for the poultry houses, when nailed closely. Lice and mites will not harbor in it either.

The Low Cost of Living

Los Angeles Wholesaler Solves the Problem for the Farmer.

"How to overcome the excessively high cost of living" is a question that is claiming world-wide attention. It has fallen to the lot of the McStay Supply Company, a large wholesale and manufacturing concern of Los Angeles, to solve this problem in a manner beneficial both to consumer and producer.

They have for years been selling to the merchants only, but two years ago began working on a plan whereby they could place merchandise in the hands of the consumer direct from the producer and wholesaler. They have their own factory where many goods are made and sold direct to the consumer without middlemen's profits, and other lines of merchandise are bought in large quantities and sold to the farmer at the same prices they sell to the storekeeper. Fruits, honey, nuts, and produce of all kinds are purchased direct from the grower, and in turn distributed by them direct to the consumer, thus eliminating all middlemen's profits. This arrangement results in the farmer getting better prices for his products, and the consumer getting more for his money.

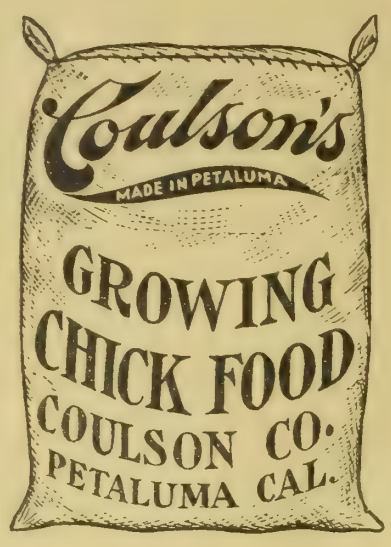
Their business is conducted on a cash basis, and that their plan is an immense success is amply verified by the tremendous business they are now doing with the farmers direct. They are shipping goods into nearly every community south of San Francisco, and in Arizona and Nevada. Many letters from their customers show that a handsome saving is made after paying freight charges.

For the benefit of comparison with prices you pay your dealer, they quote here on some of the items handled by them.

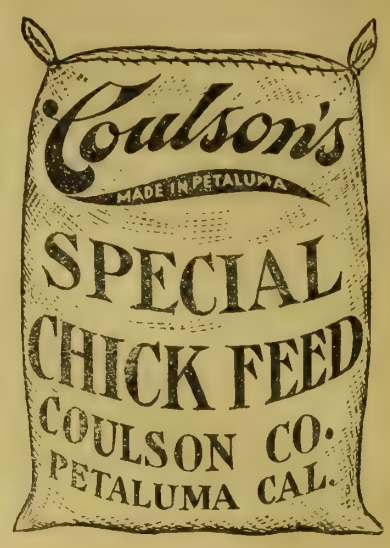
It would undoubtedly pay you to get in communication with them and get their catalogue. A line or order addressed to The McStay Supply Company, Los Angeles, California, will bring prompt and beneficial results to yourself.

Macaroni, per lb	.05½
Chocolates, hand-made, 5-lb. box	1.15
Stick Candy, 5-lb. boxes	.65
Flour, Queen Anne, highest patent, blue stem wheat, per bbl	5.30
Quaker Oats, regular 15c size, per doz	1.28
Dr. Price's Food, reguiar 10c size, per doz.	.93
Barracuda, 10-lb. pails	.95
Cottolene, 10-lb. pails	1.38
Gas Engine Cylinder Oil, 5 gals	2.00
Axle Grease, 25-lb. galv. pails	1.05
Rolled Barley, per ton, $27; sack	1.15
Stayco Chick Feed, per 100 lbs	2.60
Coffee	20c to 32½c per lb.
Teas	25c per lb. and up
Spices	24c per lb. and up
Baking Powder, pure cream of tartar, guaranteed equal to Royal, 5-lb. can	$1.00
Navy Beans, 10-lb. sacks	.53
Corn Starch, 2-lb. packages	.12
Cheese, fancy Wisconsin, per lb	.19
Citron, imported, per lb	.19
Apricots, canned, standard, per doz., $1.45; extra standard, per doz	1.65
Peaches, canned, standard, per doz., $1.50; extra standard, per doz	1.80
Pears, canned, standard, per doz., $1.75; extra standard, per doz	2.00
Pineapple, canned, extra standard Hawaiian sliced, per doz	1.85
Pie Peaches, gallons, per doz	3.00
Pie Apples, gallons, per doz	3.00
Pie Blackberries, gallons, per doz	4.00
Tomatoes, canned, extra quality standards, per doz	.95
Corn, extra quality Holland, per doz	1.00
Corn, fancy Maine, per doz	1.35
Peas, sifted Early June, doz	1.20
Pork and Beans, 1-lb. cans, doz	.90
Jams, pure fruit, 5-lb. crocks	.75
Orange Marmalade, 5-lb. crocks	.59
Royal Cocoa, 1-lb. tins	.31
Zar Ground Chocolate, 1-lb. tins	.19
Honeysuckle Milk, regular 10c size, per case, 4 doz	3.40
Matches, anti-trust parlor matches, packages contain 1,500	.08
Pickles, medium size, sour, in 3-gal. kegs, each	.75
Rice, fancy head, 10-lb. sacks	.68
Rice, fancy Japan, 10-lb. sacks	.53
Hay Salt, per ton	8.00
Maple Flavor Syrup, gal. cans	.76
Rock Candy Drips, gal. cans	.85
New Orleans Molasses, genuine, gals	.45
Laundry Soap, 100 8-oz. bars	2.55
Sal Soda, 100-lb. sack	1.15
Gloss Starch, Argo brand, the famous 5c seller, per doz	.46
Gold Dust, regular 25c size	.19
Clairette Soap, 20 bars	.67
Smoking Tobacco, plug cut, in 1-lb. dinner pails, each	.44
Chewing Tobacco, a fine chew, lb.	.35
Baker's Pastry Flour, 100-lb. sacks	2.45
Raisins, London Layers, 5-lb. boxes, extra fancy, each	.30
Sardines, American Mustard Sardines, ¼s, per case 100, $3.50; per doz	.45
Clams, Eastern best grade, 2-lb. cans, per doz	1.85
Currants, genuine imported, 5-lb. packages, each	.55
Mincemeat, highest grade Eastern condensed, regular 10c size, doz., 90c; 30-lb. pails, per lb	.9¼
Syrup, Delmonico Brand, fancy table syrup, 2-lb. cans, doz	.95
Mason jars, quarts, per gross, $6.30; per doz., 60c. Half gallons, per gross, $9; per doz	.85
Jelly Tumblers, regular size with caps, per gross, $2.40; per doz	.21
Mops, the Daisy, 16-oz. cotton mop with handle attached, each	.20
Mop Handles, per doz., $1.15; each	.12
Toilet Paper, best grade, 1,000-sheet rolls, per doz	.90
Lamp Chimneys, crimp top, No. 2, per doz	.90
Washboards, Glass King, each, 39c; Brass King, each	.34
Lanterns, No. O tubular cold blast, each	.40
Horse Brushes, dandy rice root, sells everywhere for 25c; each	.17
Clothes Baskets, regular $1.25 size	.75
Mail Boxes, R. D. 2, best make	.90
Hay Forks, best make, 3 tines	.80
Header Forks, best make, 4 tines	.90
Gasoline Stoves, 3 burners, best model	4.75
Paint, barn, fence or roof, in barrels, per gal	.95
Poultry Netting, 2-inch mesh, 20-gauge wire, 48 inches high; 150 feet long	2.60
Horse Shoes, best grade, per cwt	6.00
Harness, two-horse, California orchard harness, set	16.48
Tents—10x12 wall tents, 8-oz. duck, complete with poles, etc	10.45
Orchard truck, capacity 3,000 lbs	31.20
Shoes, for men; "So-Easy"; everlasting, guaranteed for one year, regular $4.50 seller, pair	3.48
Shoes, for women; Everyday; nice-looking and good wearers, pair	1.55
Blankets, size 72x84, double, large brown Vicuna, weight 6 lbs	2.80
Shirts—Heavy weight blue chambray, double stitched throughout	.45
Underwear, men's genuine Porosknit, per suit	.92
Underwear, women's genuine Stratford union suits, each	1.05
Suspenders, President 50c seller	.43
Waist Overalls, made of best 9-oz. Amoskeag indigo dyed denim, reinforced throughout, pair	.77
Hosiery, men's Hardwear brand, 25c quality, half dozen pair	1.10
Hosiery, women's pure silk, six pairs for	3.15
Stockings, for children, heavy ribbed, dozen	1.50
Linen Crash, per yard	.09
Unbleached Muslin, per yard	.06
Wide Sheeting, bleached Pequot, 72 inches, per yard	.33
Unbleached Pequot, 72 inches, per yard	.30
Lawns, per yard	5½c to .21
Apron Gingham, per yard	.07½
Dress Gingham, per yard	.09
Percales, per yard	.12
Cotton Foulards, per yard	.15
Voiles, 29-inch, per yard	.27½
Poplins, 27-inch, per yard	.29
Changeable Silk Jacquard, per yd.	.39

Write today to McStay Supply Co., Los Angeles, Cal.



No Irrigation Required for Chickens



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That's why the poultry business is so successful. The returns are almost net profits and there is a natural increase.

No seed time. Just a perpetual daily harvest of broilers, eggs and stewers. A market always waiting, always anxious to get what the poultryman has to offer.

The California market is greatly in need of more poultry and eggs. Thousands of dozens of eggs are imported from the East. Carloads of Poultry are shipped in daily.

Sales are made for Actual Cash

There is No Crop that Pays Better on Investment and Labor than Poultry

We Have Simplified Poultry Raising

With our book "CHICKENS," which we will send free while they last, you can begin on any number of birds desired. You can have a profitable business in a short time, and IT WILL GROW MORE PROFITABLE EVERY YEAR.

We supply the proper food from the time the little chick leaves the shell till it goes to market. Every stage of progress is met; every requirement satisfied. We also carry a complete line of accessories.

Our goods are carried by some reliable poultry dealer in every poultry center. If your dealer cannot, or does not want to supply you, write to us direct and we will give you the name of our nearest agent.

You Can Easily Secure the Best Poultry Food on the Market
We Are the Largest Poultry Food Manufacturers in California

Coulson Poultry and Stock Food Co.

PETALUMA, CALIFORNIA

Germain Seed and Plant Co., Los Angeles, Distributing Agents for So. California

Cypress in Arizona

By Dr. F. Franceschi.

It appears to me very doubtful that the Monterey Cypress will stand the temperature of zero Fahrenheit, having seen them killed outright in Southern Europe at perhaps 12 degrees or 15 degrees Fahrenheit. But it is not less doubtful that it will stand the summer heat and drouth. The Monterey Cypress grows wild only in a particular spot of our coast, continually exposed to heavy fogs and very cool breezes. Old residents in Southern California like myself can well remember how many of these trees perished during the dry years at the end of the last century, and not only in the hot inland valleys, but also right here on the coast, like at Santa Barbara. The Arizona Cypress, Cupressus Arizonica, is a very distinct species, and it was my privilege to introduce it into gardens some twelve years ago, not only in California, but also in Europe, where it is much prized. For the special purpose of your correspondent from Wilcox, namely, for windbreak, it will be eminently adapted, standing as it will the highest and lowest temperatures of that locality, keeping well its lower branches, thus making a most effective shelter, and, last, not least, growing faster than other cypresses. Many of those planted at Montarioso, a little over two years ago, are over ten feet high, and they never received a drop of water during the summer months.

Bamboo for Turning Stock

If your subscriber from San Luis Obispo will try bamboos for "turning stock," and being good soil binders along banks of streams, he is sure to find that several among the Chinese and Japanese bamboos would make excellent soil binders, provided that stock will not go near them, as both cattle and horses will relish them and shouid there be any rabbits in the neighborhood, every new shoot will be nipped as quick as out of the ground. There are many plants which are armed with more or less formidable thorns, and as effective as a barbed wire fence, but I know of very few which will combine together the very freely running and suckering from the roots, and the "non-edibility" of their foliage. The ordinary "black locust" of the eastern states, Robinia Pseudo-Acacia, would be first-class for binding, and for a strong hedge; cattle are however very fond of the foliage. The Osage orange, Maclura Aurantiaca, although a great "rooter," has no underground runners like the preceding, and, moreover was given a black eye in California, as a most prolific scale breeder. There is a shrubby "night shade," from Argentina, Solanum Glaucophyllum, ten to twelve feet high, which beats every plant that I know for running; its greyish, velvety foliage is not touched by cattle, and its light blue flowers make it quite ornamental; its stems however may be not thorny and woody enough to prevent cattle going through. Perhaps the best plant that I can recommend for the two-fold purpose will be that particular kind of "century plant," from which the "sisal hemp" is obtained, Agave Rigida Sisalana. This will come in bloom very young, and at the same time will send out numerous suckers, which will quickly bloom. The countless bulbils produced on each panicle in the place of seed pods, will soon drop to the ground and take root, thus forming in a very short time a most picturesque hedge, absolutely impenetrable to man or beast, a capital soil binder, and an efficient fire break.

Irrigation Notes

One hundred Colorado inches equal five and one-sixth acre-feet in twenty-four hours.

In twelve hours of the day, 640 trees carrying 21,192 leaves each will evaporate 3,875 gallons of water, or a total of 31,000 pounds.

The mean annual rainfall of the world is 36 inches, which is about 50,000,000 cubic feet per square mile of the earth's surface per annum.

A gallon of water, United States standard, weighs 8½ pounds and contains 23 cubic inches. As there are 1,728 cubic inches in a cubic foot, the annual rainfall deposits 374,026,000 gallons on each 640 acres. This means over 1,500,000 tons, or about 2,400 tons per acre.

There are four general methods of irrigation, flowing in open ditches, flooding where the water covers all the land to a certain depth, infiltration or seepage, which includes subirrigation, and a method used much in Florida, but very slightly in semi-arid countries, aspersion or sprinkling.

The smallest amount of rainfall in humid countries which will produce a profitable crop is usually considered about 34 inches during growing season; California, however, shows excellent crops with a precipitation of 7½ to 20 inches; Colorado's average is 22 inches; while in India 49 inches is required. In France and Italy a precipitation of 50 inches is thought necessary.

In California, Idaho, Nevada and Utah 50 miner's inches equals one cubic foot per second; this under four-inch pressure from center of orifice. In Arizona and Montana 40 miner's inches equals one cubic foot per second under six-inch pressure from top of orifice. In Colorado 38.4 inches equals one cubic foot per second, measured under five-inch pressure from the top of the orifice.

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BRAUN CHEMICAL CO.

San Diego LOS ANGELES Bakersfield

906-910 E. Third Street

Riding and Walking Beet Plows

Killefer Walking Beet Plow

This is the strongest plow on the market. Can be had with straight or offset standard, and has one piece land side. Nothing but hard plow steel is used in the Standard Shin Landside and point. Point and Shin are reversible. We guarantee this plow to do satisfactory work in any beet section.

Two-Row Riding Beet Plow

It is especially adapted to large acreage, as it does double the work of single plows with but little more draft, and leaves the ground in fine condition for hauling off beets, as it does not throw up large clods.

The Standard Shin Landside Point and wings are made of very hard steel, which we have rolled for this work, and extras are always on hand for immediate shipment.

Both plows can be had with or without steering device. Write or call on us direct if your dealer does not have these tools.

Killefer Mfg. Co. 2210 Santa Fe Ave. Los Angeles, Cal.

TELL US YOUR TROUBLES. We make special tools to order for handling special work.

Orange Seed

Now is the time to start your Orange Seed Beds. We are prepared to furnish you with Fresh Orange Seed that will produce strong, healthy Seedlings. Ask for quotations, stating quantity required.

MARKET GARDENERS: We make a specialty of catering to your trade and are always ready and glad to help you select those seeds best adapted to your requirements.

NURSERYMEN can find in our Store everything they need in the way of high-class Tree and Plant Seeds as well as other supplies such as Raffia, Budding Knives, Imported Sprinkling Cans, etc. And don't overlook our "Non-Kinkable" Garden Hose if you wish to avoid the constant repairing that the old kind requires.

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DWARF MILO MAIZE
A DRY LAND CROP

Where the rainfall is limited or water is expensive there is no more profitable forage and dry feed crop than **Milo Maize.** It belongs to the sorghum family of tropical Asia and Africa, where it is the principal grain grown.

We have secured a stock of a dwarf variety that has been thoroughly tested in Southern California and Arizona, yielding two and one half tons of grain per acre. It grows a stalk 4 to 5 feet high with large, compact, erect heads, and stock especially like the sweet flavor of the stalk.

Write for cultural directions and prices.

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Established 1871.
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LOS ANGELES, CALIFORNIA

Dwarf Milo Maize and Red Kaffir Corn

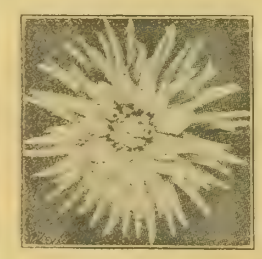
The two great drought resisters should now be sown. There is no more profitable dry land crop than these two members of the sorghum family. We have taken particular care in selecting acclimated seed stock of the true dwarf varieties, yielding two to three tons per acre. Write for samples and cultural directions.

WEST COAST CHICK FEED

They can't beat it. Nothing better for the little ones. 100 pounds, $3.25. If not sold by your dealer, we pay the freight within 100 miles.

WEST COAST SEED HOUSE

111, 113, 115 WINSTON ST. between 4th and 5th near Main. **LOS ANGELES**



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Garden and Field Crops

IRRIGATION IN THE VEGETABLE GARDEN.

More than three years ago the following, written by Mr. Q. A. Lobingier, appeared in the Cultivator. As requests for similar information continue to come we repeat it in full:

It is astonishing how persistently the recently arrived settlers or the inexperienced native will "water the sun." By this is meant sprinkling the surface, or allowing the water to flow rapidly across the land in shallow ditches and shutting it off as soon as it reaches the end of the ditch. Either method is often more injurious than beneficial. Few people have even the faintest conception of the power of the sun and wind to evaporate every drop of water applied in this manner. The loss is not alone in evaporation, but the soil becomes baked and difficult to work, and without life, as we are apt to express it.

Prepare For It.

The true way to irrigate the vegetable garden is to have everything planted in rows—wide or narrow, according to the kind planted, and have a flume across the head of the garden having galvanized iron gates with slides, so that the water is under perfect control. Make the furrows between the rows—one or more according to the width, and allow the water to run rather freely until it reaches the end of the row, after which close the gates so as to allow just as much water to pass through as will reach to the extreme end of the furrow. This is more difficult to do on some soils and grades than others, but approach it as nearly as you can. Allow the water to run until the soil is well soaked.

No Royal Road.

No rule can be given as to how long this will take, as the soil and grade are leading factors in the matter, and each particular garden is a problem of itself. A good irrigator is like the poet, born not made. Not one person in fifty of those who work in our orchards and gardens comprehend the theory and practice of successful and economical irrigation. Many can wet the ground, but it is with a woeful waste of water.

Frequent irrigation keeps the soil cold and packs it so that the air cannot circulate through it. Thorough irrigation at long intervals, followed by good and frequent cultivation between, thus allowing the soil to get well aired and warmed, will bring best results. By planting everything in rows it is possible to supply each kind with just what water is needed, for some crops need less than others.

"Never Permit Your Plants to Suffer for Water."

I am asked the question "how often do you irrigate" more frequently than any other, and I must answer, just as often as the crop needs it. We have no set rule. The weather, the soil, the particular crop, the care had in cultivation, are all to be considered. Long experience enables us to detect at a glance, by the appearance of the soil and plants, any need for water. The nearest approach to a rule that we have is "never permit plants to suffer for water." The freshness and vigor of the crop, the condition of the soil, the atmospheric conditions are all to be reckoned with and any one having average intelligence can, by a little observation, soon learn.

Get your water deep into the soil and then by the most careful, persistent cultivation, keep it there for the plants to evaporate it through the foliage, instead of allowing the sun and wind to drink it up—something that will surely happen if you merely sprinkle or wet the surface.

A GOOD POTATO SECTION.

The last year's experiments with Irish potato growing in the sandy loam soil of Merced County have proved very successful and will probably result in the planting of a large acreage this year. The sandy loam area which lies a few miles north of Merced has long been famous for its sweet potatoes and now produces about three-fourths of the entire crop of the state. "Merced Sweets" are known throughout the West for their even size and excellent flavor. The soil in which they are so successfully grown is rich in iron and this ingredient imparts the peculiarly rich, nutty flavor for which "Merced Sweets" are so famous.

Mr. J. M. Smith, a very successful sweet potato grower of Atwater, has been experimenting for some time with the Irish tubers. He says in part:

"Last year I planted one sack of Early Rose potatoes the last week in March on one-sixth of an acre. In June I dug from this 20 sacks of fine potatoes. The last week in July I put back in this same piece of ground, as seed, part of the potatoes dug from the first crop and from this also got a good yield. My first crop yielded at the rate of 120 sacks to the acre which, with the yield of the second crop, and with potatoes at the present price, would bring a handsome return. My experiments have convinced me that this soil is exceptionally adapted to the growing of Irish as well as sweet potatoes."

Hitherto potato growers have thought that only heavy soil was adapted to the successful production of Irish potatoes and the peat land around Stockton has produced the greater part of the state's supply. The advantages of sandy loam soil for potatoes are obvious—the land is easily kept free from weeds and there is no danger from too much water.

Different soils have capacity for absorbing moisture per 100 pounds of dry earth in the following amounts: Quartz sand 25 pounds, calcareous sand 29 pounds, loamy soil 40 pounds, clay loam 50 pounds, pure clay 70 pounds, dry peaty soils and adobe sometimes one pound to every pound of dry earth. The ordinary arable soil holds from 40 to 70 per cent of its own weight.

The wise irrigator stores as much as possible of winter flood waters as well as irrigation waters in his soil during the months when trees are supposed to demand little or no moisture. No tree ever becomes so dormant that it does not demand some moisture, but the principal point of winter irrigation is storing for summer needs.

One second-foot equals 450 gallons per minute.

Deciduous Bush-Tree Fruits

APRICOT OUTPUT.

There can be little question but that the output of apricots will be far below normal. The injury from the cold wave through the Great Valley was not so serious on this fruit as some others. At the same time some sections report "Not over 25 per cent of normal crop;" others "Possibly 50 per cent." Around Fresno we understand they will be practically a failure. One strong indication of the shortness of tne crop is in the material advance which prices have taken within the last week or two. Some buyers are already offering to sign up contracts for the coming season so that the wise producer is keeping his own counsel, likewise his contracts, to himself.

From reports of subscribers in differing sections we quote as follows:

J. N. Ballantyne, Acampo, San Joaquin County.

From inquiry of others and estimating my own orchard I feel safe in saying the yield will not be up to last year. Some orchards have been dropping badly in the last few days. Have heard of as high as twelve and a half cents being offered in this district since the frost a few days ago. Think majority of growers have sold around here.

As to peaches, Mr. Ballantyne reports:

One buyer was working this district this week offering eight cents for this year's crop of dried peaches. Think all kinds were taken at that price. A number of the growers in this district sold. My orchard will not have as good a crop as last year, and have heard that Muirs are short quite generally.

W. S. Allen, Lockford, San Joaquin County.

Personally I have no apricots. Some fruit men say good crop, some as low as 10 per cent, and one buyer told me in sampling that he picked twelve before he found one without a black pit. Of course those will blight and fall. I believe few realize how many are affected. I should say not over 20 per cent.

H. S. Reed, El Centro, Imperial County.

Regarding the apricot output of Imperial Valley for the coming season, will say that our trees blossomed about a week late owing to the cool weather, but were exceedingly profuse. Some thrips appeared at the time the blossoms were setting, causing a sufficient per cent to drop off, thereby eliminating fruit thinning.

The Horticultural Commissioner of Yolo County Reports:

"Apricots and almonds were short in blossoming and crop expectations were further reduced by unfavorable weather conditions after the setting of the young fruit. The estimates vary considerably according to locality but it seems that the yield will not be more than twenty-five per cent of a full crop of apricots and about thirty per cent of almonds. In Capay Valley the almond and apricot crops suffered more than any others."

Mr. Beers of Santa Barbara Says:

Frost and cold rains reduced the crop of peaches and apricots to a low point, in most parts of the state, but in this county, with the exception of a few low places, these conditions have not had any evil effect. The report from Lompoc, Santa Rita and Santa Maria shows a more than usually heavy setting of both peaches and apricots. With the short crop from other sections, our county will realize top notch prices, as our fruit is of a high grade and finds a ready market.

WALNUT OUTPUT.

J. A. Montgomery, Secretary of the Los Nietos Walnut Growers Association, reports that the outlook for the coming walnut crop is most favorable for a normal crop. The trees are in fine condition though they carry much less than usual; they are even in much better condition than for years; nuts are setting well and continued good weather will mean a good crop.

Mr. Beers of Santa Barbara County reports:

The setting of the walnuts is encouraging and, unless some unknown conditions arise, there promises to be a banner year for the walnut growers. Some large acreages have been planted this spring, and a large number of young trees will come in bearing this coming season, making the prospects exceedingly bright in the line of this industry. Old hardshell orchards have been taken out, in some sections, and young stock planted in their stead, the young trees being selected with care, from stock grown from selected nuts.

There is a considerable blight showing up, but the more observant growers report less evidence this season than for a corresponding period of the season of 1910.

The extended grafting, done on older walnut trees, is showing good results; a majority of the grafts have taken and the present prospect is very cheering that this method of renewing the life and usefulness of old trees will be thoroughly tested out in our section. The grafting of several years ago proved more valuable than the growers had anticipated. The grafting of this year has been, largely, with blight-resisting scions. The idea being to test both the advantage of grafts, and the reliability of resistant stock growing on softshell body.

BEST 'COTS FOR THE DESERT.

Answering a request for information as to the best early apricot for Imperial Valley or other desert conditions, Mr. H. S. Reed of El Centro, writes:

"We have been unable to get any definite information regarding best early varieties of apricots for the desert other than that secured from the various sources of last year. From one source we would be told that the 'Royal' was the earliest commercial variety. From another source, not to plant the 'Royal,' as the 'Newcastle' was much preferable on account of being ten days or two weeks earlier.

"We have about forty acres in our young apricot orchard, which originally consisted of 'Royals' and 'Blenheims.' We have budded over two-thirds of them to 'Newcastles' and took the gamble on their turning out of commercial size.

"Malaga grapes are now in blossom, and give promise of producing an exceptionally heavy crop. Just as soon as our desert people learn the necessity of late summer irrigation for the purpose of storing up starch for the next season, and the deep winter soaking of the soil to establish deep root systems upon their vines, they will then, but not until then, reap great profits from their table-grape vineyards, which can be offered upon the markets in advance, and without competing with any other district in America."

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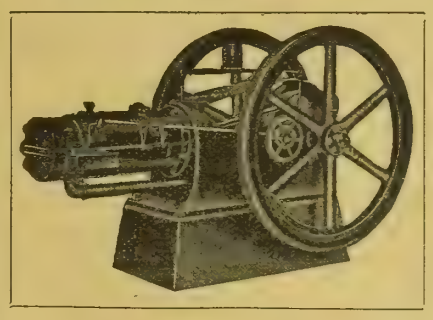

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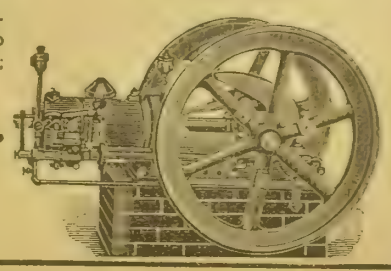

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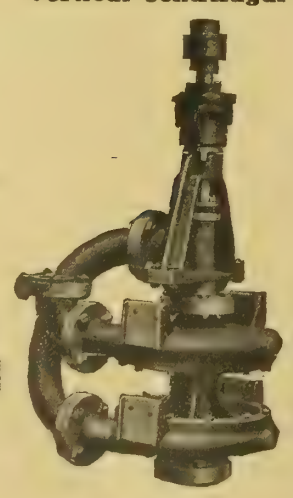

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Young Walnuts Dying Back.

I put out eight acres to walnuts one year ago, Placentia Perfection on native black root, planted on loam soil. Trees did well last year, some of them made a growth of about seven feet. Gave them plenty of water and thorough cultivation. This spring I find about one-third of the trees dead, some down to the ground, and others almost to the ground. Can you tell me what the trouble is? What should I do with them, take them out or let them grow as they are?—Subscriber, Garden Grove.

It frequently happens that walnut trees die back as described and it is almost always those that grew the most rapidly the preceding summer. This happens because the wood of the new growth has not fully developed, and most often because at some time late in the summer the trees had been in want of moisture and were partially dormant, then made a new growth that did not harden before the flow of sap ceased. The trees will send out a number of shoots near the ground, and of these the most vigorous should be selected to make the new tree. Cut off the dead stock and place a strong stake to support the new growth. Then be sure the tree does not want moisture, to the depth of four feet, at any time before November next. Walnut trees do not differ from other trees in wanting the best and most even conditions as to moisture.—J. B. N.

Questions of a Beginner.

(1) Can cockerels that are to be used for breeding be kept in a pen by themselves without danger of it causing sterility? (2) Would it be best to keep a few hens with them, and if so, how many? Which would be best, hens or pullets? (3) How many cockerels could be kept together in one pen and what size house and yard would be necessary? (4) I know you advocate line breeding, but some advise constantly bringing in new blood; how is a person to tell which to believe? (5) I have a breeding pen of line-bred White Rocks and one of Rhode Island Reds, selected by the Hogan System and fancy points combined. Next year I expect to mate a pen of each breed alone for heavy egg production. Would you advise me to line-breed these or buy a male bird from some other strain of heavy layers each year? (6) How many of these hens could be kept in each yard with one male, or could forty or fifty hens be kept together with two or three males? (7) What would be a fair price to charge for the setting of these eggs? (8) My yards are 28x150 ft. with fifty hens in each. I wish to fence off one end to grow green feed in, alfalfa in one side and kale in the other. Do you think this plan of furnishing green feed would be satisfactory?—R. B. Hanford.

(1) Cockerels should be kept entirely away from hens or pullets after they are three months old. I usually keep thirty in a house with one old male bird to police them. He will keep them from fighting and boss the whole yard. (2) Keep no females with cockerels. (3) I found thirty cockerels with one cock was the most convenient number. My house was 8x16 feet, and held the thirty-one quite easily. (4) Line breeding is all right if properly done. "Inbreeding" as it commonly practiced, will result in the deterioration of the flock. (5) Decidedly line breed your selected pens in this way, by selecting every year or by trap-nesting you will build up a strain of which you will be proud. (6) I found that from eight to ten females was the best mating with one male for White Plymouth Rocks. And ten to twelve for Rhode Island Reds. You could, however, keep twenty White Rocks or twenty-four Rhode Island Reds with two male birds in each pen for your utility stock. (7) The price of eggs would depend entirely upon the achievements of your fowls, that is, how near to Standard they come and the average egg output of each hen. (8) I do not think your plan of green feeding would be satisfactory. You would have to add green food to the ration and you could not turn the hens in on the kale until it was three or four feet high. The fowls like the kale and soon destroy it if it is small enough for them to eat the heart out. By having a separate plot of kale and also of alfalfa to add to the ration you will greatly lessen the price of feeding and keep the hens vigorous.—Mrs. A. Basley.

Chicks Dying.

Can you give me a remedy for my young chicks? They become droopy, the droppings are exceedingly foul smelling and lodge in the down around the vent. Needless to say they soon die. I am feeding corn bread and sweet milk and have been feeding West Coast Chick Feed. The chicks are free from lice, have pure water and green runs and the roosting places are clean.—Subscriber, Imperial.

When little chicks take cold, or are chilled or overheated it usually affects the bowels instead of the lungs. The feeding and care that yours are getting are not to blame, but they have been either chilled or overheated either in the incubator the last week or in the brooder. The overheating or the chilling so weakens the bowels that they cannot digest the food and that then ferments or turns sour, or even sometimes putrefies. Anything that weakens the digestion or the vitality of the chick has almost the same effect. Lice and mites will do this. Now as to the best thing to do. First remove all the sick and put them in a separate brooder for each sick chick is a menace to the others, is in fact, a little bit of poison, smelling bad, and liable to infect the others or at any rate the one he sleeps near. Secondly remove gently with your fingers the dried-on droppings, do not wash off, as that will chill the already weakened bowels; if sore, grease with a little carbolic salve, and thirdly, give a good feed of rice boiled in milk with a tablespoon of ground cinnamon to each pint of milk. The cinnamon is very soothing and healing to the bowels, and at the same time it is a good disinfectant, and I have found it more helpful in cases of diarrhoea with chickens and turkeys than any medicine. When the chicks can eat onion, that and raw potatoes chopped fine are excellent. The onions I give freely, they are a preventive to colds and a tonic for the chick's liver and kidneys. Onions give vigor.

Bowel Trouble.

Can you let me know what is the matter with my incubator chicks: they have bowel trouble. I feed chick feed and hard boiled eggs. I started to feed them the third day after they were hatched. I also had some chicks with eyes swelled up and nearly all died. What is the rem-

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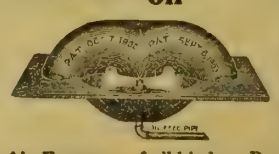

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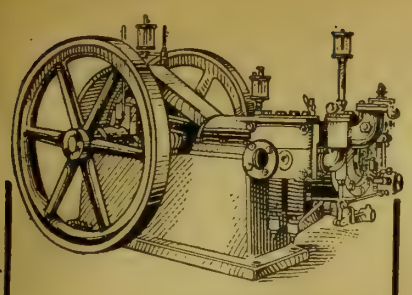

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See my article in Covina Argus, March 25th, on this subject.

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edy? I now have some of them that have the feathers all ruffled up.—J. J. B., Brawley.

J. J. B.'s chicks whose eyes swelled up most likely came from roupy stock. They may not have inherited it but such chicks come into the world with a weak constitution and unable to resist disease. Here prevention is better than cure. Clean the brooders and sun them daily and see that the chicks do not crowd at night and the moment you see one sick little chick take it away from the others.—A. B.

Tanning Calf Skin.

Please give method of tanning calf skin so as to make lace leather.—Subscriber.

The skin should be salted on the flesh side as soon as the hide is cooled after removal, using ten to twelve pounds to a full-sized skin. After salting roll the hide tightly. When ready for tanning place the hide in "soak," simply water to remove blood and salt. After being left in this 24 hours the tail and feet may be cut off and the flesh adhering scraped off, after which the hide should be placed in lime water. To make the lime solution take a bucket of water to each quart of lime. When thoroughly slaked and mixed, immerse the skin and allow to lie for three to four days. Thoroughly wash in cold water. Scour and pound in good soapsuds for half an hour, after which take white vitriol, alum, and salt, one tablespoonful each to skin, and dissolve in sufficient water to cover skin. Let remain in this 24 hours. Wring out and dry. To soften, oil with neat's foot oil or currier's oil. It may again be washed out in soapsuds and hung up until nearly dry, when it should be worked and softened. If it should remain hard and refuse to soften, repeat the soaking in suds.

Too Big an Egg Record.

In our account of egg record sent in by Mr. G. L. Hawley, we erred in that we said three hens produced 152 eggs during February. Mr. Hawley disclaims making any such statement, the three should have been twelve.

Address of Experiment Station.

Will you please give the address of the Agricultural Experiment Station of the University of Wisconsin?—Subscriber, Goshen.

Letters intended for the Wisconsin Experiment Station may be addressed to W. A. Henry, Director, Madison, Wisconsin.

Goat Milk.

What is the particular use of goat milk. Is it richer in butter fat than cow's? If mixed with cow's milk would it raise the test. Would there be a kick coming from the creameryman if put in with other milk?—M. E. F., Goshen.

The milk of goats is of particular value to infants and people with weak digestions. It is sold largely to hospitals and to particular customers. It is not especially rich in blutterfat, but more rich in nutrients than cows' milk. We do not think it would be wise to produce goat's milk to mix with that of cows. There might be no kick from the creamery man, but to mix a product which usually retails at from 25 cents to 50 cents a quart would hardly pay from the producer's standpoint.

Ferrets.

Will ferrets kill gophers?—M. E. F., Goshen.

We do not think ferrets would be as successful with gophers as with ground squirrels. They certainly would kill them, but in the long runways they might be lost and they are too expensive to risk that.

Beetles in Vineyard.

I send beetles which have done much damage in vineyard. They hide during the day under clods and the coarse bark of the stumps and eat the buds at night. Are they the flea beetle?—D. C. F., Upland.

These are tenebrionid beetles and live entirely upon dead and decaying wood. It must be the leaf hopper that is doing the injury to your young buds. Spray with kerosene emulsion. Formulas for this are given under Nos. 13 and 14 in the issue of November 3rd, 1910.

Hulling Walnuts.

Do the walnut growers use hullers? If so, are such machines manufactured in this state? I have but a small quantity of nuts and do not wish to make investment unless necessary.—Subscriber, San Diego.

There is a machine on the market used for hulling nuts which do not voluntarily drop out, but if the trees are kept in a good growing condition the nuts will usually drop. The exception is in case of very dry and hot weather just at gathering time.

Brown Spots on Fig Leaves.

I send fig leaves covered with brown spots. What is the trouble and the remedy? The leaves wilt and drop off. —Subscriber, Pacific Beach.

These leaves were referred to Mr. C. O. Smith, Plant Pathologist at the Southern California Laboratory, also to Mr. Roeding of Fresno. Neither recognized any particular disease, though the spots have the appearance of a fungus. So far as we have heard the trouble has not appeared anywhere else in the state. We will be glad to investigate the trouble further.

Tobacco Culture.

Is tobacco culture profitable in this state? If so, what is the best kind to plant? Is there a factory where leaves may be disposed of in Los Angeles?—R. J., Fullerton.

There have been cases of successful tobacco culture and curing in this state, but the difficulties are great, the heat being the worst drawback. There are many cigar factories in Los Angeles, but we do not think one should consider planting, excepting in an experimental way, until the market was thoroughly investigated.

Locust Fence Posts.

I see a subscriber from Healdsburg inquires about the lasting quality of locust posts. In the East where we could get them they were preferred to any other post, and lasted much better than any other, often as long as forty years. We never dipped them in creosote or any other solution. That being a rainy country and moisture always present in the ground, I should think they would last longer in California. Locust is of a slow growth in the East, but from young trees which I have seen here about, I believe it to grow much faster in this climate. We preferred the posts cut when dormant rather than in the full flow of sap. Locust trees here will not grow as rapidly as the eucalyptus.—M. A. Kendall, Holtville.

One second-foot equals two acre-feet in twenty-four hours flowing constantly.

One hundred California inches equal four acre-feet in twenty-four hours.

An inch of water covering an acre of ground equals 27,154 gallons.

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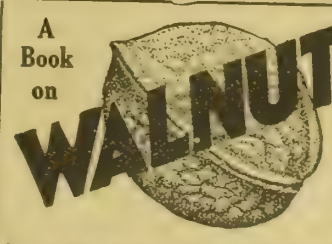
A Book on **WALNUTS** And How to Grow Them



The only book ever written devoted exclusively to the walnut. Gives instructions for planting and propagating compiled from results of twenty years experience in walnut growing. The grafting process as depicted with photographs is applicable to all trees. Prepaid, $1.00.
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Timely Ranch Suggestions

IRRIGATING SUGAR BEETS.

By R. L. Adams.

While originally the moisture for the sugar beet crop was secured from the rainfall alone, during the last two years irrigation facilities have been developed until at the present time much reliance is placed upon the artificial supply of water. Water for this purpose is drawn from artesian wells, from gravity flows, or by pumping from streams and wells.

How Used.

Under California conditions most of the water is put on by flooding the land, using some form of basin, sloping or contour checks. The aim is to give the land a thorough soaking just before it is prepared for the crop. By the utilization of proper farming methods the water is then conserved for the plant's needs. Often one, two or even three crop, irrigations are given to maintain a steady moisture supply. In general, the growing period of the crop may be divided into three parts as regards the moisture supply. During the germinating stage and until the beet attains six or eight leaves only a fair supply should be present. It should be a steady supply however.

From the eight leaf stage until six or eight weeks before harvesting the crop can use enormous quantities of water, and a regular supply should be supplied at all times during this period. During the last six or eight weeks of growth a diminishing supply should be present, in order to permit maturing of the beets.

Must Follow Correct Principles.

Proper irrigation of the sugar beet crop is a matter requiring an intimate knowledge of the soil where the crop is growing. Knowledge of its physical character to the depth turned by the plow is not enough. Inquiry should proceed on down into the soil and subsoil until by repeated borings the character of the soil is known to a depth of ten feet. Only by a proper appreciation of the presence of hardpans of cement, clay or lime, deep layers of gravel or coarse sand, or bodies of standing water, can intelligent irrigation be practiced. The first two sets of conditions will effectually shut off capillary movement of water while the latter condition will aid materially in supplying moisture, depending of course on the distance of water table from the surface of the ground. A knowledge of irrigation principles backed up by a thorough understanding of the physical nature of the fields in question will make a combination insuring the correct use of water in growing sugar beets.

When Not To.

Conditions of too long a growing period fostered by excessive moisture conditions either throughout the plant's growth or during the last six or eight weeks when it should be maturing, will prevent the formation of sugar, and result in low testing beets of excessive, overgrown, ungainly weights. This is to be guarded against and provision must be made to so handle the land and water that a diminishing supply will be present at this time. The control of the moisture supply is secured by proper soil preparation and crop cultivations as well as by the actual application of water turned on from the irrigation ditches.

When Needed.

In addition to the appearance of the soil and subsoil, the beet itself is a good indicator of its needs as regards moisture during its active vegetative growing period. When the healthy, thrifty, light green color of the foliage turns first purplish, then a glossy deep green, and finally lighter with a rapid deepening to yellowish tinge it shows in consecutive stages the increasing need of water for the plant's use. Often a wilting down of the foliage during the day not overcome at night will prove to be an additional indication. Beets not receiving water will gradually assume ripening characteristics, but instead of having the solid, firm, juicy, high testing roots of normally matured beets, will be rubbery, dry and low testing.

By supplying plenty of water at the time the crop needs it, maintaining that supply regularly until time for letting the beets mature, and then gradually letting up on the supply, maximum crops will result. In other words, the transitions from one stage to another should be regular and smooth without running to one extreme of insufficient water, or the other of overabundance, so that the plant will at no time suffer from abrupt changes. In field practice the attainment of proper conditions is far easier than the study of those principles from a printed text. A large amount of common sense backed by conditions and an intelligent understanding of the crop requirements will solve the various factors connected with proper irrigation.

Much Yet to Be Learned.

Irrigation is generally practiced in California, but even so, has not yet attained its highest point of advancement in sugar beet culture. Many fields at the present time are susceptible to more and better irrigation practices, with the attendant promise of greater crop returns.

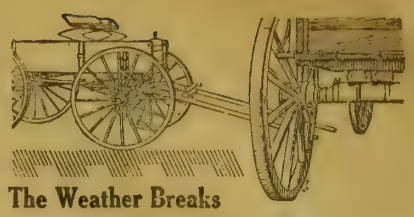
CUTTING UP LARGE LANDED ESTATES IN CALIFORNIA.

By Amos Reem Kanaga.

A new era is now dawning on the Golden State of California; the movement is of such great import and interest that its present status is not realized in our own commonwealth.I refer to the disintegration of our large landed estates, cutting the lands up into small farms of 10 to 160 acres and selling these small tracts to incoming farmers, men who have come and will come from every state in the Union.

For forty years past the great drawback to this state was the well-founded opinion in the East that California was no place for a poor man or one with small means of $5000 or $10,000, or even $20,000. As a result this opinion is prevalent in the East and every man here should do what he can to let the people back there know what is now on in our coast country. About five years ago some of our big landowners commenced to let go; they were inspired with a belief that big lordly holdings were not profitable. Back of the settling of this land was irrigation, the factor that made the settlement of the land possible, for without water on the land it would not be settled in small holdings.

At Willows, the old Doctor Glenn



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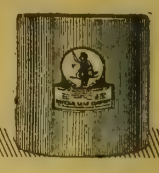

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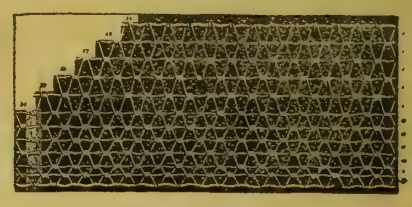

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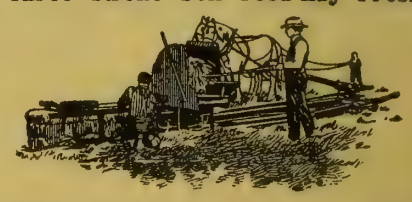

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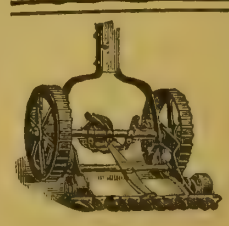


THE CLIPPER

There are three things that destroy your lawns Dandelions, Buck Plantain, and Crab Grass.

In one season the Clipper will drive them all out.

Clipper Lawn Mower Co Dixon, Illinois.

estate comprising 250,000 acres is now being divided and colonized and men, women and children are pouring in there from every part of this great land of ours. Pittsburg bankers are back of this colossal enterprise.

In Fresno county around the town of Kerman is another vast district that has been cut up. This farm consisted of 28,000 acres and up to the present time they have sold 20,000 acres to men who own all the way from ten to 100 acres. We have counties today in California with less population and wealth than they have in this one tract.

At Merced the Crocker-Hoffman Land Company has a tract of 37,000 acres which they are cutting up and selling to farmers in small tracts. The colonization is not done by the above company but they are disposing of it in tracts of 2000 to 6000 acres to men of experience who in turn do the colonizing. Every acre of this land can be irrigated as soon as it is settled on, for they have one of the best gravity water and canal systems in the West. When this land is fully settled on with farmers who own from ten to forty acres, it will have the effect of doubling the population of Merced, the county seat, for this vast acreage completely surrounds that city.

Up in Colusa county, W. K. Brown and associates have purchased 19,000 acres near Princeton where they are now installing a big modern irrigation and canal plant.

Natomas is a district some little distance north of Sacramento. It is a new enterprise of 60,000 acres, being reclaimed by means of a levee. The land is to be sold in ten to 100-acre tracts. One can hardly grasp the meaning of this colossal work. Just think of 2500 new families coming from the middle western states and settling on this land.

I have not yet named one-half of the new land empires that are now being cut up, but I have given the reader a faint idea of what is going on in Central California.

In the southern part of this state they are also doing big things in creating a new West. Go over the Imperial valley and through the orange orchards in the Hemet district where they are carving new homes out of the desert by the aid of canals and water. Spend a day or two at Needles and visit the great enterprise that is now being installed there. It is a district of the highest merit, for water, soil and growing power it can't be beat in all the West. The canals are now almost completed whereby water is carried to every part of a tract of something like 40,000 acres. In the middle of this land is a town called Cottonia, and four miles northeast is another new place where they have a store and postoffice. These people will raise cotton here to equal any produced in Georgia, but the land will raise almost any crop known to civilization. Something like $150,000 has been spent here during the past year. The development of this section is due to three Los Angeles men, W. L. Hollingsworth, W. B. Hole and J. B. Evans.

At Yuma is another big undertaking carried through by the reclamation service; that work costs $5,000,000 and will reclaim over 100,000 acres. Most of the land in the last two named places lies in Arizona, but as they are on our state line I have mentioned them.

A second-foot is a cubic foot which passes a given point in ditch or canal in one second of time.

$90,000 Daily

Now Spent for No-Rim-Cut Tires

Over 600,000 already sold—enough to equip 150,000 cars. All because they cut tire bills in two.

The sale of Goodyear tires has multiplied six times over in the past two years. Last year they jumped to $8,500,000. They are now running double last year.

Sixty-four leading motor car makers have contracted with us for these tires. To supply them and tire dealers we are running our factories twenty-four hours per day.

The reason lies in a patented tire—the No-Rim-Cut tire—10 per cent oversize. Men have found that this tire saves one-half on their tire bills. And the tire has become the sensation of motordom.

The No-Rim-Cut Tire

Here is the Goodyear No-Rim-Cut tire as it fits any standard rim. When you adopt this tire you simply reverse the removable rim flanges so they curve outward. They curve inward with old-style tires. This change can be made in ten seconds.

The rounded edge of the flange then comes next to the tire, and rim-cutting is made impossible.

No Hooks on This Tire

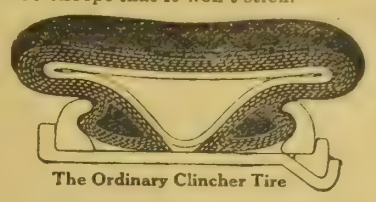
The ordinary tire—the clincher tire—has hooks on the base to hook into the rim flange. That is how the tire is held on. See the next picture.

When you use this type the removable rim flanges are set to curve inward. Note how they dig in when the tire is deflated. That is why the common tire will rim-cut if you run it flat.

Ordinary Clincher Tire

The No-Rim-Cut tire has no hooks on the base. It is held to the rim by flat tape, made of 126 braided wires, vulcanized into the tire base. These make the tire base unstretchable.

The tire can't come off because the base can't stretch. Nothing can force it over the rim. But, when you unlock and remove the rim flange, the tire comes off like any quick-detachable tire except that it won't stick.



The Ordinary Clincher Tire

This braided wire feature is controlled by our patents. And there is no other way known to make a safe tire which will stay on without hooks.

10% Oversize

These No-Rim-Cut tires, where the rim flanges flare outward, can be made 10 per cent over the rated size and still fit the rim. And we give you that oversize without extra cost.

That means 10 per cent more air—10 per cent greater carrying capacity. And that, with the average car, means 25 per cent more mileage per tire.

These two features together—No-Rim-Cut and oversize—will double the service one gets from a tire under average conditions. Yet Goodyear No-Rim-Cut tires cost no more than other standard tires.

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No-Rim-Cut Tires

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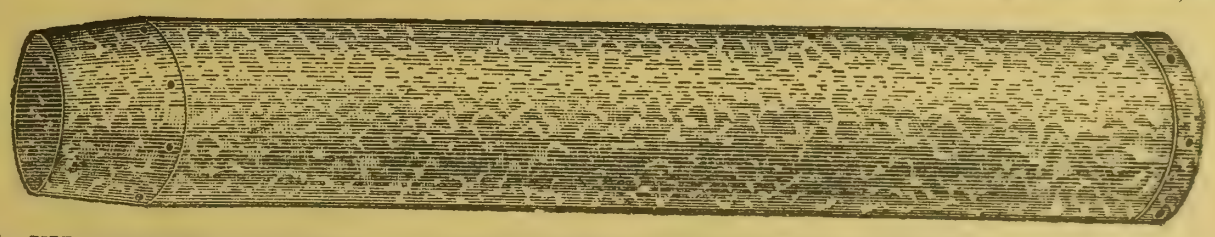

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Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch Standard, at	1c	per foot
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36,000 feet	1-inch Standard, at	4c	per foot
20,000 feet	1¼-inch Standard, at	5c	per foot
30,000 feet	1½-inch Standard, at	6c	per foot
50,000 feet	2-inch Standard, at	8c	per foot
10,000 feet	2½-inch Standard, at	14c	per foot
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WATER PIPE—Riveted Dipped Pipe

10,000 feet	24-inch Riveted Pipe, dipped, good as new	80c
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10,000 feet	8-inch Riveted Pipe, dipped, good as new, 16-guage	25c
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20,000 feet	of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.	

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20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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Take Santa Fe Ave. or Huntington Park car at 7th & Bro'd'y, Get off at Bay St.

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Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon 66619, 2 years old. Dark gray, Dam weighs a ton. Liberty 74316 Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—The kids I advertised last week are sold. I have another buck kid, half Toggenburg, half Red Alpine, gray and fine stock, 10 weeks old. Price $5.00 crated and put aboard train. C. E. Strehle, 1236 17th St., San Diego, Cal.

For Sale—1 pair Toggenburg kids, buck and doe, 2 months old. These are from the stock advertised by Mr. Lobingier in the Cultivator last year. Price $10 for the pair, crated and put aboard train. C. E. Strohl, 1236 17th St., San Diego, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Pure Bred New Zealand Rabbits, young does and bucks for breeders. Prices and stock right Write to Chas. W. Mixter, Banning, Cal.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

For Sale—Thoroughbred Cocker Spaniels. They are registered and the best there is. Call or address 1117 Rowan Ave., Los Angeles, Cal.

Three Holstein Friesian Bulls, splendid young animals for sale, well marked and subject to registry. Write at once to Geo. G. Roeding, Fresno, Cal.

WANTED.

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big-paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, L 448 Marden Bldg., Washington, D. C.

Wanted—To rent to a reliable dairyman, an alfalfa ranch of 150 acres; 125 acres in alfalfa, balance pasture; fenced and cross-fenced. New buildings. Abundance of water, both ditch and pump. 7 miles west of Porterville, 1½ miles to creamery, church, school and blacksmith. Will rent for a term of years either for cash or on shares. References required. E. A. Marshall, R. F. D. 1, Box 90, Porterville, Cal.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles. Cal.

Wanted—Situation to keep ranch accounts by a competent bookkeeper. Address Thomas W. Ward, 520 15th St., Oakland, Cal.

MACHINERY.

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, harness, disc, gang, walking, riding and side hill plowers; slip, Fresno and wheel scrapers; header, baler, seed sower, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.

8 ft. steel Star, tower, tank, tank house, pump complete, $39.00, or $42.50 on cars; also many others at ½ new price.

ENGINES.

2 H.P. R. & V. engine, jack and pump complete, $99 F. O. B.; 5 H.P. Coffield engine, first-class condition, $145; also many other sizes.

TANKS, TANKS, TANKS.

50 gallons to 50,000. Special price on 25,000, 30,000 and 50,000 gallon. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—Complete pumping plants, new and second-hand. Electric and gas engine driven. All sizes. Send us your details for our recommendations, irrigating appliances and pipe molds. We can save you money on your installations. H. U. Roeding & Co., Foxcroft Bldg., San Francisco, Cal.

For Sale—32 H.P. Fairbanks-Morse gas engine. Will guarantee. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—11 H.P. White & Middleton engine. Overstocked on this size and will sell cheap for cash. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

DAIRY SUPPLIES.

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles Phone Sunset Main 7496

HORTICULTURAL PRINTING.

Catalogues for the seed and nursery trade, the live stock and poultry industries, are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

NURSERY STOCK.

For Sale—Sour Orange Seed Bed Stock. Clean and thrifty, having excellent fibrous roots. $3.00 per hundred, $25.00 per thousand. We ship safely to all parts of the country. Armstrong Nurseries, Ontario, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Barbara, Cal.

For Sale—1000 first-class 2-year-old Valencia orange trees. Stock on Greystone Ave., Monrovia. Address for particulars, W. S. McQuilling, 125 N. Fair Oaks Ave., Pasadena, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 13; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

For Sale—Fawn Indian Runner duck eggs, 75c per 13, $4.25 per hundred, for balance of season. Ducklings 18c each, $15.00 per hundred. Rawson's Poultry Yards, 4650 Sunset Blvd., Los Angeles, Cal.

TREES.

For Sale—About 3000 each of Washington Navels and Valencias, 1 to 2 ft. high, at 35c each. Also several thousand each of Washington Navels and Valencias, 2 ft. high and upwards, branched, at 50c each. All the above are 1-yr.-old buds; guaranteed clean, healthy, vigorous trees. Carroll B. Smith, Box 9, Redlands, Cal.

One thousand one and two-two Eureka Lemons, two thousand two-year Valencias, sweet and sour orange seed bed trees, five hundred camphor trees. Southland Nurseries, F. H. Disbrow, Prop., R. D. 1, Pasadena.

Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seed bed stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For Sale—Very cheap, 2006 choice navel or lemon trees, early 1912 delivery; care guaranteed. Half cash deposit required. O. E. Van Slyke, Glendora, Cal.

For Sale—A few hundred W. Navels of fine, vigorous stock from ¾ to 1 inch and 4½ to 5 ft. high. Nursery near Cypress Station on Santa Ana line. John L. Preston, Anaheim, Cal. Phone 1472.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

MISCELLANEOUS

It requires but 2 to 4 cents worth of the darkest and cheapest honey to make a gallon of the richest and most delicious beverage drink. It is a perfect substitute for fruit where fruit is scarce, and a perfect substitute for water where water is poor. A tablespoonful of evaporated milk in a glassful makes buttermilk that is worth twice as much as the natural kind. Process and right to use it two years 25 cents. C. W. Dayton, Chatsworth, Cal.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

RARE PLANTS.

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nurserv, Pasadena, Cal.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Bronze Turkey eggs $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J Rhode Island Red and White Leghorn eggs and baby chicks.

White Holland Turkey Eggs from large, vigorous stock, 35c each. Poults, May 16th, 50c each. Also gobblers, $7.00. Mrs. Hocking, Guasti, Cal. Winner of 1st prize, Los Angeles, 1911.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

Agricultural Implements—Vehicles.

Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

For Sale—One 5-passenger Winton auto, extra tires and inner tubes. Also one autocar runabout, fully equipped. M. Jacobs, 201 Howard St., San Francisco, Cal.

POULTRY.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Barred Rocks exclusively. Eggs $1.50 and $3.00 for 15. Hatched chicks 15c and 20c each. Fine young stock later. Correspondence solicited. G. L. Hawley, Madera, Cal.

Settings from splendid strains White and Buff Wyandottes. Prices reduced for months of May and June W. C. Parker, 113 Pacific Ave., Santa Cruz, Cal.

POULTRY.

Lasher's Hatchery, 15 Kent St., Petaluma, Cal.—Why my chicks live and grow in the hands of my customers, they are all hatched from free range stock, bred right, mated right, fed right. I have the most up-to-date hatchery building in the country, built of brick, with dead-air space in wall, giving me a uniform heat that means strong, healthy chicks; 16 years in the hatching business, 10 years at present stand. It is no experiment or guesswork with me. Prices per 100, White Leghorn, $7.25 and $8.50. Leghorn-Minorca cross, $7.25. Black Minorca, $10.00. Terms, cash with order.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

White Orpington and White Wyandotte eggs for hatching. My winnings at Los Angeles 1911 were 1st cock, 1st hen, 1st and 2nd cockerel and 1st pullet on White Wyandottes. White Orpingtons, 1st, 3rd, 4th and 5th pullets, and 2nd and 4th hens. Eggs sell at $3.00, $5.00 and $10.00 per 15. Order direct from this ad and your order will receive my most careful attention. A. W. Huskins, 713 Waterloo St., Los Angeles, Cal.

The Goodacre Strains—Just the time to get our Quality Reds, our special offer on eggs from choice matings of $3.00 per 15 or $5.00 per 30 is hard to equal; our commercial day-old chicks we now offer in 100 lots at $12.00; our Reds have been constant winners the past three years in our Coast shows. We can sell you choice eggs, Buff Orpingtons, Anconas and White Runner Ducks. Write us today. Goodacre Bros., Compton, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Eggs $1.00, 15; $5.00 per 100. Chicks $15.00 per 100, $12.50 for incubator lots. R. I. Reds, Barred Plymouth Rocks and B. Orpingtons. A few B. Orpington pullets for sale. Cash with order or stamped envelope for reply. L. W. Neilsen, R. R. 2, Box 1 A, Petaluma, Cal.

Buff and White Leghorns of good quality. Best yard of White Leghorns, headed by a cockerel from Knapp Bros.' Buff Leghorns, Demlow's strain. Eggs for hatching $1.00 per 15. A. C. Hayes, St. Helena, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. Eggs for hatching $5.00 per 100. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

White Rocks and R. I. Reds—A few select cockerels for sale. Will make grand breeders. Stock Hoganized and bred to lay. Prices reasonable. A. G. Lyle, Cupertino, Cal.

Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene, Waukena, Tulare Co., Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs. $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock L. V Peterson, Guerneville. Cal

S. C. Brown Leghorn cockerels. Eggs $3.50 per 50 or $7 per 100; $2.50 and $5 per 15. Mrs. C. H. Vary, Pomona, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Blue Andalusian and Buff Orpington eggs —from best strains. $2.00 per 15. Few choice Buff Minorca eggs. Mrs. A. V. Cox Box 302. San Luis Obispo, Cal

Houdan Eggs, $1.50 per 15, $4.50 per 50. Pen headed by prize winner. Mrs. Hocking, Guasti, Cal.

For Sale—Day-old chicks. Rhode Island Reds, 12½c, and Barred Rocks, good stock. S. Stone, Moneta, Cal.

White Wyandotte Eggs, bred only from 200-egg birds. 15, $2; 100, $10. Hand & Hand, Inglewood.

Kellerstrass White Orpington Eggs, $2.00 per 15; $12 per 100. R. L. Warren, National City, Cal. R. F. D. 1.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Single Comb Brown Leghorn Eggs—$6.00 per hundred, $1.50 single setting. Mrs E. Foran, Box 445, Visalia, Cal.

POULTRY

Eggs from selected, trapnested stock, White Minorcas, beauties, layers of large white eggs, eggs $3.00 per 36. White Wyandottes, great winter layers. White Plymouth Rocks, Fishel's strain, prize winners, eggs from both $2.50 per 36, $6.00 per 100. White and Brown Leghorns, very select stock, $2.25 per 36, $4.50 per 100. Pearl Guineas, $2.00 per 15. Bronze Turkeys, 20c each; none better. I have about 500 per week of day-old White Rock chicks, Fishel's strain, for sale, $15 per 100, 17½c for less quantity. W. D. Rose, R. D. 6, Santa Ana, Cal.

Lasher's Hatchery, 15 Kent St., Petaluma, Cal.—Why my chicks live and grow in the hands of my customers, they are all hatched from free range stock, bred right, mated right, fed right. I have the most up-to-date hatchery building in the country, built of brick, with dead-air space in wall, giving me a uniform heat that means strong, healthy chicks; 16 years in the hatching business, 10 years at present stand. It is no experiment or guesswork with me. Prices per 100, White Leghorn, $7.25 and $8.50. Leghorn-Minorca cross, $7.25. Black Minorca, $10.00. Terms, cash with order.

We offer for sale 3 Crystal White Orpington cockerels, 3 and 4 months old, fine fellows from a special pen of Kellerstrass birds, at $2, $3, $5. Also a beautiful pen of Light Brahmas, headed by a prize-winning cock. Three-months Light Brahma pullets and cockerels at $2 and $3. All the above are splendid buys. Write us. Pellett & Pellett, R. D. 1, Ontario, Cal.

Cook & Kellerstrass Strain Orpingtons—"The Real Thing." The Standard Poultry Yards, 3944 Cleveland Ave., San Diego. Cook Black, Buff, and White Orpingtons. Eggs and baby chicks. Northrup S. C. Black Minorcas. Send for folder. C. A. Loud, Prop.

This is My Last Notice for the Season. Those who desire eggs from either "Kellerstrass" White Orpingtons or Buff Wyandottes should write at once and book orders. Orpington eggs 20c each, Wyandotte 10c straight. Good stock. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

Goose Eggs for hatching from the largest and best flock of Toulouse geese in California. 66 mature breeders, all 3 and 4 years old. No young birds in the lot, which contains a number of first prize winners. Eggs weigh one-half pound each. Price 35c or $3.00 for 10. Long Beach Poultry Ranch, cor. 10th and Walnut, Long Beach, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

Baby Chicks from thoroughbred White Leghorns, "bred to lay," not simply chicks, but "Stock," the kind that breed true to color and fill the egg basket; May and June, $8.50 per 100; safe delivery insured. F. W. Dobbel, Buena Vista Poultry Yards, R. F. D. No. 1, Sonoma, Cal.

FARM LANDS FOR SALE.

40 Acres, near Dinuba, Tulare County, ¼ mile from Southern Pacific, 3 miles from Santa Fe, within 3 miles of three towns; all dry. Accredited high school, telephone, rural delivery. First-class soil, level and under irrigation in best and cheapest irrigation district in this state. Water right with land. Produced 14 tons dried peaches and 25 tons raisins in 1910. 2 acres variety fruits and nuts, over 100 varieties. 2 acres pasture. Plastered cottage, large tank house with 3 finished rooms. Excellent water piped to house and barn. Work shop, fruit, poultry and wood houses. Fully equipped for fruit drying with trays, boxes, transfer fruit car and steel track throughout. Everything about place in first-class shape. $1500 worth personal property. Everything goes with ranch, including furniture. Price $14,000. For terms address owner, Chas. F. Collins, Dinuba, Cal.

A Eucalyptus Snap—70 acres ideal sandy loam soil; 60 acres now planted to Eucalyptus; 30 acres 2 years old; 30 acres planted this year; 8 acres in full bearing Apples; 2 acres in Apricots. Net income last year $568; this year's fruit crop will bring $800. This will increase in value $50 per acre yearly. The bare land is worth the money asked. Price $8500. Write at once to Farm & Forest Realty Co., Bank Block, Watsonville, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles. Cal

Dairy Ranch For Sale—160 acres in San Joaquin Valley; 7-room house, stable, fenced and cross-fenced. Plenty of flowing water to irrigate the 160 acres. 80 acres in alfalfa, balance alfalfa land 12 miles from R. R. Good roads. $100 per acre, ½ cash. Will also sell the cows if desired. Inquire of Geo. W. Berry, of Berry's Market, Whittier, Cal.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Price $65 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

200 Acres Good Level Land—13 A. orchard; shade trees; 12-room house; 2 barns; windmill and tank house; fruit houses; cream separator; engine; etc. Price $21,000.

12 A. orchard home, good house, 4 rooms and bath, barn, fruit houses, windmill, equipment; complete place. $3600.

Yolo & Solano Counties. Wyatt & Wilson, Winters, Cal.

Another Bargain—80 acres of fine level land, sandy loam, no hardpan or alkali. Altitude 2500 ft. Very healthy. Will grow anything; no irrigation required. See the crops growing here in Santa Barbara Co. Owner needs money, so $20 per acre takes it; ½ cash, balance 3 yrs., 10 per cent. No trades. Wm. Mantz, Maricopa, Cal.

For Sale or Trade—Five acres of land in Greenfield, under irrigation. Set to alfalfa and family orchard. Small buildings and well on place. Will exchange for other land, good cows or mares. Price $750.00. M. A Sloan, Greenfield, Cal.

For Sale—8 acres; 4 acres Muscat vines; 3 acres Thompson vines; border of large fig trees. Good location, a bargain. Price $2,000. H. Hodges, Dinuba, Cal.

FARM LANDS FOR SALE.

An Exceptional Opportunity to secure at a bargain, an ideal apple orchard, located in the best apple section of the world's greatest apple district—Pajaro Valley, Santa Cruz County, California.

The property consists of 51.85 acres. Number of trees, 3784. Number of bearing trees, 3601. Age of trees, 7 to 10 years. Varieties: Belleflowers, 926; Newtons, 1140; Spitzenbergs, 1219; Missouri Pippins, 203; Baldwins, 132; other varieties, 164.

Dwelling house, 4 rooms and storeroom, 3 porches. Packing house, first story 55x70, second story 38x70. Blacksmith shop, barn and wagon house; main building 25x40, shed 18x40. Chicken house 12x30, and small house. Cement tank for water, 6000 gals. Water piped to dwelling, chicken house and barn.

Personal property: Two horses, 2 sets harness, 1 heavy and 1 light orchard truck, 1 wagon sled, 1 spring sled, 1 gasoline engine, Bean pump and 150 feet spray hose, 1 wheel cultivator 2 side-hill plows, 1 drag harrow, 1 1000-gal. tank, windmill and pump, 2000 tree props, 150 cull boxes, 6 ladders, 25 chickens. Dec. 1st, 8 tons hay, forge, blower tongs, pinchers and other tools Some pieces household furniture.

1910 crop 10,500 loose boxes—4450 Belleflowers, 2833 Newtons, 1711 Spitzenbergs, 1456 other varieties. Estimated crop for 1911, 20,000 boxes, or about 300 tons. Buyers now offering $25 per ton orchard run. Crop goes with place if sold before July 1st, 1911

This property is located about seven miles from Watsonville, only five minutes' walk to Corralitos Postoffice and splendid school. Soil: Santa Cruz loam and Pajaro sandy loam. No irrigation, no freezing, no burning. Ideal California climate. Price $17,500. One-half cash. Adjoining properties in same class are held at $500 an acre. For further details and list of 50 orchard bargains write at once to Watsonville Farm & Forest Realty Co., 320 Main St., Watsonville, Cal. Reference: Pajaro Valley National Bank.

For sale—80 acres of land, four miles south of Hanford in the heart of the dairy belt, nearly all in alfalfa. Good buildings, fences and water rights. All checked and leveled. Telephone and rural mail delivery. Address Frank McClellan, Hanford, Cal.

Pacific Coast Lands—Farm lands appraised for prospective investors. Reports on agricultural projects, soils, irrigation, drainage, etc. Paul Goodloe, 1049 Phelan Bldg., San Francisco, Cal.

For Sale—48 acres, all in alfalfa, good buildings, fenced and cross-fenced under the ditch; ¾ of a mile from Newman; $300 per acre. Box 133, Newman, Cal.

Eighty acres finest eucalyptus land, 4 miles from Santa Maria, Santa Barbara County, about one mile from railroad; price $2000, if sold at once. A. Frederiksen, Arroyo Grande, Cal.

Farms for rent or sale on crop payments. J. Mulhall, Sioux City, Ia.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

Poultry Ranch within 13 miles of Los Angeles, 20 acres, $1500.00; 10 acres, $1000.00. North Los Angeles Developing Co., 147 No. Spring St. Mr. Ellis.

For Sale—5 acres, joining Roeding Park, Fresno. Address Mrs. Florence L. Bollinger, Fresno, Cal., General Delivery.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S FOWL WHITE FARM, Moorpark, Cal

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Wound.

A valuable colt, eight days old, ran into a harrow and injured his breast, laying open a wound about six inches in length between the leg and the body. We sutured the wound with gut. Please tell me how to care for him.—Subscriber, Encinitas.

Very young colts are liable to contract blood poisoning from deep wounds, hence it is to be hoped the wound was thoroughly cleansed and disinfected before suturing. If much swelling ensues and lameness becomes extreme within five days, cut the stitches and allow free drainage. Bathe two or three times daily with 2 per cent creolin solution or 3 per cent carbolic acid solution, and apply freely to the moist surface a healing powder made by mixing boric acid 4 ounces, zinc oxide 2 ounces, iodoform 1 ounce, and calomel ½ ounce.—F. G. M.

Olive Pulp.

I am offered olive pulp at $10 per ton. The analysis submitted is as follows: Water, 12-15; ash, 4; proteins, 10-12; carbohydrates, 50-60, and fats, 8. From this analysis would you consider this an economical food for poultry, hogs and cows?—B. D. F., Los Angeles.

Only the digestible parts of a food are valuable. The digestible constituents are not stated in this analysis, but estimating the digestible proteins 8, carbohydrates 36, and fats 6, the value would apear to be approximately $25.60 as compared with wheat bran at $27.50 per ton. Wheat bran contains water 12, ash 5.8, protiens 12, carbohydrates 62.9, and fats 4; digestible protiens 9, carbohydrates 39, and fats 2.9. The nutritive ratio of the olive pulp would be 1-6.7, while 1-3.8 is that for the bran.—F. G. M.

Oats and Barley.

I can buy barley at $31 per ton, and oats at $35 per ton. Kindly inform me as to the relative feeding value of the two.—Subscriber, Covina.

When the price of oats is $33.50 per ton, the relative value of barley should be $33 per ton. The nutritive ratio for the oats is 1—7, as compared with 1—7.5 for the barley.

Lameness.

Five weeks ago my mare became lame. The ankle swelled first, and now the hock is swollen. She supports little weight on the foot—lameness severe—allowing the toe to just touch the ground. I have blistered the limb with caustic balsam, but it does not seem to improve. She is due to foal in four weeks.—Subscriber, Herman.

It is evident you did not locate the point of injury or the cause. Have your horseshoer pare the bottom of the foot—sole and frog—in search of a nail wound or other injury. Failing in this, follow up the limb, searching every part—joint, bone, cord, etc.—for painful areas or enlargements. It would be haphazard to advise treatment without more definite information.—F. G. M.

FRUIT DRYING.

The Likfresh Company is meeting wonderful success with its new process of fruit drying. The simplicity, economy and rapidity of operation, compared with the old-time methods of drying fruits, will place this invention in the forefront as a producer of revenue for California.

Tons more of fruit and vegetables can be raised and preserved with all the natural freshness and flavor. Water brings out the dormant richness. It seems almost incredible that a dried piece of cauliflower can be brought back to color and flavor as it was in the garden; that a dried ear of corn will grow to its original size and sweetness. Yet these are true. Not only will vegetables return, but fruit, berries, fish and meat will assume the state in which they were before placed in the drying bins.

New drying plants should spring up; more men and women should be employed and greater capital be invested in the preserving industry of California than ever before.

A further announcement will be found on page 583 of this issue.

BETTER THAN EVER.

Thousands of dollars have been spent in new improvements at Coronado Tent City this year, notwithstanding that the famous bay and ocean pleasure resort was pronounced absolutely perfect in every respect by more than 300,000 visitors last season. Extensive improvements have particularly been made in the palm cottages, which now possess every convenience, and are as cozy and comfortable as one could wish. Several new wood and canvas kitchens, with screen doors and windows, have been erected for the use of occupants of palm cottages should they desire to do housekeeping. Many new tent houses have been constructed, while the several hundred in use last season have been rejuvenated to the standard of newness. Tent City's famous board walk, along the bay, has been doubled in length and rivals that of Coney Island.

In addition to bathing, boating, fishing, etc., there will be no end of amusements at Tent City this season. The Joy Ward will teem with novel attractions, the theater will be open and dances will be given every night, except Sunday, in the new $30,000 pavilion, which has one of the finest dancing floors on the Coast. Music for dancing is furnished by a superb orchestra of eight pieces.

On June 17 Ohlmeyer's famous Coronado Tent City Band, fresh from its triumphs at Willow Grove Park, Philadelphia, will inaugurate a series of daily free concerts covering three months. While the regular season does not open until that date, many people are already at the resort for the summer and every day marks new arrivals.

Tent City is now, at this early date, assured of a larger number of guests than ever enjoyed its cool summers and countless attractions in former years. A beautiful illustrated booklet setting forth the many attractions of Coronado Tent City has just been issued by Manager J. S. Hammond.

General Household Notes

HOMESICK.

Homesick ain't like th' other sicks
  You get an' hafto go to bed
An' drink th' stuff th' drug-stores mix,
  Or have things tied aroun' your head,
An' when your ma she wash your face
  An' use th' silver bresh an' comb
To comb you, an' she fill a vase
  With flowers' 'cause you're sick at home.

Homesick, ain't med-cine sick at all;
  It ain't a sick like stummick ache
'At make you double up an' bawl
  An' say you didn't eat th' cake,
Until your conscience it ache, too,
  Nen you con-fess, an' your ma smile
An' say she got a joke on you
  Buhcause she know it all th' while.

Homesick ain't when they see your tongue
  Or feel your pulse, or your ears buzz,
Or doctor listens at your lung—
  But, oh, how much you wisht it wuz!
Homesick is when you go away
  A-visitin' all by yourself,
An' miss th' clock at ought to stay
  A-tickin' on th' mantel-shelf.

An' folks tell stories to you, too,
  An' try their best to make you laugh.
Th' wind cries in th' chimbley flue,
  An' in th' barnyard is a calf
'At bawls an' bawls—an' worst part yet
  Is all th' time how well you know
No matter how homesick you get
  An' want to go home, you can't go.

—Wilbur D. Nesbit in Harper's Magazine.

REACHING A VERDICT.

By Oscar E. Youmans.

The slender figure standing before the judge sobbed convulsively, and from time to time hid her face behind her hands.

"How old are you?" asked Judge Brown, eyeing her over his glasses.

"Sixteen, sir," she answered, raising her eyes to his face.

"Didn't you know that it was against the law to make moonshine whisky?" continued the judge, sternly.

"I had to do something, sir, after my father died. Before that we had enough to live on. After he was gone, there was only granny and me. I wasn't strong enough to plow. I tried it, but somehow I couldn't keep the plow in the ground."

As she finished speaking she drew herself up to her full height. The judge looked at her slender figure, clad in a roughly-made gingham dress that barely reached to her worn, ill-fitting shoes. Her tawny hair would have been finest blond had it not been for the exposure of mountain life. She had plaited it in one long, rough braid, that hung down her back.

"So you couldn't make the plow work, eh?" continued the judge.

"No, sir; but I tried ever so hard."

The twelve jurors glanced at their own brawny hands and then at the girl's slender ones. Most of them remembered their boyish experience of not being able to make the plow stick.

"But I had to do something, sir," she replied. "The men living near brought the corn and I made the mash for them. That's pretty easy work for a girl to do, judge, even if she ain't over strong."

"I believe the supply you had on hand the day you were arrested was fresh, wasn't it?"

"Yes, sir."

"Did you sample any of the stuff, sheriff?" and the judge turned to that official.

"I certainly did, judge," replied the sheriff, sheepishly; "and I want to say right here that I never tasted better in all my life. Believe me, judge, when I say I never so hated to do a thing in my life as when I found I must arrest that little girl."

"H-u-m!" commented the judge.

"Well, I'm not very tender-hearted, hunting moonshiners all the time as I do," went on the sheriff. "There's not a cave in these hills, judge, that I haven't been in, and everybody knows me, even the children. I'd suspected for some time that whisky was being made at their cabin, but after the hearty way they invited me in and asked me to stay to dinner, why, judge, I was actually sorry I'd gone."

"That's true, judge," broke in the girl, as the other paused. "We're very lonely up there in the hills; we're always mighty glad to see somebody."

The sheepish look had become more apparent on the sheriff's face, and the jurors seemed to notice it, nudging each other significantly.

"We had a big piece of bacon that we'd been saving, the only one we'd had since father died. I cooked that for him," and she indicated the sheriff. "He certainly seemed to enjoy it," judge."

"I agree with her there, judge," and the sheriff actually smacked his lips as he remembered the occurrence. "There's many an older woman who couldn't fix up a dinner any better than that little girl," and he seemed eager to say a good word in her behalf. "Judge, you can just imagine how I hated to take her for making moonshine whiskey. Please be as easy on her as you can, judge. And you fellows, too," he added, turning to the jury. "Mark my words, Bill Sykes, I'll hold you responsible for a favorable verdict," and he pointed his finger at the foreman. "If it's against this little girl, I'll break your neck when you leave this room!"

"Here, here, sheriff!" cried the judge, sternly, rapping for order, as a ripple of merriment filled the room at the sheriff's earnest speech. "While you're a good sheriff, and all that, don't forget that I'm trying this case."

"Beg your pardon, judge," answered the sheriff meekly.

"What's your grandmother doing while you're up here in town?" the judge asked the accused, not noticing the sheriff.

"He took granny to his house," she replied, pointing to the sheriff.

"Is that so, sheriff?" asked the judge, looking at that worthy's flushed face. "Well, gentlemen of the jury," he continued, turning toward them, "in arriving at a verdict there are many things to be considered. After you acquit her—which I have not the least doubt you will do—we must consider what will become of this frail young girl, only sixteen years old. She is too delicate to toil for her daily bread. She also has depending upon her an old grandmother, nearly eighty years old. If you acquit her and allow her to go back to her mountain home, we have taken away her only means of support. I ask you again, what is to become of her?"

"If you please, judge," said the sheriff, blushing to the roots of his hair—he was scarcely over thirty himself—

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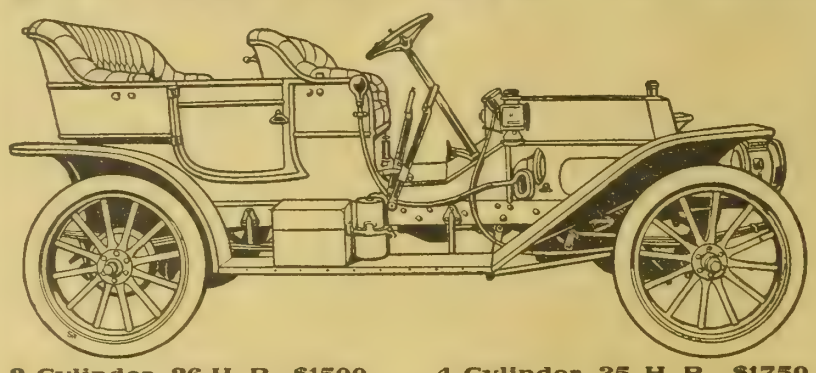

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"but I've got that all figured out. I don't know what on earth that little girl could do with her little bits of fingers to earn a living for herself and grandmother, but I'm no sheriff if I can't do it for her! Her grandmother is already at my house, and she can come, too. My mother will look after her until—until—"

"Until what?" asked the judge.

"Until she is a little older," answered the sheriff. "Then she's only got to say the word, and I'll guarantee to take care of her for the rest of her life!"

"I would like to hear the opinion of the prisoner at the bar," said the judge, smiling into the girl's wondering eyes.

"I don't understand," faltered the girl.

"Well, that ugly looking sheriff there says you and your grandmother can make your home with him. After a year or two, if you think you could endure him, he says he'll marry you."

She looked from the jury to the judge, from the judge to the sheriff before she replied.

"I think he's been awful kind, and I don't think he's so very ugly. I don't think I could do much better. I'll see what granny says."

"Gentlemen of the jury, what's your verdict?" shouted the sheriff, springing to his feet, excitedly.

"You shut up, sheriff!" cried the judge, hastily, although his voice was not so harsh as he tried to make it. "I'm trying this case! I hereby charge the jury to acquit the prisoner!"

And they did, without leaving their seats, giving the girl and the sheriff three cheers for good luck.—Country Gentleman.

HOMELY HINTS.

One tablespoonful of ammonia to a quart of water will clean gold or silver jewelry.

Place all cakes to cool on a wire sieve and never put them away in tins till perfectly cool.

Slices of lemon topped with grated horseradish makes a tasty and pleasing garnish for veal served in any form.

Ordinary wall papers may be cleaned with dough, or rubbed with a soft, clean flannel dipped in fine oatmeal.

Candles used for lighting the dinner table will not drip if placed on ice for two or three hours just before serving the meal.

To prevent old potatoes from discoloring, put one or two tablespoonfuls of sweet milk into the water in which they are boiled.

Doughnuts and cookies, as well as crackers, can be freshened by heating them thoroughly in a moderate oven, after which they should be cooled in a dry place before serving.

Do not throw your worn out hot water bag away, but cut it in round or oval pieces, and use them as mats to put under flower pots.

Coffee stain, even with cream in it, can be removed from the most delicate silk or woolen fabrics by brushing the spots with pure glycerine.

If when drying curtains they are hung double over the line, they will not stretch at all, as is so often the case when hung up by the edge.

For dusting women's heavily trimmed hats the best brush is a cheap shaving brush, as it is both stiff and small enough to reach every crevice.

Sew matting with raffia and prevent unsightly stitches of thread. Raffia is very strong and may be bought to match almost any kind of matting.

A simple way of repairing a rent in an umbrella is to use a piece of ordinary adhesive plaster. If the plaster is not black it may be easily colored.

Nails used in bathrooms and kitchens on which damp cloths and towels may be hung should be painted with enamel so that they do not leave rusty marks.

Carbonate of soda will remove the most obstinate mud stains. Rub off with a cloth or flannel dipped in the soda, then press well on the wrong side of the material with a warm iron.

When you need a cold cloth and haven't ice, try wringing a cloth out of cold water and shaking briskly in the air. The rapid evaporation will give you almost an ice cold compress.

New rope may be made pliable by boiling it in water for a couple of hours. Its strength is not diminished, but its stiffness is gone. It must hang in a warm room and must not be allowed to kink.

To soften boots or shoes rub castor oil thoroughly into the leather. This will renew the elasticity and life of the leather. Any ordinary oil will answer the purpose, but castor oil is the best.

When washing white dress skirts do not wring them, but hang them dripping wet on the line by the belt. The weight of the water prevents any shrinking and keeps the skirt an even length.

Lamp chimneys can be quickly cleaned by holding the hand over one end and putting the other end over the spout of a simmering tea kettle. Rub at once with a smooth cloth or tissue paper.

Try several shades of silk together in one needle when mending plaids or checks, using colors to harmonize with the predominating tones of the material. The mended part scarcely will show after it is neatly pressed.

If there are fruit stains on the table napkins rub with and soak in a little turpentine before washing. For mildew tie up cream of tartar with the soiled part and boil in clear water or rub with a fresh tomato.

AN APPRECIATION OF RICE.

Health requires a certain proportion of starch to be eaten daily, but there is considerable difference in the manner in which it is introduced into the diet. Potatoes, rice, white bread and macaroni are all composed mainly of starch, but rice is more delicate. Hence it is allowed early in a convalescent diet and even before white bread. The bread is usually toasted or dried like rusk before it is given to the invalid, who must be nearly recovered when the baked potato is allowed.

In some sections rice is always served as a desert with a sweet sauce or cooked in combination with milk and eggs. In other localities it is considered merely as a vegetable and as a substitute for white potatoes. The all-around cook serves it in both capacities and also makes it the foundation of various muffins, griddle cakes and fritters. One of my earliest memories is trying to eat some rice boiled in a bag and served with molasses. The hard, soggy mass retained the shape of the seams in the cloth and did not appeal to my childish appetite, while the rank sweetness of the raw molasses was even worse. To this day the sight of a mulberry ware plate, such as the unappetizing rice was served on at my playmate's home, calls to mind the old New England idea of how to use rice. Not until the

day of cooking schools did I learn to appreciate this cereal.

Good rice has no broken kernels, and there is now a law against facing inferior rice with anything to make it look glossy like that of the best quality. Old rice needs longer cooking than the new crop. Always wash rice in several waters to remove the floury portion of fine particles that will cook into a sticky mass.

When served as a vegetable, or cooked to be served as a foundation for other dishes, drop it slowly into rapidly-boiling water slightly salted. Use a generous quantity of water, keep it boiling rapidly all the time and uncovered. Stir at first a little with a fork, and at the end of 20 minutes test by taking a few grains between the fingers. If they will mash smooth, drain off the water, shake well, cover with one thickness of cheese cloth and set on the back of the range until well dried; each kernel should be separate.

Rice Pudding.

Cook one-quarter cupful of rice in one cupful of milk until thick; add one and one-half cupfuls of milk and let boil up; stir in a rounding tablespoonful of butter. Cool, add one-quarter cupful of sugar, a pinch of cinnamon, three gratings of nutmeg, one-quarter teaspoonful of vanilla, the beaten yelks of four eggs and the whites of two. Pour into butter cups set in a pan of hot water and bake one hour. Serve with rose sauce.

With Tomato Sauce.

To two cupfuls of hot boiled rice add one cupful of hot, well-seasoned tomato sauce; stir with a fork and serve as a vegetable.

Rice Fritters.

Beat two eggs light, add one cupful of milk, one-half cupful of boiled rice and a saltspoonful of salt. Mix one level teaspoonful of baking powder with two cupfuls of flour and stir into the other ingredients. Drop by spoonfuls into hot fat, and serve with a sauce made by boiling until slightly thick one and one-half cupfuls of water, one cupful of sugar and an inch piece of stick cinnamon.

Rice Surprise.

Cook one cupful of rice in boiling water until tender, drain and dry. Line a buttered melon mold half an inch thick with the rice, and into the center put two cupfuls of well-seasoned, chopped, cooked meat. Put a layer of rice over the top, put on the cover of the mold and steam the whole for three-quarters of an hour. Unmold on a platter and pour a tomato sauce round.—Alice E. Whitaker in Country Gentleman.

USEFUL HELP IN THE DINING ROOM.

The care of table linen is one of those housewifely accomplishments that every homemaker should excel in; and when one must economize closely it is far better to buy the unbleached linen and the ordinary washing and boiling will soon make it as white as desired.

If a piece of white oilcloth is placed under a child's plate with a square of linen over it, time and trouble will be saved in removing stains from the linen and the cloth can be kept clean twice as long.

Egg shells crushed into small bits and shaken well in vinegar cruets and decanters with plenty of hot suds will not only clean them thoroughly, but will make the glass look like new and the outside of glassware may be given a beautiful polish by first washing clean and drying carefully and then rubbing with a soft cloth dipped in alcohol and then in whiting. Allow this to dry on the glass, then rub off and polish with soft cloths.

The table cloths should be hung evenly on the line after washing, for if they are allowed to dry out of shape, stretching and pulling them will wear them more than use. A table cloth ironed with only two lengthwise folds, and then wound over a roller will look far better on the table than one with creases from too much folding, and any round piece of wood covered with flannel can be used for the roller. Table cloths wear out first in the folds and by cutting off a few inches from one end and one side all the folds will be altered, thus giving the cloth a fresh start.

The table linen can be made beautifully white with very little rubbing by dissolving enough soap chips in hot water to make a nice lather and then putting in the pieces and allowing them to soak for an hour before rubbing them out. There is enough borax in the soap chips to soften the water and whiten the fabric and they will never need boiling if they are washed through this suds before they become very soiled, and the finest pieces can be washed through the soap chip suds without any injury to the linen. Tablecloths should always be ironed lengthwise and from you, and if ironed quite dry and on the right side, the linen will be shiny and beautiful, hot irons and much pressure being requisites to success.—M. H.

HOMINY.

Take the amount of corn you wish (remember it swells), pick over and wash; pour over it about 4 to 6 times as much water in which common baking soda enough has been dissolved to make it feel slick. Cook about three hours, adding more water, if necessary. If in that time the hulls are not loose cook longer. Pour off water, wash in fair water several times, rubbing grains between the hands to loosen hulls (a collander set in a pan of water is fine to wash it in), dip the corn out of water, cook in fair water until tender, adding salt to taste. Can be canned and is handy when you don't know what to get for dinner.—Ranch and Range.

POPOVERS.

Beat three eggs until light; add one cup of sweet milk, a little salt, then two cups of flour, then add one more cup of sweet milk. Put in muffin pan, fill just half full and bake three-quarters of an hour. First have your oven quite hot, then moderate. This is most delicious served with bacon and a nice cup of coffee. They will puff up just like an empty shell.

FATE.

Full many a gem of purest ray serene
The dark unfathomed caves of ocean bear;
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air.

—Thomas Gray.

IN CLUBLAND.

Hudson: How did you vote?

Mrs. Hudson: Well, I wanted to vote both ways, so I paired with myself.—Harper's Bazar.

Customer—Look here! This milk of yours is half water and half chalk, yet you advertise it as strictly pure.

Milkman—Madam, to the pure all things are pure.—London Sketch.

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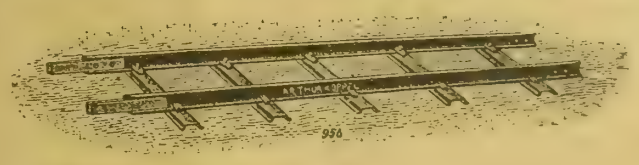

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San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 10, 1911.

Butter.

Butter receipts are close to the 70,000-pound mark, and demand is good. Quotations are a cent above last week.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	23½
Firsts	22
Ladies	18
Country	14

Cheese.

Oregon Daisy	16½@17
Northern	15
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

With heavy receipts of eggs, both locally and from the north, the market weakened on Tuesday and dropped a half cent a dozen.

Paying price f. o. b. Los Angeles is:

Local ranch candled	23½
Case count buying price	19½
Northern	17½@21
Eastern	21

Dealers pay for live poultry f. o. b.:

Hens, per lb	12@14
Roosters	10@12
Broilers	23
Fryers	25
Roasters	25
Turkeys	23@26
Ducks	20
Geese	16
Guinea hens, doz	4.00
Squabs, doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	6.85
Prime steers	6
Heifers	5
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Salinas	2.60@2.65
Highlands	2.25@2.40
Oregon	2.90@3.00
Sweets, yellow, cental	8.00
New potatoes, lugs	1.50@1.75

Onions.

Wholesale quotations:

Oregons	3.00
Imperial, crates	1.90@2.00
Northern	3.00
Australian browns, Northern	4.50
Silverskins, box	1.10
Nevadas	3.00@3.25
Texas Bermudas	1.90@2.00
White Wax, crate	2.25
Garlic	10@12

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	50@80
Asparagus, lb	4@8
Beets, doz bunches	35
Brussels sprouts, lb	12
Bell peppers, lb	25
Beans, lb	10@12½
Beans, wax	12½
Green chilis	25
Cucumbers, Texas, box	2.00@2.25
Cabbage, sack	90@1.00
Celery, crate	4.00@5.00
Cauliflower, crate	2.00
Carrots, sack	90@1.00
Egg plant, lb	10
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, doz	40
Lettuce, crate	1.75
Oyster plant, doz	40
Peas, lb	4@7
Parsley, doz bunches	35@40
Parsnips, doz bunches	50@60
Radishes, doz bunches	20@25
Rhubarb, Strawberry	1.25
Rhubarb, crimson winter	75@90
Spinach, doz	20@25
Squash, summer	1.00@1.10
Tomatoes, Mexican, crate	2.00
Turnips, doz	40

Citrus Fruits.

Navels	2.50@2.75
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.75
Tangerines	1.75@2.00

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Pearmains	2.75@3.00
Newtown Pippins	2.50@3.00
Bananas	4½
Loquats, lb	3@5
Pineapples	10
Blackberries	9@10
Strawberries	4@6

Dried Fruits.

Wholesale prices are:

Apricots	14@16
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	9@10
Nectarines	10
Pears	13@14
Prunes	11@14
Plums	10

Beans Dried.

Wholesale quotations:

Limas	6.75
Black eyes	7.50
Pinks	6.00
Lady Washington	4.25
Small white	3.75@4.00
Mexican reds	5.00@5.25
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00
Manchuria pinks	5.00@5.25

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	17@18
Chestnuts	10@12
Filberts	15
Almonds, IXL, lb	16@17
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10½
Extracted light amber	9
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@12.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.60
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.55
Broom corn	1.50

Feed Stuff

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.65
Cracked wheat	1.90
Shorts	1.85
Bran	1.50@1.60
Oil cake meal	2.50
Feed meal	1.70
Rolled barley	1.55

San Francisco Market

SAN FRANCISCO May 9, 1911.

Butter.

A good demand is holding the butter market firm, and some sales of choice goods are made a half cent above quotations. Receipts are about the 100,000 mark.

Price to trade 2½c in advance of the following Produce Exchange quota-

California extras, lb	22½
Prime firsts	22
California firsts	21½
Seconds	20

Cheese.

California flats	10@12½
Cal. Y. America, fy, new	12½@13½
Oregon fancy	12½

Eggs and Poultry.

Eggs advanced during last week to 21½c, and on Friday dropped to present quotations of 20½c for extras. Market firm.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	20½
Firsts	19½
Seconds	18½
Select pullets	18½
Hens, doz	5.00@11.00
Fryers, doz	6.50@7.50
Ducks	6.00@10.00
Broilers	2.00@3.50
Roosters, doz	5.00@10.00
Geese	2.00@3.00
Pigeons	1.50@2.50
Squabs	2.00@2.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6¼
Cows and heifers	4@5¼
Calves, lb	5½@6½
Hogs	5@7
Milk lambs	5¾@6
Wethers, No. 1, unshorn	5@5¼
Ewes, No. 1, unshorn	4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

River White, cwt	2.15@2.25
Salinas Burbanks, cwt	2.85@3.00
Oregon Burbanks, cwt	2.50@2.75
Lompoc	2.85@3.00
Sweets, cental	5.00@6.00
New potatoes, lb	3@5

Onions.

Oregon	3.50
New green, box	65@75
Red, box	1.00
Australian brown	3.50@3.75
Bermuda seed	1.75@2.00
Garlic, lb	4@5

Vegetables.

Wholesale quotations:

Asparagus, box	75@1.50
Beans, string	10@15
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	40@75
Celery, crate	1.50@2.50
Beans, string	10@20
Chili peppers, lb	10@15
Egg plant, lb	12½@15
Lettuce, crate	75@2.00
Peas, lb	3@5
Rhubarb	65@1.00
Summer squash	1.00@1.25
Tomatoes, Mexican, lug	1.75@2.00
Turnips	60@75

Citrus Fruits.

Navels, new	1.25@3.00
Grapefruit	75@2.50
Lemons	1.75@4.00
Limes, Mexican	4.50@5.00
Tangerines, halves	1.25@2.00

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	1.75@2.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.25@1.50
Spitzenberg	1.50@2.75
Cherries, Purple Guignes	1.50@1.75
Cherries, Black Tartarians	2.00
Bananas, Hawaiian	1.00@1.50
Raspberries, crate	1.00@1.50
Strawberries, Southern, crt	1.00@1.25
Strawberries, Lgwths, ch	10.00@12.00
Malindas, chest	5.00@8.00
Cheneys	8.00@10.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b., carload lots, per lb. — Apples, 11¾@13c; Apricots, 12½@15½c; do, Moorparks, 14c; Peaches, 7¼@8¼c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 11½c; Prunes, 1911 contracts, 4⅜@4½c, with a premium of ½c and 1c on large sizes; Figs, 1911, 4½@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: Seeded, per pkg.—Fancy, No. 16, 7@7½c; Choice, No. 16, 6¾@7¼c. Loose Muscatels in 50-lb. boxes—Standard 4-crown, 6@6¼c; do, 3-crown, 5½@5¾c; do, 2-crown, 5¼@5½c. Seedless—Muscatels, 4¾@5c; Sultanas, 5½@5¾c; Thompsons, 6@6¼c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shall	14½
Almonds, '10 N P U	14½
Almonds, '10 Nonp	16½
Almonds, '10 I X L	15½
Almonds, Peerless	13
Pecans	14@17
Chestnuts, California	6@8

Beans Dried.

Limas	6.30@6.40
Pink	5.20@5.25
Black eyes	6.50@6.75
Small white	3.40@3.45
Large white	3.35@3.40
Kidneys	6.25
Garbanzos	2.75
Bayou	4.60@4.75
Horse beans	3.00
Red Mexicans	5.25
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	20@23
Hops, 1911 contracts	14@16
Hops, 1909	14@17
Hops, Oregon	14@17

Honey.

Water white comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week were 1,927 tons, a trifle less than last week. The market on choice grades has shown somewhat of firmness, and we believe will continue so until the new crop makes its appearance. There is very little change to note in any of the other grades, and they move off slowly and with somewhat of pressure.

Complaints are generally heard in regard to crop conditions from the various districts, although we think that the little shower of rain which we had this morning, together with the cool weather which has been prevalent lately, will greatly benefit conditions.

At this time it is almost impossible to draw conclusions as to the coming crop, as it is very backward and without a doubt at least forty-five days late. These conditions, of course, will help materially to dispose of considerable of the old crop, of which there still remains a large quantity on hand.

The San Francisco Hay Association is now compiling statistics as to the quantity of hay remaining on hand in the warehouses and private barns on the first day of May, and we hope by next week to be able to give these figures, which at the present time are showing beyond expectations.

Export trade shows somewhat of improvement, and quite a little hay will probably move in this direction the coming week.

We quote the wholesale prices in round lots on today's market as follows, viz.:

Fancy wheat	13.50@14.50
No. 1 wheat or wh and oat	11.00@12.00
No. 2 wheat or wh and oat	10.00@11.00
Choice tame oat	10.00@12.50
Other tame oat	8.50@10.50
Wild oat	9.00@10.00
Stock hay	6.00@8.00
Alfalfa, ton	9.00@10.50
Straw	40@50

Grain.

Barley, fancy	1.50@1.52½
Barley, good to choice	1.45@1.48¾
Barley, poor to fair	1.40@1.45
Oats, white	1.50@1.60
Rye, new crop	1.40@1.50
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	26.00@27.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	31.00@32.00
Rolled oats, ton	27.50@29.00
Middlings	32.00@33.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	27.00@27.50

Citrus Fruit Market

LOS ANGELES, May 10, 1911.

With more than 8,000 cars of orange shipments in excess of last year at this date, it is indeed a most remarkable showing of prices which the fruit handlers are making to the growers. There are occasional sales at this time as high as $4 f. o. b. East. These are, of course, extra fine fruit, but the ordinary run of Navels is readily commanding $3.10 and $3.25. Some sections are sending in a large percentage of large offs; this compels somewhat lower quotations. Mikes, Seedlings, Sweets and others will practically all be cleaned up with the Navels by June 1. There will possibly be one or two associations unable to unload that soon. Foreign lemons received practically 60 per cent of normal. California's shipments, on the other hand, are largely in excess of normal, as is shown by the fact that this year's output is more than 800 cars in advance of last year's. Stock first-class and prices satisfactory.

Shipments.

Shipments of oranges to date since November 1, 1910, 25,161; lemons, 3,137; total, 28,298. To same date last season, 17,151 cars; lemons, 2,356; total, 19,507.

LOS ANGELES, Wednesday, May 3.—Four cars navels, 2 seedlings, 3 sweets, 1 Valencia and 1 car lemons sold.

	Avge.
Lotengo Fy or Navels, Corona, shipped May 2, iced	1.97½
Circus Ch or Navels, Corona, shipped May 2, iced	1.72½
Downey Or Navels, Downey, shipped May 1, iced	1.35
Swan Sd Navels, Downey, shipped May 1, iced	1.07½
Heap Good Or Seedlings, Riverside, not shipped	1.55
Rubidoux Sd Seedlings, Riverside, shipped May 1, iced	1.00
Sweetest Yet Fy Sweets, Riverside, not shipped	1.65
Sweetest Yet Or Sweets, Riverside, not shipped	1.15
Equator Fy Or Santa Ana, not shipped, sweets	1.60
Blue Ball Sd Santa Ana, not shipped, Sweets	1.35
Equator Fy Or Sweets, Santa Ana, not shipped	1.70
Equator Fy Or Valencias, Santa Ana, shipped May 2, iced	1.92½
Blue Ball Sd Valencias, Santa Ana, shipped May 2, iced	1.67½
Lemona Xc Or Lemons, Alhambra, shipped May 2, iced	2.00

LOS ANGELES, Friday, May 5.—Seven cars oranges, two cars lemons sold.

	Avge.
Sweetest Yet, Fy Or Navels, Riverside, not shipped	2.15
Sweetest Yet, Sd Or Navels, Riverside, not shipped	1.65
Sweetest Yet, Fy Or Imp Navels, Riverside, not shipped	2.15
Sweetest Yet, Ch Or Imp Navels, Riverside, not shipped	2.15
Red Raven, Fy Seedlings, Riverside, not shipped	1.70
Heap Good, Fy Or Seedlings, Riverside, shipped May 4, iced	1.25
Equator, Fy Or Sweets Orange, shipped May 5, iced	1.67½
Blue Ball, Sd Or Sweets Orange, shipped May 5, iced	1.42½
Old Oak, Ch Sweets Tustin, shipped May 5, precooled, iced	1.57½
Pappoose, Sd Sweets Tustin, shipped May 5, precooled, iced	.79
Foothill, Sd Sweets, half boxes, shipped May 5, precooled, iced	.67
Heap Good, Fy Sweets, Riverside, shipped May 4, iced	1.25
Tourist, Ch Sweets, Santa Ana, shipped May 4, iced	1.05
Equator, Fy Or Sweets Orange, not shipped	1.55
Blue Ball, Sd Sweets Orange, not shipped	1.30
Lone Palm, Xc St Micahels, Santa Ana, shipped May 4, iced	1.30
Lemona, Xc Alhambra Lemons, shipped May 2, iced	2.05
Queen, Ch San Diego Lemons, shipped May 4, ventilator	2.00

LOS ANGELES, Monday, May 8.—One car bloods, two sweets, one seedling and one budded seedling sold today.

	Avge.
Red Raven, Fy, M Bl, Riv, not shipped	1.57½
California, Ch, M Bl, Riv, not shipped	1.32½
Equator, Fy, Or Sts, Orange, not shipped	1.65
Blue Ball, Sd, Sts, Or, not shipped	1.40
Lone Palm, Xc, Sts, SA, shipped May 8, iced	1.45
Tourist, Ch, Sts, SA, shipped May 8, iced	1.20
Triumph, Or, Seedlings, Riv, not shipped	1.25
Hemet Heights, Seedlings, Riv, not shipped	1.00
Heap Good, Bud Seedlings, Riv, not shipped	1.65

NEW YORK, Monday, May 8.—Forty-one cars navels, five seedlings, three sweets, one St. Michaels, three bloods and two cars lemons sold. Market very strong on oranges, higher on lemons. Partly cloudy.

NAVELS—	Avge.
Regina, iced, Growers F Co	3.20
Regent, Growers F Co	2.90
Euclid, iced, Growers F Co	3.85
Regina, iced, Growers F Co	3.20
Regent, iced, Growers F Co	3.00
Big, iced	2.90
Orchard, Imp Or, National O	3.10
Orchard, Sd, Imp, National O	2.65
Corona, National O	2.95
Corona, Stds, National O	2.70
Naralimo, iced, Sparr F	2.80
Del Oro, iced, Sparr F	2.65
Knight, iced, Or, Ely Gilmore	3.15
Bishop, iced, Ely Gilmore	2.85
Knight iced, Ely Gilmore	3.30
Bishop, iced, Ely Gilmore	2.95
Gabriella, iced, Xc, Ind F Co	2.95
Citrus Belle, iced, Ind F Co	2.55
Glendora Hghts, Fy, iced, ACG Ex	3.45
Glendora Hghts, Ch, iced	2.75
Lotus, iced, O K Ex	3.90
Monogram, iced, O K Ex	3.20
Diamond S, iced, O K Ex	2.70
Pinnacle, iced, O K Ex	3.80
Majesty, iced, O K Ex	3.10
Sunny Heights, iced, RH, Red	3.35
Sunlight, iced, RH, Red	3.15
Sunset, iced	2.50
Elephant, iced, Elep Orch	3.85
Elephant 2ds, iced, Elep Orch	2.75
Green Banner, iced, Sutherland	3.15
Valle Vista, iced, Sutherland	2.90
King, iced, Upland MOA	3.75
Sultan, iced, Upland MOA	3.40
Golden Sceptre, iced, Ind F Co	3.05
BLOODS—	
Rossmoyne, iced, St Ross	3.05
Girl, iced, St Ross	2:85
Rossmoyne, iced, St Ross	3:10
Don Quixote, iced	3.00
Rossmoyne, iced, St Ross	3.20
Girl, iced, St Ross	2.90
Colonel, iced, Xc, OG Cash A	3.15
Golden Sceptre, iced, Or, Rialto	3.20
SEEDLINGS—	
Iris, iced, DM Ex	3.15
Violet, iced, DM Ex	3.00
Tallyho, SB Ex	2.90
El Toreador, iced, Sd, S Marino	2.90
Titus Ranch, iced, S Marino	3.00
El Toreador, iced, Sd, S Marino	2.75
Victory, iced	2.80
SWEETS—	
Ideal, iced, High Prot F A	3.10
Delicious, iced, High Prot F A	2.95
Stock Label, iced, High Prot F A	2.70
Planet, iced, S S Ex	2.80
Blue Tag, iced	3.15
Colonel, iced	2.85
Highlander, iced, Xf, High F G A	3.10
Titus Ranch, iced, S Marino	3.20
Victory, iced	2.65
ST. MICHAELS—	
Alhambra, iced, ST, E Alh	3.20

GRAPEFRUIT—Ideal, iced, 2.80; Delicious, 2.20; Stock Label, 1.50.

NAVELS, Halves—Golden Cross, iced, 1.95; La Mesa, iced, 1.65; Mahala, iced, 1.55.

BLOODS, Halves—Sunny Heights, 1.70; Bear, iced, 1.70; Blue Tag, iced, 1.80; Golden Sceptre, iced, 1.75.

ST. MICHAELS, Halves—Blue Tag, iced, 1.85.

TANGERINES, Halves—Red C, iced, 1.75.

LEMONS—White Cross, iced, 3.10; Limoneira Co, selected, 3.90; Squirrel, 2.20; Palm Tree, 2.55.

ST. LOUIS, Monday, May 8.—Warm, clear. Market is advancing. Eleven cars oranges, one lemon sold.

NAVELS—	Avge.
Volunteer, S A Ex	2.95
Morning Glory, S A Ex	2.60
Golden, Riv Ex, Riv	2.80
Hunter, A C G, Lateen S	2.65
Planet, S S, Orange	2.70
Sunset, S S, Orange	2.45
Grizzly Giant, S A Ex	2.30
Eclipse, Fy, Walker F Co	2.35
Good, Sd, Benchley F	2.05
Greyhound, S A Ex	2.60
Possum, A C G, Latin S	2.35
Searchlight, S S, Orange	2.50
Cluster, S A Ex	2.65
Tower, Ch, Walker F Co	2.70
Superior, Ch, Benchley F	2.30

BUDDED—Golden Orchard, 2.50.

SWEETS—Venus, Xc, E Peycke, 2.60; Jupiter, 2.30; Planet, 2.60; Searchlight, 2.35; Sunset, 2.30.

VALENCIAS—Mallard, Randolph F Co, 3.40.

SEEDLINGS—Hunter, 2.30.

LEMONS—Arab, 3.25; Pup, 2.60.

PITTSBURG, Monday, May 8.—Eighteen cars sold. Market firm on good stock oranges and lemons. Favorable.

NAVELS—	Avge.
Orchard, Or, National O Co	3.35
Circus, Xc, Sparr F Co	2.75
Del Oro, Ch, Sparr F Co	1.95
Braeside, Riv Arl	2.35
Crystal, Riv Ex, Riv	2.80
Blue Jay, O K Ex	2.75
Royal Knight, R H, Red	3.25
Morning Glory, S A Ex	2.85
Golden, Riv Ex, Riv	3.00

BLOODS — Bigfind, 2.35; Clown, 3.00; Circus, 2.80.

SWEETS—Sunset, 2.45.

SEEDLINGS—Sunset, 2.45.

LEMONS—Blue Jay, 1.95; Parrot, 2.85; Mountain Crest, 2.25.

BOSTON, Monday, May 8.—Twenty-eight cars sold. Clear and warm. Market unchanged.

NAVELS—	Avge.
Stork, S A Ex	2.95
Tiger, S B, Colton	3.05
Duck, S A Ex	2.85
Campfire, S T, Nordhoff	2.70
Red X, O K Ex	3.30
Kenilworth, A H, Riv	3.30
Alta Cresta, A H, Pach	3.75
Hobo, A H, Pach	2.95
Laurel, Q C, Corona	3.50
Homer, Q C, Corona	3.05
Pinnacle, O K Ex	3.60
Twin Peaks, Or, Growers F Co	3.55
Camellia, Xf, Red M O Dis	3.00
Elk, R Henderson	2.90
Delta, R Henderson	2.85
Rancho	2.70
Wildflower, Ch, Randolph	2.55

ST. MICHAELS — Camellia, 3.60; Champion, 3.00; Palomita, 2.85.

SWEETS—Camellia, 2.65.

SEEDLINGS—Trumpeter, 2.55; Gold Buckle, 2.90; Belt, 2.60.

JAFFAS—Trumpeter, 2.45.

VALENCIAS—Solano, 2.85; Symbol, 2.45.

BLOODS—Quality, 2.80. Halves—Kenilworth, 1.50.

GRAPEFRUIT—Homer, 2.75.

LEMONS—Asyoulikeit, 2.45; Arab, 3.45; Pup, 2.75; Standard, 3.50; Circus, 2.00; Del Oro, 1.90; Scout, 1.85; Upland Czar, 1.75.

CINCINNATI, Monday, May 8.—Warm. Market advancing on seedlings and lemons. One car navels, three seedlings, one lemons sold.

NAVELS—	Avge.
Hunter, A C G, Latin S	2.40
Possum, A C G, Latin S	2.35

SEEDLINGS—Big A, ST, Pico, 2.80; Big D, 2.60; Serenade, T C C, Saugus, 2.65; Golden Pheasant, Ind F Co, 2.25; Citrus Belle, 2.05.

LEMONS—Arab, 2.50; Pup, 2.85; Duck, 2.85.

PHILADELPHIA, Monday, May 8.—Fifteen cars navels, four seedlings, two sweets, three mixed cars, three St. Michaels sold. Seven cars Floridas sold. Oranges, 2.00@3.90; average, 3.25. Grapefruit, 1.30@4.00; average, 2.75. Market unchanged.

NAVELS—	Avge.
George Washington, S S, Tustin	2.60
Stork, S A Ex	2.35
Parrot, S A Ex	1.60
Pointer, A C G, Glendora	2.35
Newsboy, R H, Redlands	2.00
Greyhound, S A Ex	2.55
Campfire, S T, Nordhoff	2.15
Prong Horn, O K Ex	3.20
Native Sons, King Fruit Co	3.30
The Fates, King Fruit Co	2.90
Gabriella, Xc, Ind F Co	2.55
Circus, Xc, Sparr F	1.95
Martha Washington, S S, Tustin	2.55
Cougar, Covina S	2.20
Floral, S B, Colton	2.55
King, S A Ex	2.55
Volunteer, S A Ex	2.80
King, S A Ex	2.80
Moose, O K Ex	3.55
Linnet, O K Ex	2.85
Salt Lake, Sd, King F	2.90
Uplander, Growers F	3.20
Del Oro, Sparr F Co	2.10

BLOODS—Salt Lake, 3.30; Tiger, 2.35; Floral, 2.35. Halves—Tiger, 1.25; Floral, 1.15.

SEEDLINGS—Mission Bells, A. B. Chapman, 3.20; Memories, 3.10; Independent, Growers F Co, 3.05; Marguerite, Xc, Earl F, 2.60; Highlander, 2.70; Beauties, 2.55; Sunshine Grove, 2.40.

ST. MICHAELS—E High A, 3.90; E High B, 3.55. Halves—Rose, 1.90; Carmencita, boxes, 3.35; Colombo, 3.15.

SWEETS — First American, 3.20; Searchlight, 2.85; S S, 2.75.

HOMOSASSAS — Colton Terrace, 1.85; Rancho, 1.90.

CLEVELAND, Monday, May 8.—Seven cars navels, two mixed cars and two cars lemons sold. Market higher on good quality navels, unchanged on other varieties oranges. Higher on lemons. Cool, clear.

NAVELS—	Avge.
Hunter, A C G, Glendora	2.25
Diamond S, O K Ex	3.05
Linnet, O K Ex	3.00
Sunlight, R H, Red	2.90
Moose, O K Ex	3.60
Blue Ensign, O K Ex	3.35
Carnation, G & Speich	2.95
Jasmine, D M, Duarte	2.45
Pointer, A C G, Glendora	2.60
Sunny Heights, R H, Red	3.20
Cowboy, S S, Tustin	2.40
Prong Horn, O K Ex	3.40
Red Ensign, O K Ex	3.20
Daisy, G & Speich	2.50

BUDDED SEEDLINGS — Sunny Heights, 2.85; Sunlight, 2.60; Golden Circle, 2.25.

ST. MICHAELS—Martha Washington, 2.25. Halves—$1.25.

SWEETS — Martha Washington, 2.40. Halves—$1.05. Cowboy, boxes, 2.00.

LEMONS—Defender, Xc, Altland F Co, 1.45; Sunside, Santa Paula C U, 2.85; Wave, 2.75.

CHICAGO, Monday, May 8.—LEMONS—Quiet but firm. Values were unchanged. Boxes, California fancy, 2.50@3.75; choice, 3.00@3.25.

ORANGES—California navels are firm. They are selling well, and the arrivals are no more than required. Boxes, California navels, extra fancy, all sizes, 3.25; extra choice, 3.00; choice, 2.75.

AUCTION

35 FINE DAIRY COWS AND HEIFERS.

SERJEANT'S DAIRY

One block west of Western Avenue, between Santa Monica Avenue and 36th.

Tuesday, May 16th

at 10 O'clock A. M.

27 head of fine Dairy Cows, Jerseys, Holsteins and Durhams; all in first-class condition; many large, heavy milkers, several fresh, others coming in in two or three weeks; all fine dairy and family cows. 6 head of choice heifers coming in with first calf; 4 head of all-purpose mares, good drivers and work stock.

IMPLEMENTS: Milk Cans, Tubular Cream Separator, Bottles, Milk Wagons, etc., etc. If you are in the market for good, first-class dairy or family cows, do not miss this sale, as Mr. Serjeant is quitting the business and has instructed us to dispose of the same to the highest bidders.

Positively no limit or reserve. Free Lunch at noon.

Terms: $100.00 and under cash; over $100.00 one-fourth cash, balance 6 months' time with note and approved security. Liberal discount for cash.

H. SERJEANT, Owner.

RHOADES & RHOADES, Auctrs.,
Office 830-832 South Main St.,
Los Angeles.

Phones: Main 1259. F1259.

NOTICE OF STOCKHOLDERS' MEETING.

Notice is hereby given that the annual meeting of the stockholders of the Cultivator Publishing Company will be held at the Los Angeles offices of the company, 115½ North Broadway, Los Angeles, California, at 9 o'clock A. M. Saturday, May 20, 1911, for the purpose of electing the Board of Directors for the ensuing year and for the transaction of such other business as may properly come before the meeting.

R. M. TEAGUE, Secy.

Los Angeles, Cal., May 6, 1911.

Pomona Deep-Well Plunger Pump

BUILT IN FOUR SIZES.

No. 18—Uses up to 20-horse power
No. 28—Uses up to 30-horse power
No. 38—Uses up to 40--horse power
No. 58—Uses up to 65-horse power

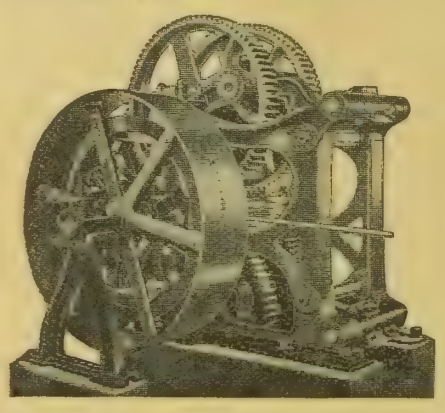
Endorsed by many of the largest irrigators in the State. Our pump catalog tells all about them. Fully guaranteed.

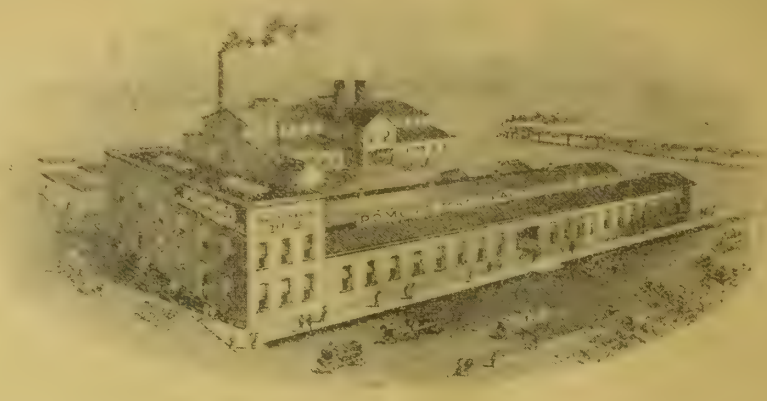
Pomona Double Plunger Deep Well Cylinders

Built in Ten Sizes

6, 7, 8, 9, 10, 11, 12, 13, 14 and 16 inches.
Also a full line of
Single Acting Cylinders.

Be sure to look into the construction of a Pomona Cylinder before buying.





The above cut represents in a measure the extensive plant of the Pomona Manufacturing Company, who are located in the central part of the largest irrigated district in the world irrigated from deep wells only. Started here ten years ago and have increased steadily until today are the largest builders of deep well pumping machinery in Southern California, and last but not least are not in business this season and out the next, but are here to stay, which ought to mean much to a prospective customer.

Write to us and tell us your needs and allow us to send you the name of some of your neighbors who number among our many satisfied customers.

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No rubber or wooden facing to rot or wear out. Absolutely water tight when closed. Locking mechanism is protected against rust or clogging with sand or dirt. Simple in construction. Cheap in price and as durable as solid iron.

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BEATS THE GRAIN OUT

just as you would do by hand with a pitchfork. It is the only thresher built which does **beat it out.** If you were separating by hand with a pitchfork, you would not pitch the straw across the barn floor out of doors expecting the grain to drop out. Nor would you drag it around on the barn floor. You would toss it and **beat it** and keep **beating** it until you had **beaten** all the grain out. That is what the

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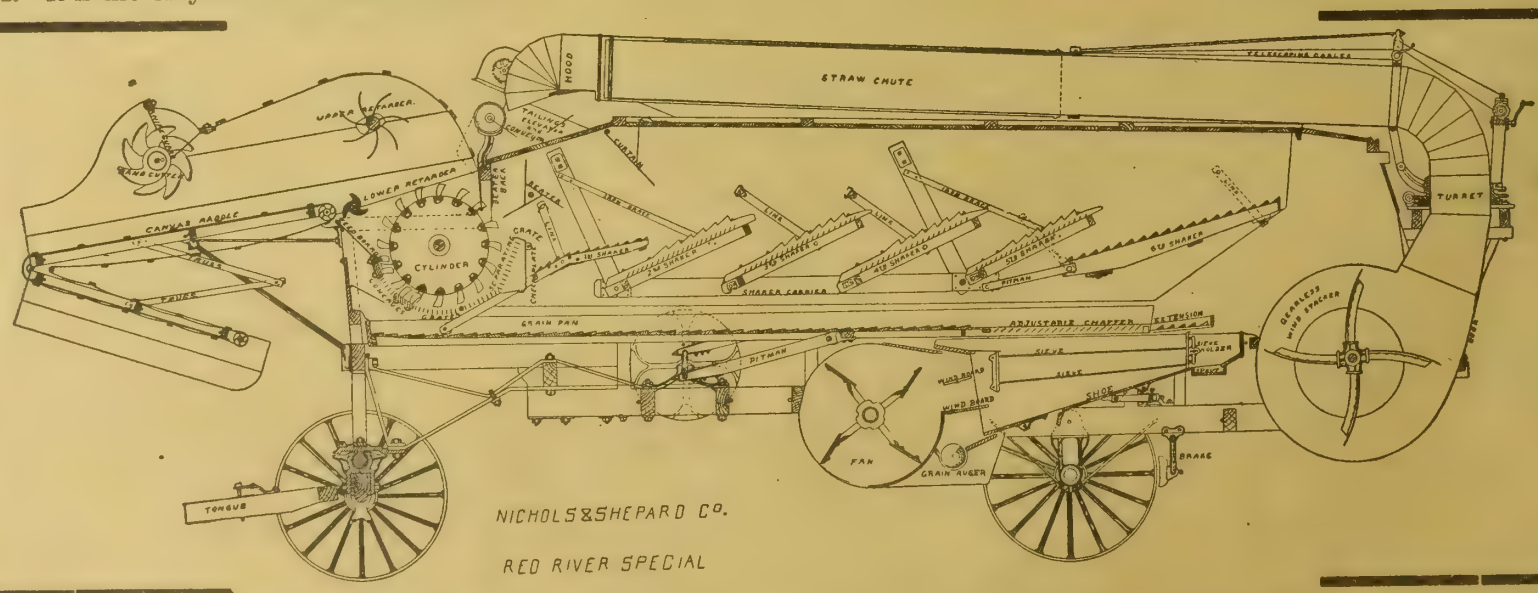
does. It is the only thresher built which does.



The big cyclinder, the **"Man Behind the Gun,"** and the Separating Shakers **beat the grain all out** before the straw leaves the machine. The Farmer knows it and wants the Red River Special. The big jobs insist upon it. It will make you the most money. It will save the most grain. It will clean the best. It will thresh the fastest. **It will save the Farmer's thresh bill.** All because it doesn't wait for the grain to drop out: **It beats it out.** No other thresher does. Be up with the times and buy a **Red River Special.**

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LOS ANGELES MAY 18, 1911 SAN FRANCISCO

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Write for catalogue showing the new line of Arnott "Built-to-wear" Surreys. Prices and styles will show you a new way to save money.

"BUILT-TO-WEAR"—that's the Arnott slogan. It represents the standard that, for many years, this concern has set for itself.

We've had to live up to it. Selling buggies that would last longer, look better and give greater satisfaction has been the one big thought during the course of this concern's up-building.

When other dealers were cutting quality in order to cut prices, when they were forsaking the old-time, thorough-going methods that meant strength and durability for new, and more or less slip-shod, processes in order to cut labor costs and reduce manufacturing costs and to gain a big out-put, this concern, believing honest manufacturing and an honest product to be more important than costs and retail prices, has gone ahead along its original lines and is selling work that honestly comes up to the "Built-to-wear" slogan.

We pay attention to the "little things" of buggy construction that other concerns pass by as unimportant, but which we know result in producing the kind of buggies that our grandfathers bought, and which lasted and gave splendid service for years and years.

The Arnott "Built-to-wear" Line is not behind the times—it is ahead of most other lines. In style, in new improvements it leads in every direction. But quality—good, old-fashioned, honest workmanship and materials are put into every job that those who buy may have more than one hundred cents of satisfaction for every dollar they invest.

Write us to-day for catalogue, prices and liberal terms.

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"Buy with Both Sides of Your Dollar."

California Cultivator

Vol. XXXVI. No. 20. LOS ANGELES: THURSDAY, MAY 18, 1911 One Dollar the Year

The Sugar Beet Industry in California

By R. L. Adams

California has been called the cradle of the American beet sugar industry. In the production of beet sugar the early industry was obliged to force its way through adverse conditions and trying circumstances. But as greater information regarding the needs of the crop became available, and irrigation facilities replaced the necessity for relying entirely on the uncertain rainfall, the industry continued its forward march. Today California ties with Michigan for first place in greatest sugar production in the United States. In total production of sugar beets California takes second place. But this is probably but a momentary standing, as new factories in California should place her at the head of the list. And though the tonnage may be less, the sugar production is as great, thereby testifying to the great sugar making powers of California climate and soil. The higher sugar content of California's beets offsets Michigan's greater tonnage.

California's Factories.

Eight factories handle the California beet crop. These are situated at Alvarado, Los Alamitos, Spreckels, Betteravia, Chino, Oxnard, Hamilton City and Santa Ana. In addition, there are two factories at Visalia and Corcoran which are closed down at present. Two new mills will probably be completed in time for the coming campaign, one at Anaheim and the other at Huntington Beach. The first is capable of grinding 600 tons of beets per day of twenty-four hours, and the other 750 tons. Altogether the ten mills which will receive this year's crop total 11,850 tons of beets per day. Early estimates tend to show that California's eight mills produced a trifle more sugar than Michigan's seventeen during the 1910 and 1911 campaign, from a total tonnage of beets approximately 90 per cent of Michigan's.

Our Tonnage Too Low.

Statistics are usually rather dry reading, but possibly I will be pardoned for inserting a few to show California's standing in beet sugar production. The averages are for the four years 1907-1909 and are computed from the figures in the United States Department of Agriculture yearbooks:

State	Lbs. Sugar per Acre	Tons Yield per Acre	% Sugar in Beet	% Purity of Juice
Utah	4164	13.89	14.99	84.03
California	3809	10.60	17.97	83.65
Colorado	3264	11.24	14.52	81.03
U. S.	3165	10.12	15.64	84.45

In 1910 California planted approximately 87,000 acres to sugar beets, which brought to the growers the not insignificant sum of five millions of dollars.

Benefits Soil.

The sugar beet is an exacting plant to grow. Highly bred, it is very sensitive to neglect and will quickly resent such treatment by a reduction of yields or sugar content. Yet, on the other hand, if given proper conditions and attention the crop is a paying one to raise. The crop pays in two ways, first, financially, and second, by putting the land into vastly better shape for the crops which are to follow, whether they be beets, grain, potatoes, or beans. This last advantage is no mean one. The thorough preparation of the soil for the reception of the beet crop means a deep plowing and thorough stirring. The constant cultivation rids the land of weeds to a great extent. In the fall when the crop is plowed out the land is given the equivalent of a thorough subsoiling. The plant itself by its numerous tiny rootlets opens up lower stratas of soil and permits better soil aeration and moisture absorption. In dying these rootlets add a not inconsiderable amount of humus to the soil. Moreover, the plant in feeding brings up plant foods from deep down in the soil and stores them in the crown of the beet at the bases of the leaves. When this top is severed at harvest time it is left on the field at or near the surface of the ground where in decaying it liberates its collected stores of plant foods for the good of future, more shallow-rooted crops.

Best Methods.

Only good farmers make a success with the sugar beet. And conversely, when a man is seen to be making a success of his beets you may put him down as being a good farmer. Yet the profits from successfully grown beets are well worth securing, and of all the different aspects connected with the growing of the sugar beet none will repay better than an inquiry into the reason for the present low tonnage and a putting into practice of methods which will tend to increase the acre yield. A yield of 10.6 tons per acre is too low for California growers to be satisfied with. Utah raises 13.89 tons. California should be able to not only meet Utah's figure but to surpass it. The worst feature of the average is that many growers are getting a good deal more than this amount, so that in order to produce the average, there must be farmers who get less than the values of their services. A ten-ton crop just about pays for the cost of putting in, maintaining, harvesting and delivering the crop, the rent of the land, interest on the investment, and depreciation of stock and tools on a total acreage of 60 acres of beets. In order to make a profit the grower must either increase his acreage, still maintaining the same returns, or else increase the yield of his land. In some instances the first plan will work satisfactorily, but in the majority of cases the area which can be farmed to sugar beets is limited. Under such conditions greater acreage returns must be looked for. Of course, this ten-ton crop bears the cost of the services of men and teams which do the work. Many men, therefore, are satisfied to raise the crop for day wages. Others are willing to raise the crop for the beneficial effect on succeeding crops. Yet all growers no doubt are willing to increase their income from the growing of this crop. To do this greater acreage returns must be sought. A study of the better farming methods which underlie sugar beet culture will aid in bringing this about, as only through an understanding and practice of these principles can the greatest success be attained. All effort expended in gaining an understanding of proper soil preparation, seeding, care of crop, and habit of growth will be well repaid in increased tonnage returns, a result bound to bring joy to both grower and mill.

The Story of the Soil

Some months ago when the soil convention was held in the city of Los Angeles, the greatest disappointment was expressed by all attendants by reason of the fact that Dr. Cyril G. Hopkins of the University of Illinois at Urbana was compelled to leave on the opening day because of the serious illness of his wife. Dr. Hopkins, with Dr. King of the Wisconsin Station, had spent some days in visiting various parts of California to gather a fund of information as to soil conditions which were to form the foundations for his lectures to be given before the soil convention held under the guidance of the State Experiment Station. Dr. Hopkins' return home threw the burden of the whole convention upon Dr. King, but it was a most profitable one owing to his experience and the intelligence of those attending bringing up much which was not on the program.

Dr. Hopkins has written several books dealing with soils, which are classics. He has now issued another in a more popular form and so readable that the prosiest farmer will find it intensely interesting. The title is "The Story of the Soil" and it is written in the form of fiction. Dr. Hopkins says in the preface:

"Truth is better than fiction; and this true story of the soil is written in co-operation with the Press of America and in competition with popular fiction. The scenes described exist; the references given can all be found and verified; and the data quoted are exact, although some of the story dates antedate the scientific data."

The story opens with Percy Johnston, the hero, applying for accommodation at an old Southern home which was at one time a wealthy estate but now a summer boarding place. Percy is just from an agricultural college and has decided to dispose of a 40-acre high-priced farm which his mother owns, and purchase cheap, worn-out lands in Virginia which he may build up into a valuable property. He realizes the condition of these lands but goes over them and sends samples of the soil away for tests and in this way determines which offer the greatest opportunity for restoration to fertility. The mother of the boy is bitterly disappointed at his choice of a life calling; she has hoped that he would fit himself for some of the professions, but in the books which she has given him as an inspiration to greatest endeavor was a set of addresses by Abraham Lincoln, one of which delivered by Lincoln on September 30th, 1859, before the state agricultural society of Wisconsin, seems to the boy the greatest address Lincoln ever made, and to convince his mother of the wisdom of his choice of farm life he reads to her the address, part of which is quoted in the book. This address delivered more than half a century ago contains much that sounds familiar to those who attend farmers conventions and institutes today. It is so full of inspiration that we quote from it:

"Unquestionably it will take more labor to produce 50 bushels of wheat from an acre than it will to produce ten bushels from the same acre; but will it take more labor to produce fifty bushels from one acre than from five? Unquestionably thorough cultivation will require more labor to the acre; but will it require more to the bushel? If it should require just as much to the bushel, there are some probable, and several certain, advantages in favor of the thorough practice. It is probable it would develop those unknown causes which of late years have cut down our crops below their former average. It is almost certain, I think, that by deeper plowing, analysis of the soils, experiments with manures and varieties of seeds, observance of seasons, and the like, these causes would be discovered and remedied. It is certain that thorough cultivation would spare half, or more than half, the cost of the land, simply because the same produce would be got from half, or from less than half, the quantity of land. This proposition is self evident, and can be made no plainer by repetitions or illustrations. The cost of land is a great item, even in new countries, and it constantly grows greater and greater, in comparison with other items, as the country grows older.

"No other human occupation opens so wide a field for the profitable and agreeable combination of labor with cultivated thought, as agriculture. I know nothing so pleasant to the mind as the discovery of anything that is at once new and valuable—nothing that so lightens and sweetens toil as the hopeful pursuit of such discovery. And how vast and how varied a field is agriculture for such discovery! The mind already trained to thought in the country school, or higher school, cannot fail to find there an exhaustless source of enjoyment. Every blade of grass is a study; and to produce two where there was but one is both a profit and a pleasure. And not grass alone, but soils, seeds and seasons—hedges, ditches and fences—draining, droughts and irrigation—plowing, hoeing and harrowing—reaping, mowing and threshing—saving crops, pests of crops, diseases of crops, and what will prevent or cure them—implements, utensils and machines, their relative merits and how to improve them—hogs, horses and cattle—sheep, goats and poultry—trees, shrubs and fruits, plants and flowers—the thousand things of which these are specimens—each a world of study within itself.

"In all this book learning is available. A capacity and taste for reading gives access to whatever has already been discovered by others. It is the key, or one of the keys, to the already solved problems. And not only so; it gives a relish and facility for successfully pursuing the unsolved ones. The rudiments of science are available, and highly available. Some knowledge of botany assists in dealing with the vegetable world—with all growing crops. Chemistry assists in the analysis of soils, selection and application of manures, and in numerous other ways. The mechanical branches of natural philosophy are ready help in almost everything, but especially in reference to implements and machinery.

"The thought recurs that education—cultivated thought—can best be combined with agricultural labor, on the principle of thorough work; that careless, half-performed, slovenly work makes no place for such combination; and thorough work, again, renders sufficient the smallest quantity of ground to each man; and this, again, conforms to what must occur in a world less inclined to wars and more devoted to the arts of peace than heretofore. Population must increase rapidly, more rapidly than in former times, and ere long the most valuable of all arts will be the art of deriving a comfortable subsistence from the smallest area of soil. No community whose every member possesses this art, can ever be the victim of oppression in any of its forms. Such community will be alike independent of crowned kings, money kings, and land kings."

(Continued on Page 615.)

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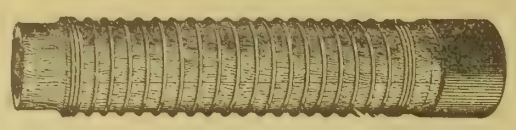

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Citrus and Tropical Fruits

SUGAR CONTENT OF ORANGES.

By W. F. Sutherst, Ph.D., F.I.C., Bonita High School, Lordsburg, Cal.

Two of the most valuable crops have been developed to a certain shape in order to get out of them the highest yields; these are the sugar beet and wheat. It was found by analysis that in the former case the sugar was formed on the outer portion of the roots so that to get the maximum of this portion a long and thin beet was developed by selection; this adds to the labor of cultivation and harvesting, but pays in the end. With wheat it was found that the albuminoids were formed also near the surface of the grain and to produce wheat rich in this substance long and narrow grains were developed.

Why should not this system be applied to our fruits? Sweet oranges are naturally most desired by the consumer, and if an orange shape could be evolved to produce the maximum of sugar, a step in the direction of more profits would be made. With this end in view the writer carried out a number of analyses of Valencia oranges of varying degrees of ripeness, and dividing each into three parts estimated the amount of acid (as citric acid), grape sugar, and cane sugar.

The following results were obtained per cent:

I. Green. (Valencia Oranges.)

	Stalk end	Middle	Top
Acid	2.49	3.32	2.27
Grape sugar	4.16	3.87	4.00
Cane sugar	3.24	4.60	5.32
II. Middle Ripe. (Valencia.)			
Acid	2.41	2.66	2.13
Grape sugar	2.62	3.08	3.30
Cane sugar	2.54	4.82	5.34
III. Ripe. (Valencia.)			
Acid	2.57	2.61	2.06
Grape sugar	3.25	3.92	4.30
Cane sugar	4.73	5.45	6.02

From the results it is seen that (1) the acid decreases with age to a slight extent, with the larger percentage in the middle portion; consequently to produce a fruit with the minimum amount of acid, a long, narrow shape is required; (2) the grape sugar (glucose or dextrose) although the amount varies in different parts of the orange, the difference is slight and this particular not adding much to the sweetness, its use for this purpose can be neglected; (3) the cane sugar generally increases throughout the fruit with age, but is more highly developed in the top (navel end), as very little of this sugar is needed to increase the sweetness of anything, a development of this end would insure a sweeter fruit.

Further experiments will be carried out later with other kinds of citrus fruits, so that exact figures can be obtained, with a view to bringing out oranges of fixed shape and of the maximum sweetness. All the above work was carried out in the chemical laboratory of the Bonita high school on oranges taken from the neighboring orchards.

CITRUS IN ARIZONA.

Answering a question as to fertilizer and other features of Arizona citrus culture Burle J. Jones writes in the Progressive Farmer and Home Builder as follows:

It is not absolutely necessary to use commercial fertilizers in our citrus groves. There are few here indeed that have ever had any consistent practice of this kind, and there are many twelve and fourteen years old that have never had a single application of commercial fertilizer. That these trees continue to bear fruit year after year, at the same time remaining healthy and making good vegetation growth is sufficient evidence that the soils are rich. But to be fertile any soil requires humus, and in this respect all arid soils are notably deficient, since the annual rainfall is not sufficient to produce natural vegetation in the necessary quantity to build up humus by its annual rotting. This being true it is of course also true that nitrogen is not present in abundance, and it is true that the other plant foods natural to these soils are not as readily or copiously available as they would be in a soil well supplied with humus. Even with this deficiency which nature has been able to provide, the soils of this valley are wonderfully rich and will bear abundant crops of any ordinary sort without any assistance other than that afforded by the application of water. They will raise good crops of the sweetest and finest oranges known without fertilizer, but we are urging our growers to keep in line with the best producers of these fruits, and to fertilize their groves to increase the yield, better the quality and perpetuate the industry. There should never be any rest in this sort of improvement. No matter how large the yield or how good the quality there is a chance to better it, and in adding fertilizers we are not only enriching the soil, but we are taking precautions to maintain fertility beyond our own times, increasing the availability of natural plant foods and increasing our own profits. The orange tree, being always green, nearly always with a burden of fruit in some stage of development, and therefore nearly always active, is a gross feeder and naturally exhausts soil fertility rapidly as experience in both California and Florida has abundantly shown. Nowhere, where large crops of good oranges are harvested will you find the community without a fertilizer practice, save perhaps in some restricted localities where they are in a silt soil and where the annual vegetable rot is enormous.

During the past few years fertilizer practice has gone ahead at enormous strides, but in the most progressive orange districts there is still much speculation and experiment. It is generally recognized as good practice to put on a pound of commercial fertilizer for every year in the age of the trees. That is, a tree six years old would be given a dosage of six pounds; a tree eight years old, eight pounds and so on. This is only approximate, but it makes a good practice and is sure to pay many fold if the mixture is right and the scheme is followed from year to year. In a nutshell, the question here as elsewhere is to make the trees bear the largest net per acre returns and at the same time to make a proper growth each year and increase their bearing capacity.

There are at present about six standard varieties of grapefruit bearing here, besides a number of seedling types shipped in from Florida whose origin or history are unknown. All of these mature to near-perfection in this climate. The time of ripening depends upon the variety. The Silver Cluster, Triumph and many of the unknown seedlings can be picked in November and December. The Duncan and Marsh Seedless come a little later, and some during the spring months. Any of them can be left on the trees after coloring from one to three months without deterioration, and will even improve in quality. It is desirable, where the trees are heavily loaded to pick a portion of the fruit when it colors leaving the balance until it is more desirable to remove it. There is one grove here which is noted for the enormous size and excellent quality of its fruit. It is not unusual for a single fruit to weigh five pounds. This sells at an average price of $2.00 per dozen at the orchard. Another which raises a smaller, but even more famous seedling fruit nets its owner $5.00 per box. Where the trees are properly pruned and shaped so that the fruit is protected by foliage there is not a year in ten in which the fruit will be injured by frost even when allowed to remain on the trees.

For general results there is probably no citrus tree better for orchard planting than a good yearling bud on three-year root that will caliper ⅝ to ¾ inch. Some prefer a two-year-old bud, and where these have done so well in the nursery as to caliper in

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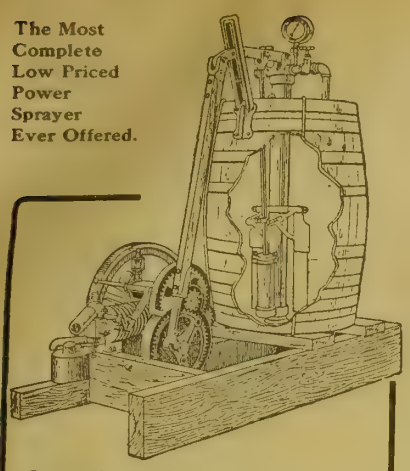

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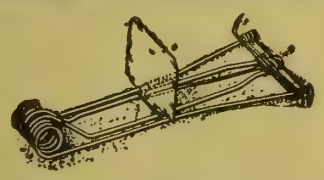

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Sweet Orange Seed

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the neighborhood of an inch they are likely to do extremely well, but should be taken open roots and not balled, as that requires the cutting away of too many roots to keep the proper balance in so large a tree.

EFFECTIVE VEDALIA.

The report of the state insectary shows that less than 100 orders were received for Vedalia cardinalis during the past year. When one considers the billions of plants in California that are subject to attack by the fluted scale, this scarcity of orders shows what a marvelous hold the Vedalia has secured in this state. Perhaps the white scale has not been exterminated in a single locality throughout this range, and yet the work of its arch enemy is so effective that only 3,336 Vedalia have been called for in twelve months. It is now just a matter of sending an occasional colony of these ladybirds to relieve the trees from an outbreak of scale where from some cause the beneficial insects have allowed it to get a strong hold.—J. W. Jeffrey, in Los Angeles Times.

WHITEFLY IN TEXAS.

The Citrus Fruit Grower published in Texas reports that the Friendswood Nurserymens Association has taken up the fight against the whitefly and the association hopes to arrange for a power spraying outfit which will make a campaign. Plainly California has whitefly somewhat closer to it than Florida, and the fact that the nurserymens association is looking after a power spraying outfit doesn't look especially promising. The association should have tents in hand and give thorough fumigation for the control of this pest and wipe it off the earth before it is everlastingly too late.

TULARE GRANGE.

By John Tuohy.

After opening Tulare Grange, Patrons of Husbandry, the third and fourth degrees were conferred on a class of four, two brothers and two sisters.

A communication was received from a congressional committee with copy of bill to prevent the sale of articles which have been in cold storage longer than specified periods. The bill was referred to a committee of three brothers.

A communication from National Master N. J. Batcheldor was received, stating that where the master of the subordinate or Pomona Grange was unmarried, or the husband or wife of master was not a fourth degree member, only one alternate would be allowed to represent that Grange in the State Grange. All fourth degree members in good standing can participate in the work of the State Grange. Only masters, their wives or husbands, can vote.

Notice was received from the secretary of the State Grange that at the next session of the State Grange a change of the by-laws will be considered, changing the date of meeting of the State Grange from the first Tuesday in October to the first Tuesday in December.

The subject of the day was: "Which has the best chance of success, the rich or the poor man's son?" Mrs. Flora Sayre, to whom the subject was referred, read a well written paper on it. Success in every pursuit depends on love of the work, untiring application, industry, thrift and integrity; the necesisties of the poor man's son obligate him to think of this and apply himself to those qualifications that lead to success; the necessities of the poor man's son compel effort and diligence. The rich man's son rarely has the same application, he does not take advantage of his opportunities, he indulges in habits of ease, he spends more time in a life that unfits him for life's duties. The provident, successful father has been heard to reproach his negligent son for not more closely attending to the duties of his home, and tell him that when he was the son's age he had to work, to be industrious, thrifty and sober, to save and accumulate the means they now have; the son may well reply: "You were then compelled to work and thrift. I am not." The impression from the paper and discussion was that poverty

(Continued on Page 631.)

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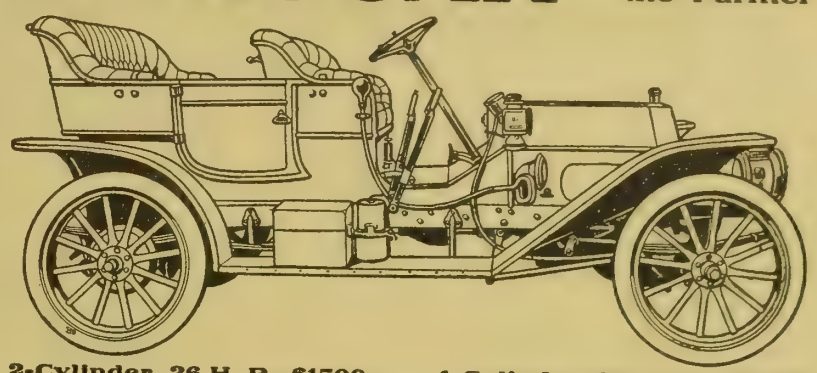

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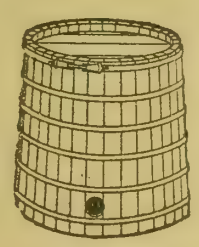
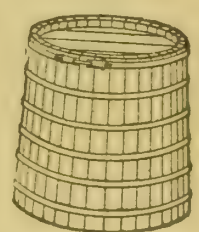


Wine Tank



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New Avocado Firm

Wm. D. Stephens, having a large stock of avocado trees, and I having the experience in successfully budding the same, it was thought advantageous to both parties to form a partnership, which we did and moved the stock to Whittier, where it is being rapidly converted into the finest budded trees in the land.

We have budding wood from the very choicest trees in the state: The Ganter, Walker and the Lyons. The Lyons is by far the best of any of the Southern California varieties. This magnificent tree is four years of age and producing over one hundred pounds of fruit. The fruit is average size and will weigh about one pound each. It has an excellent flavor, no strings and thick shell, so essential for shipping. We have the absolute control of the budding wood from this tree for a term of years, besides control of the finest and largest varieties that Old Mexico can produce. We are receiving numerous orders and booking same in their turn. Write for circular.

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WILL make your ditches—level your land—grade roads, throw up borders at ⅛ the usual expense. It's the Many Purpose Machine—the Irrigationist's best investment—the handy tool which you will find use for every day in the year—thousands in use. Our new catalog full of pictures of the machine at work, shows how it will save you money. Send post card for it, name of nearest agent and distributing point.

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Deciduous Fruit Culture

THE PEACH APHIS.

By Prof. A. J. Cook.

Is it necessary or wise to dig out or cut down peach trees attacked by the black peach aphis? Decidedly no. It would be as absurd, in my opinion, to destroy the trees as it would be our citrus trees because they harbor the black scale.

The peach plant louse, Aphis persicae-niger, is well named, as it is black, and attacks for the most part the peach. As with many of our insects, we have much to learn of this insect, as we know not the eggs, the sexual forms, and so we cannot give its full life history.

It, like the wooly aphis of the apple, works on both the twigs and the roots. As it is on the roots much longer, it does more harm in the root form than on the twigs. Often the trees show lack of vigor, and we can see no reason, when if we could inspect the roots we would at once divine the cause of the decline. It is on the roots all the year, while it is on the twigs only for a short time in the early season. While on the twigs, some of the lice grow wings and fly to other trees. This and by planting trees that harbor the lice from the nursery explains how the pest is spread. If we destroy all the lice on the twigs, or even cut the trees, we do not destroy all the lice, as the forms on the roots are still existant.

The thing to do in case we find the lice on our peach trees, if they are bad (they are well scattered all over the United States) is to apply the same cure that we use for the wooly aphis. Tobacco decoction will kill the root lice, and may be used to destroy any lice that are on the roots of trees to be planted. One pound of tobacco will do for eight gallons of water. The lice on the twigs may be killed by use of a strong solution of whale-oil or fish-oil soap. A pound of soap will give strength to six or eight gallons of water. Often, as with most aphids, the lice will disappear, both the root forms and those above ground. Several insects prey upon these aphids. We repeat, do not destroy the trees, but treat them, kill the lice, and save the trees. Remember, the diseased trees are often sickened by the attack of the lice. Those on the roots are specially harmful.

CHEAPER PHOSPHATES.

Referring to comment in the Cultivator some time since as to cost of phosphate rock, ground, and answering our query as to its value in application to the soil, Mr. Ad. Tscheppe of Whittier, writes:

"The local price of $20.00 per ton for rock phosphate is hardly warranted as it sells for nearly half that price in England, and only shows that it has not yet become a commercial factor in California. The grade sold in Illinois is about the same, 62½ per cent.

"As to the time of availability of the raw rock phosphate I cannot answer from data of my own, and I have to refer to the literature contained in Hopkins 'Soil Fertility' and the admirable book of A. D. Hall of Rothamsted fame, 'Fertilizers and Manure.' Hopkins says that it is an absolute waste of money to pay much more for manufactured fertilizers than for the same thing in the raw material if properly ground to dust, and he states the difference in price in the following drastic manner: 'Twenty-five pounds of phosphoric acid (he reduces everything to elementary states of the respective materials, a mode much more simple, figures for oxides, etc., but so far uncommon) contained in 200 pounds of rock phosphate cost 75c, in the same amount of steamed bone $2.50, in 400 pounds of superphosphate $3.00, and $6.00 in the average complete fertilizer.

"Superphosphate reverts in the soil, mostly containing much more than sufficient calcium and magnesium-carbonates for the reaction, going to the insoluble or rather much less soluble state. What time that takes may differ with the various soils, but if a solution of superphosphate be percolated through a column of 8 to 9 inches of earth containing 3 per cent of calcium carbonate, the phosphoric acid is all absorbed during the short time it takes to make the experiment. Now it is an advantageous fact that the reverted (dicalcic phosphate) is more soluble in weak acids or water impregnated by carbonic dioxide as ground water always is. But the obviously striking effects of the finely ground Thomas slag above bones, which can only be ground to grit, demonstrates that availability can be obtained by mechanical means alone and that it is not necessary to subject the natural phosphates to costly chemical treatment, even for crops of short duration of growing to maturity. According to the laws for the regulation of fertilizer traffic in England this Thomas slag must be ground to such fineness that 90 per cent of it must pass through a sieve of 100 meshes to the linear inch. Unfortunately the low content of phosphates in Thomas slag forbids shipment to long distances, and its application is locally confined.

"Untreated phosphates must all be ground to dust to show immediate results. Raw bone which cannot be brought to any state of practical comminution has little effect on short-lived crops and is better applied after acid treatment. But short crops and evergreen are not in the same class. Nitrates and ammonia compounds are too quickly assimilated by the plants and too easily lost in the ground to be recommendable for the one yearly fertilizer application in orchards. Cover crops and slow nitrate producing animal refuse are undoubtedly preferable. Potash is said to become fixed in the soil and proved by the same experiment as the reverting of phosphoric acid to become less liable to be lost in drainage and yet constantly within reach of the roots if the one condition to be available is fulfilled, the adequate quantity of moisture. What larger quantities of rainfall and supply by irrigation in said sections are necessary for the diffusion of plant food in the soil may be illustrated by the following illustration: Bone phosphate is so little soluble that one liter of water only dissolves one milligram or one part in a million. Carbonated water will take up many times as much, and soil water always contains carbon dioxide in various proportions. One inch of rain produces nearly 225,000 pounds of moisture per acre or a rainfall of 17½ inches amounts to 4,000,000 pounds, which would only be able to bring four pounds of bone phosphate in solution. Irrigation gives 5000 cubic feet or 300,000 pounds, or nine irrigations of 1½ miner's inches bring again 4,000,000 pounds of water into one acre per year, or rainfall and irrigation together would be able to bring 8 pounds of bone phosphate in solution, which is not enough, as 600 orchard boxes of fruit per acre, a very moderate estimate, abstracts three to four times as much. So there must be agencies which increase the solubility of bone phosphate, be it carbon dioxide alone or exudations of organic acids from the rocks, alleged by some and denied by others.

"Experience through orchard experiments would take years. I apply fertilizer one year, my neighoor does not, under the plea that his trees bear more fruit without fertilizing than is good for them, he averaged 16 boxes per tree. His trees are oranges, mine are lemons, so the effect of fertilizing cannot be compared. But his slogan is plenty of water when they need it. He is right; abundance of plant food in the soil would be useless without it. Water makes the hills green and water conservation is the sole object of summer cultivation."

SELLING THE MERCHANTABLE APPLE.

Answering the question as to the best method of marketing the merchantable apple, Mr. A. N. Judd of Watsonville writes the Pajaronian:

"I would say that I approach the subject with great reluctance, as the

best way has an unsurmountable object in the way at present, unless the packers now handling the bulk of the crop in this section get together on the lines of the Southern Citrus Union.

"I talked with a number of the members of this union while down south, and find that they were anxious to have the growers and packers of this and other deciduous sections join them in their organization; using their sales agents (who cover practically every market center) to market our fruits. This plan would bring down the cost of marketing their products (which is 3 per cent on gross sales) by giving the sales agents a longer season to work, hence less monthly salary. Accordingly the cost of our sales would be the same amount, and a great saving would be effected all around.

"The advantages of the sales agency method over the broker plan are many. The broker is apt to confine himself to grades and varieties that sell easiest and neglect the harder selling kinds. He sometimes speculates at both ends of the line to the detriment of the packer and the buyer while the sales agent has to work hard for all classes and kinds of fruit in order to hold his job. He keeps you in closer touch with the markets, being on the ground, and above all he is constantly looking up new fields to conquer and this leads up to a matter that has been sadly neglected, the marketing of our bellefleurs. We read much about the northern grown "Spitz," their Newtowns and Winesaps at $1.50, $2, $3 and $4 a box, yet here we are with an apple without competition, superior in every way, that no country attempts to raise, yet this product does not find one-fourth the markets it should, and not half the price it should get, all on account of poor marketing conditions. One arrangement that would work wonders would be local cold storage. This would allow picking properly and at a proper time; would give ample time to market the same in the best markets instead of being the buffer for all the culls of the north and northwest in our only present market, the middle west. It would stop the present pernicious practices of selling half-grown bellefleurs that are tasteless and soon shrivel to the ruination of future sales during the season.

"The citrus exchange plan, whether by growers or packers, I care not which, and local cold storage, is the cure for many of our ills. Try it."

SIZE AND QUALITY IN FRUIT.

Increase in quality is not a necessary attendant to decrease in size, says a correspondent. Every fruit grower who stops to reason upon the question must recall the fact that "seedling" apples are usually small and very poor in quality. The fallacy of associating size and flavor, as of other supposed parallelisms, arises from the fact that individual instances have been widened into generalizations. We wonder at the smallness of the Russets, the Early Joes, the Delawares, the Seckels and the Doyennes, but we forget the Fall Pippins, the Hubbardstons, the Spys, the Greenings, the Brightons, the Anjous and the Boscs. But if it is a fallacy to associate increase of quality and decrease of size, it is perhaps a greater one to associate high quality with low color. Red is a very prominent character in all the fruits, and wholly green fruits, even among the apples, are rare.

STORY OF THE SOIL.

(Continued from Page 611.)

Dr. Hopkins adds: "Percy read these words as though they were his own; and perhaps we may say they were his own, for, as Emerson says, 'Thought is the property of him who can entertain it.'"

The boy's use of Lincoln's argument is sufficient to gain his mother's consent, and she denies herself and sends him to an agricultural college, where he fits himself for his 'profession." Percy concludes in talking to his mother: "Perhaps agriculture is not a profession, but I think it should be if the highest success is to be attained"; also "that no occupation is so uniformly successful as farming in its truest sense. It provides constant employment, a good living, and a comfortable home for nearly all who engage in it."

A bit of a love story runs through the book from the time when the hero meets Adelaide and concludes that "the eye is the window of the soul" and that he had never looked into such lovely eyes. He afterwards saves the girl from a couple of black brutes, who were lynched by the angry Southerners, which brings up the question of the color line, and a discussion of this problem takes up a few pages of the book. As a matter of fact, the book does not deal exclusively with the soil; but occasionally it gets so close to prosiness in the use of chemical symbols that one is liable to nod late in the evening, but the interest is bound to come back.

Anaheim reports the appearance of a new insect affecting the pear, walnut and grape.

Imperial Valley apricot marketing began the 8th of May.

Five Thousand Eureka Lemon Trees

For Sale

To be delivered in May, 1912, balled f. o. b. on cars Whittier, 55 cents each. Also one thousand 2 year old Navel trees for immediate delivery.

Address 209 So. Greenleaf Ave.
Whittier, California.

Why Experiment with Inferior Pumps?

Buy a pump built on the Pacific Coast, and adapted to your needs.
Our pumps have been in use and on the market for years, and have stood the test of time.
Buy direct and save freight and jobbers' profits. Live, erecting agents wanted. Our retail prices are less than our competitors' wholesale prices.

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When writing advertisers, mention Cultivator.

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Can run out every day in the year on one of our small farms in the

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She can be kept cheaper and will produce more eggs than in any of the Eastern poultry States. Eggs sell as high as 65 cents a dozen in San Francisco during December and January. Over 10,000,000 dozen eggs were imported into the State during 1910. The local supply has never been over one-third the demand. The possibilities in poultry raising are unlimited. Your success depends entirely upon your efforts.

One reason why poultry raising is profitable in the Sacramento Valley is the fact that green feed such as alfalfa, forms two-thirds of a chicken's diet if given free range, and here on our small farms the chickens run out in the fields practically every month in the year. A hundred chickens may be carried on a 20 or 40 acre hog or dairy farm with almost no extra cost. An exclusively conducted poultry farm will yield a good income on the investment. And think how easy it is to purchase a farm in our great project.

$15 Down THAT'S ALL $11 a Year THAT'S EASY

To get the greatest profit out of poultry raising one should plant a few acres to Egyptian or Kaffir corn to supplement the feed from the alfalfa.

When you have investigated the costs and profits of poultry raising in the Sacramento Valley you will realize that in acres—

"Twenty's Plenty--- Forty's a Fortune"

The Sacramento Valley Irrigation Company has purchased and subdivided a number of the big bonanza ranches in the heart of the Sacramento Valley. A 20 to 80 acre portion of this great project is now offered to you at $125 an acre. $15 down and the balance spread over ten years.

Does Poultry Pay?

Gentlemen—In compliance with your request, I hand you herewith a statement of results obtained from January 1st, 1910, to May 31st, 1910, with one thousand hens. You will notice by the statement below that during the five months I have made a net profit of $940.17, or an average of nearly $1.00 on each hen.

Date	Doz. Eggs	Av. Pr. Per Doz.	Cost of Feed	Gross Receipts	Net Receipts
Jan. 1910	908	$0.35	$ 91.05	$316.04	$224.99
Feb. 1910	985	.26	106.75	256.39	149.64
Mar. 1910	1368	.21	98.75	284.09	185.34
Apr. 1910	1403	.23	102.25	324.75	222.50
May 1910	990	.25	88.80	246.50	157.70
	5654	Av. .26	$487.60	$1427.77	$940.17

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Would you want any better opportunity to own a California farm? If you are willing to work you win. If you expect to sit under a tree and have the dollars fall in your lap, we don't want you. The climate, soil and water are waiting for you, if you will do your share—COME. You will be a success.

Write today for full information.

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You need more than ever the service of the best Cream Separator made—The

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First, because economy is absolutely necessary, and **you must get every bit of the cream from your milk.** The U. S. Separator is the **closest skimmer** in the world. It holds the **World's Record** for close skimming won in a contest of fifty consecutive tests, extending over 30 days, with the milk of 10 different breeds of cows. This is **no time** for you to use a cream-losing Separator.

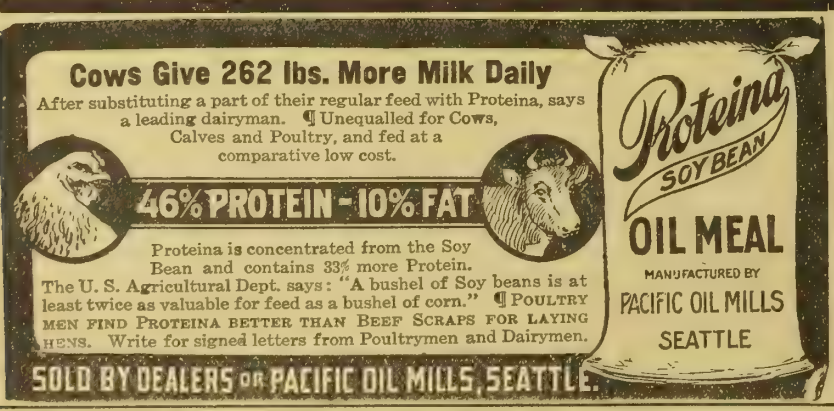
Second, because high-grade cream and butter **are never a drug on the market.** The perfect skimming device of the United States Separator, **which has been washed and made absolutely sanitary in 10 seconds,** and is cleaned by **centrifugal force,** insures the highest quality product. **Easy cleaning** and **thorough cleaning** can be accomplished with the United States Separator in a space of time impossible with other Separators.

These two points (only two of many) make the United States Separator the **logical** purchase under present conditions. If you have any other kind of Separator, which should be discarded, our local selling agent nearest you will make you a **liberal exchange offer.**

Write direct for catalog No. 20.

Vermont Farm Machine Co., Bellows Falls, Vt.

Cows Give 262 lbs. More Milk Daily
After substituting a part of their regular feed with Proteina, says a leading dairyman. ¶ Unequalled for Cows, Calves and Poultry, and fed at a comparative low cost.



Proteina is concentrated from the Soy Bean and contains 33% more Protein.
The U. S. Agricultural Dept. says: "A bushel of Soy beans is at least twice as valuable for feed as a bushel of corn." ¶ POULTRY MEN FIND PROTEINA BETTER THAN BEEF SCRAPS FOR LAYING HENS. Write for signed letters from Poultrymen and Dairymen.
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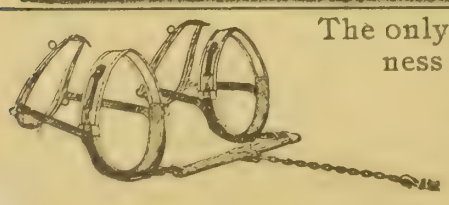

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Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

FEDERAL MEAT INSPECTION.

By Geo. H. Glover, Colorado Agricultural College.

There has been a suspicion for a long time that we are suffering a severe financial loss from tuberculosis in our farm animals. Now we are in possession of facts gathered by the Bureau of Animal Industry and given to us in a report by Chief A. D. Melvin, which are startling in the extreme.

Of course, the saving of human life affords the chief motive for combating this disease, but, taken purely from an economic standpoint, we are suffering a financial loss which in the aggregate amounts to millions of dollars annually.

The facts given us by Dr. Melvin are gleaned from statistics of the federal meat inspection service, and are certainly interesting. More than one-half of all the animals slaughtered for meat during the fiscal year ending June 30, 1908, were inspected. There were, in round numbers, 54,000,000 animals inspected, and of these the following were found diseased with tuberculosis: Adult cattle, nearly 1 per cent; hogs, over 2 per cent; calves, very few, and sheep and goats, none.

The claim can no longer be justly made that the tuberculin test for tuberculosis is not reliable. A record of tests made with the government tuberculin for fifteen years reveals the fact that out of 400,000 cattle tested (mostly dairy cows) there were over 9 per cent of reactors, and of 24,000 reactors that were slaughtered, about 99 per cent were found tuberculous.

From all the statistics we learn that about 10 per cent of dairy cows in this country, 1 per cent of other cows and 2 per cent of hogs are tuberculous.

Of the economic loss from the disease we gain some idea by noting that there is about two and one-half millions of dollars annually lost on animals that are inspected at the abattoirs, and of course the healthiest animals are sold to slaughter, so that the loss from tuberculosis in all animals slaughtered for food is much more than five million dollars annually.

In addition to this is the economic loss in depreciation of value, loss in milk supply, loss in failure to breed and in feed for unproductive animals, which amounts in the aggregate to fully fourteen million dollars annually.

Many of the states are co-operating with the federal government in an effort to eradicate this disease; it is hoped that Colorado will do likewise.

CARE OF THE MARE AND FOAL.

By H. E. Kingman, Colorado Agricultural College.

The ideal condition for the mother, preceding the birth of a foal, is to have access to a pasture where she may be watched daily during the latter part of gestation. It is true that a mare may be worked up to the time of foaling, and there are instances of the colt being born while the mother is still in harness, but this is far from being a good practice. Severe exertion is a frequent cause of abortion, and at the best the young colt can not receive the proper amount of nutrition to make him grow if the mare is obliged to do hard labor.

A pasture gives the mother opportunity to take plenty of exercise, and if green grass is present, her bowels should be in good condition, which is highly important.

If it is possible, she should have a paddock or pasture by herself. Mules are especially annoying and frequently kill young colts. Other mares and even geldings may claim the colt and cause trouble. On the open range nature provides for this, all animals seeking seclusion during parturition.

Then, the green grass pasture is probably the cleanest place about the farm.

In case of storm, or where it is impossible to provide a paddock or pasture, a large box stall may be used. There should be plenty of clean straw, which may be sprayed with a weak solution of carbolic acid, say, a teaspoonful to a pail of water.

The colt should come fore feet first and right side up. If in any other position, there is something wrong, and the mother should be carefully watched so that help may be secured quickly if it is needed.

If the colt is born in the pasture and there is no reason to believe that the umbilical cord should become infected, then the cord should not be interfered with; but if other colts on the same farm have developed umbilical infection, or the colt is born in the stable or corral, then the cord should be ligated close to the body and the stump washed with a one per cent solution of carbolic acid. It usually pays to call a veterinarian to take charge of such cases.

Ordinarily, it is not best to bother the mother with your help or advice, but in extremely inclement weather the little fellow may be helped up and dried with a clean towel; better not at all than to use a dirty sack. Later, if he has trouble in finding his dinner you may offer some assistance.

The colt's bowels should move within the first twelve to twenty-four hours. Constipation is a very common trouble and may usually be relieved by an enema of warm water.

The mare's udder should be milked out for the first few days, if the colt does not take all the milk. Unless this is attended to inflammation of the udder may develop and check the secretion of milk, so that the colt will not receive as much as he should when he gains his strength.

Young mares sometimes refuse to allow the colt to nurse because of chapped teats, sensitive udder, or nervousness.

Do not try to drench a colt. If it is desired to feed the little fellow provide him with a bottle and nipple; there is great danger of causing mechanical pneumonia if pouring fluids into the mouth is attempted.

KEEP HOGS AWAY FROM THE MANURE PILE.

Investigations were made during the past year by the Bureau of Animal Industry of the Department of Agriculture to determine how much danger there is from exposure of healthy to tuberculous hogs. These investigations are not yet complete, but as far as they have gone it has been found that contact of healthy with tuberculous hogs in a hog yard is not nearly the dangerous source of infection that the exposure of hogs to tuberculous cattle or to the droppings of tuberculous cattle has been proved to be.

Some time ago the Bureau's Experiment Station at Bethesda, Maryland, proved that the commonest way for tuberculous cattle to expel tubercle bacilli is with their feces through their bowels. It was found that hogs exposed to the fresh manure of a herd of tuberculous cattle very rapidly became tuberculous. In this connection it seemed desirable to gain some information about the length of time that tubercle bacilli will remain alive and virulent in cattle feces, and especially in manure piles. Experiments made relative to this matter showed that tubercle bacilli die very rapidly on the exposed surface of manure, but that in the depths of a manure pile they may remain sufficiently virulent for months to cause tuberculosis in hogs that are exposed to the pile after a layer less than a foot thick has been removed from the surface. Hence, as in all the other work done by the Station on the vitality and virulence of tubercle bacilli, the fact is here again illustrated that the tubercle bacilli has an enormous amount of resistance to adverse conditions, provided it is not exposed to light or to a temperature which is high enough for the pasteur-

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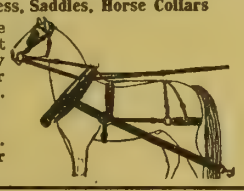

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NOTICE OF STOCKHOLDERS' MEETING.

Notice is hereby given that the annual meeting of the stockholders of the Cultivator Publishing Company will be held at the Los Angeles offices of the company, 115½ North Broadway, Los Angeles, California, at 9 o'clock A. M. Saturday, May 20, 1911, for the purpose of electing the Board of Directors for the ensuing year and for the transaction of such other business as may properly come before the meeting.
R. M. TEAGUE, Secy.
Los Angeles, Cal., May 6, 1911.

ization of milk. While the investigation is not yet complete, officials of the Bureau of Animal Industry state that the tubercle bacilli, capable of causing tuberculosis in hogs, may live more than three months in a manure pile from a stable of tuberculous cattle.—Wisconsin Agriculturist.

PREPOTENT SIRE.

The following experience of the Missouri Experiment Station is instructive on this point:

A pure bred bull was purchased and used on a large number of cows, and it was found that the daughters were not producing as much fat as the dams. The average number of pounds of fat for the dams was 234, while that of the daughters would amount to 216. In six years this loss on 30 daughters would amount to $939. After these results were received a second bull was used to replace the first. This animal was much more prepotent in transmitting dairy qualities, and increased the average production of fat from 220 pounds in the dams to 280 pounds in the daughters. Instead of a loss this sire increased the value of the 30 daughters $2700 over that of the dams. Still a third bull was used and proved himself still more prepotent.

The cows on which this bull was used averaged 238 pounds of fat, while their daughters averaged 342 pounds, an increase of 104 pounds. The gain in six years on thirty daughters was $4950. This shows the importance of a good animal and demonstrates how a large number of the common herds are being ruined because of the ignorance or neglect of the owners.

THE PIGS' COMFORT.

I provide shade and shelter for my pigs by turning them into a wood pasture or the orchards, or by constructing a shed. This is done by setting some posts to support a roof of rough boards. The pigs seldom hurt the orchard if they do not run in it more than a month or two during the hottest weather.

Sometimes where there are but few trees in the orchard it is not best to let the pigs run there too long, as they may kill some of the trees by rubbing and gnawing them off.

If they start this, I turn them out and provide artificial shade. But I furnish them shade of some kind, and have abolished the dirty dry wallows.

Shelter is also needed at certain times. There are always a few wet and cold spells every summer when the pigs will suffer if they do not have good shelter, and they can easily get a setback during a cold rain that will take them a long time to recover from.—Journal of Agriculture.

WARBLES.

(Hypoderma Lineata.)

For grubs in calf's or cow's back squeeze out and destroy each grub; then bathe part with a two per cent solution of coal tar dip. Use same solution on legs and any other part of the skin that is not in normal condition. Feed an abundance of nutritious food.

When pigs are kept in cold, damp places during the winter months they often become rheumatic. They require warmer quarters than are usually given them by farmers or than are usually thought necessary. Medical treatment will do no good. Good care and proper housing are required. Give the pigs a good warm bed to sleep in and besides the skim milk feed them middlings and oil meal. Also keep charcoal, salt and ashes mixed together where they can get it at any time.

Ten tons of corn ensilage per acre is regarded by Experiment Stations as a reasonably conservative average, though fifteen tons per acre is a frequent yield under fairly good conditions of tillage, soil and seed. It is estimated by competent authority that this ensilage, when placed in the silo, costs about $1.95 per ton.

Who does the feeding when the team comes in from a hard day's work or a long drive?

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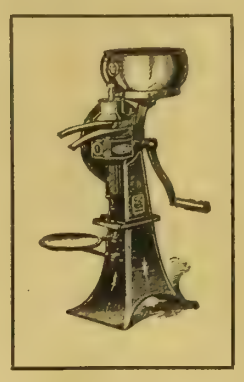

Now that the flush of milk production is at hand, why not take advantage of this opportunity? See the nearest DE LAVAL agent, and he will tell you how much he can allow on your old machine toward the purchase of a new DE LAVAL. If you don't know a DE LAVAL agent, write to the nearest DE LAVAL office giving make, number and size of your present machine, and full information will be sent you.

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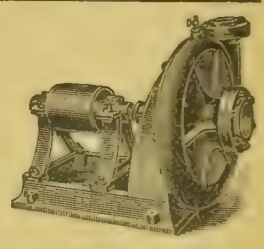

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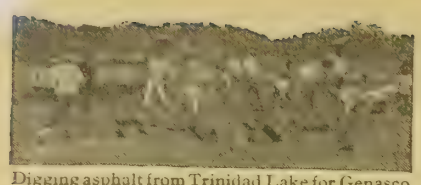
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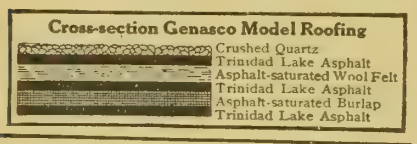

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The Rhubarb and Berry Specialist c

Horticultural Commissioner Mills of Butte County reports fruit outlook good.

Small Fruits and Vegetables

CABBAGE.

The home gardener, the market gardener, and the truck farmer, each of whom contributes largely to the vegetable supply, is more or less interested in the growing of one of the most universally cultivated plants—the cabbage; and with its usual sensitiveness to the needs of its clientele the U. S. Department of Agriculture has recently issued a bulletin (Farmers' Bulletin No. 433) describing its cultivation under the different requirements of those three environments.

Although one of the coarser vegetables, cabbage finds a place in the home garden as well as in the market garden and the truck farm, and in some sections of the United States it is extensively grown as a farm crop. No adequate estimate, however, can be placed on the value of this crop, as it fluctuates very decidedly from year to year both in acreage and price; but the output is large—the three states of New York, Pennsylvania and Virginia, which outrank all the others, grow commercially about 50,000 acres of this vegetable, either as a spring or autumn crop, in addition to the home-garden supply which was consumed at home.

Early cabbage is practically all consumed as a green vegetable; the late crop on the other hand, is handled as a fresh vegetable, as a storage crop, and for the manufacture of sauerkraut. Cabbage is always in demand, and under present conditions, is always on the market either in the spring as the product of the southern farms, in the fall and early winter from the northern farm and market garden, or in the winter from the storage house where the surplus has been preserved for this demand.

A section of this bulletin is devoted to each of the three methods of producing the crop commercially—truck crop, market garden crop, and farm crop—and the influence of climate, extent of production, soil, fertilizer, seed, method of producing young plants, varieties, cultivation, enemies, harvesting, and marketing, is described and explained under each head, in accordance with the light and knowledge gained from experiments and experience.

TEST YOUR GARDEN SEEDS.

Very often the cause of a crop failure can be attributed to a poor stand. With the present high cost of living and the high price of land, we cannot afford to let soil lie idle, and that is just what some of it does when there is a poor stand of any crop on it. No matter how good the soil, the seed, the season, or the cultivation, if there is a poor stand the yield is decreased. A poor stand requires about as much time, work and expense in cultivation as a good one.

This is true in gardening as well as in other lines of crop growing.

An important factor in the cause of poor stands is poor seed. Seed may have its vitality or germinating power impaired from a variety of causes, such as lack of maturity, improper curing, or storing under unfavorable conditions. Very often the seed has spent itself germinating before it is planted, or perhaps it is too cold.

To avoid poor stands, seeds should be tested before planting. This is a very simple operation, and requires but a few minutes. There are several simple methods of testing seeds, probably most of which will answer the purpose.

One of the simplest and quickest ways is to test between blotting paper. First, count out 100 seeds of the kind to be tested, taking them just as they come and not picking out the best looking ones. Scatter the seeds between two pieces of blotting paper from four to six inches square and place in a common china plate and turn another plate bottom side up over the first. If pasteboard plates can be had, they are better, especially if a large number of samples are to be tested.

In this case all the plates containing samples of seed can be stacked up, each plate being placed right side up upon the one beneath. This makes each plate a cover for the one beneath it, and holds the blotting paper down closely to the seeds, preventing too rapid drying out.

The seeds should be placed in the living room to secure a temperature favorable to germination. Care should be taken that the seeds are not kept too wet, as germination takes place more readily under barely moist conditions. Strength of germination should be noted, for it is not enough that a seed germinate. It should germinate strongly to be a good seed. Seeds which germinate weakly in such a test may not be strong enough to make a good plant under field conditions.

If moulds form quickly on the seeds, they are likely to be old stock.

If 100 seeds are taken, the number that germinates can be taken as the percentage of germination. If scant, the seed should not be planted. If good, or indifferent, it may be planted, making the proper allowance for seed which will probably not germinate.—S. Van Smith, Colorado Agricultural College.

QUARANTINED POTATOES.

About the largest single batch of trouble the State Quarantine Office has ever endured has now reached its climax through the shipment of about a dozen carloads of infected potatoes from Nevada. These potatoes are being intercepted all over the north and the incident keeps the wires warm with questions of horticultural law and replies directing that the potatoes be sent out of the state or destroyed, at the option of the shippers.

Over two months ago the first lot of infected potatoes was captured at the Sacramento depot. The potatoes were badly infested with the eel worm, and the lot was sent back to Reno. In a few days the same lot, transferred into another car, appeared in Los Angeles in charge of the owner, who stated that he heard the state commissioner of horticulture was a resident of Los Angeles and that no doubt some arrangements on that account could be made that would let the potatoes go on the market. I have not heard that any such arrangements were made.

Since the first car was received these tainted potatoes have been coming right along. Two carloads were intercepted at San Francisco and sent back. The last week of March three carloads were sent to Bishop, and Independence, the shippers no doubt thinking that the law would not be invoked in faraway Inyo County. But a deputy quarantine officer caught them all and sent them out of the state. It seems that at least 25 per cent of all Nevada potatoes received in our state this season have been infested with the eel worm, but as we have no data upon the total shipments from Nevada, the percentages may have been less. But this we know, that a large area of fine potato land at Dayton has become permanently infected with this soil pest. With thirty-seven new quarantine guardians and their inspectors numbering over a hundred, such perils as this should be effectively excluded.—L. A. Times.

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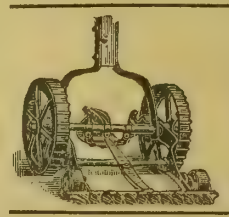

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The Ornamental Garden

LANDSCAPE GARDENING AND RURAL HOMES.

By Professor Arthur L. Peck, late of Oregon Agricultural College.

Thoroughly to understand and properly to appreciate landscape gardening, one must be familiar with a few of the basic principles of the art and also know what we mean by the term "landscape gardening" in the first place. It has been defined by a well-known writer as the arranging surfaces of land and water, with all forms of vegetation they support, and all such forms of architecture and sculpture that may be thought desirable according to some settled scheme or idea. Landscape gardening is a fine art, and is properly placed with painting, sculpture and architecture. That is a fine art which attempts to create organized beauty, to unite several dissimilar parts into one organized whole.

Granting, then, that any landscape composition may be criticised with reference to rules applicable to the other arts, we would expect to find certain similar artistic qualities in all branches. One of the most important of these qualities is "unity." Unity in a landscape composition means that some one idea shall prevail throughout, and that all details shall be subordinate to it. To attain this unity one must subject all his ideas to one of the two general styles of treatment —known as the "formal" and the "natural." The former is characterized by the presence of the straight lines, geometrical forms, architectural features, plane surfaces and sheared or regular forms of trees and shrubs. It is sometimes called the "geometrical" or "architectural" style. In the "natural" style we find irregular curved lines, broad, sweeping curves in the surfaces; irregular grouping of trees and shrubs, irregular skylines, and the absence of all things which pertain to the architectural. Country homes, surrounded as they are by nature's general treatment, should be laid out along natural lines. City squares, str t parkings, plazas and other limited areas closely associated with large buildings, should be treated along formal lines.

With these general principles in mind, let us take up the problem of properly arranging the home grounds so that when the work is complete the grounds and the house, taken together, will present to the observer a harmonious, pleasing picture.

The first of all to be considered is the convenient arrangement. The most beautiful home or garden is not good if the convenience of the owner is sacrificed. Drives and walks should be laid out so that they will be useful. They should be direct and have good grades and if curved, the deviation from the straight lines should be justified. This can be done by taking advantage of the natural contours of the ground, or by platting in such a way that it comes very natural to make a detour around the obstacle. Straight lines are many times justified, and unless the distance and other conditions warrant it, should be used.

The foundation of the entire work is the lawn. It should be broad, well graded and well kept in some instances; and should be framed on either side by interesting grouping of foliage. Generally speaking, the lawn planting should be carried to the side, or at least, related to the border planting, if specimen trees are used. In many farm homes a broad mowing, or meadow, in front of the house is very attractive. In that case the grass should be cropped only in close proximity to the house. The effect of this grouping of foliage on the sides is to frame the home picture, and to set off the house to the best possible advantage.

In arranging planting it is worth while for one to study the works of nature. Note the following outline of young fir growths as they creep into the clearings. You will find that line is irregular, deep bays showing here and there, separated by strong, massive projections. Oftentimes there will be an individual or two standing out from these strong masses. The straight line is entirely absent, while the outline of the foliage presents long graceful curves. In choosing the materials to be used, locate the coarser texture of the foliage further from the house, and as you approach the home the shrubs and trees should be finer and be able to bear a closer inspection. Fine flowering shrubs and vines should be used close to the home, and these serve in a way to tie, or to unite, the building with the grounds. Care should be taken, however, not to plant too heavily around the foundation or the appearance of soundness and stability will be lost, because one can get no idea of the foundation upon which the structure rests.

It is the desire of most men to have their grounds appear as broad and extensive as conditions will allow. Whenever we introduce into the lawn such things as circular beds, rose hedges and other forms of brilliant flowering plants, we decrease the apparent extent of the area. Locate all herbaceous flowering plants and roses by themselves along the shrubbery border, or possibly near the entrance of the vegetable garden. Here they can be well cared for, cut and taken into the house or allowed to mature and die down without seriously affecting the appearance of the complete picture.

The use of materials is a complicated subject in itself and time forbids my taking it up in this paper. I would like to say, however, a few words in favor of our native plants. The flora of Oregon is very rich in shrubs and trees of ornamental value. Among these I might mention Oregon grape, red flowering currant, mock orange, red-twigged dogwood, waxberry, mountain spray, nine bark, sweet briar, rose, azalea, mountain lilac, rhododendron, madrone, chinquapin, flowering dogwood, hemlock, cascara, numerous conifers and many others. These plants all do well in cultivation and make beautiful specimens, especially when planted quite small.

So much for what can be done in beautifying the home grounds. It is very easy, however, for a lover of plants to seriously overdo the matter. Do not feel that you must have everything you see to which you take a fancy, and in general, it is a good thing to avoid what we call "horticultural freaks." We do not want to make a museum of our home grounds.

Things brought into close association should be congruous and kindred in character. Rookeries and rustic work too near the home are hardly logical, one suggesting the wild and the picturesque, the other art and the works of man. The well-known tripod and kettle filled with flowers is another example of the incongruous. Seashells for edging flower beds far removed from the ocean, decaying fir stumps in the midst of a well-cared-for lawn; iron dogs, or stags amidst similar surroundings are other irregularities which one so often sees, and which are much better left out of the composition.

Much has been said with a view to urging amateur landscape gardeners to pay more attention to the arrangement of the trees and shrubs on the home ground; to bring them to the point where they will realize that small compositions require just as much study as large ones, and to encourage those who feel that financial conditions bar them from developing attractive home grounds. In bringing these remarks to a close I wish to quote Mrs. Van Renasselaer, one of our most artistic writers on the subject of landscape gardening, presenting for your consideration her idea of the application of the subject under discussion. She says:

"If now we ask when and where we need the fine art of landscape gardening, must not the answer be, whenever and wherever we touch the surface of the ground and the plants it bears with the wish to produce an organized result that shall please the eye? The name we usually apply to it must not mislead us into thinking that this art is needed only for the creation of broad 'landscape' effects. It is needed wherever we do more

(Continued on Page 631.)

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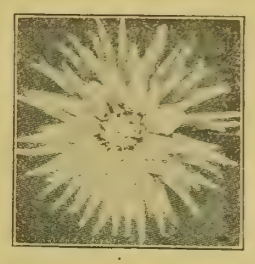

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,320 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres. and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, May 18, 1911

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Florida orange people claim an increase of 300 per cent in output during the past ten years. Lemon culture does not show such an advance; twenty years ago that state made a claim of 20,000 bearing trees and 80,000 nonbearing; last year the crop was only 7,000 boxes, from 5,000 trees.

BEAUTIFY THE ROADWAYS.

The Sacramento Bee refers to the fact that the municipality of Everrett, Massachusetts, will pay one-half the cost of tree planting along any of its streets. The Bee adds a criticism of the plan on the grounds that every citizen of a community should have sufficient pride in its appearance and in the uniformity of its streets to unite with neighbors and plant trees without any chromos being thrown in. It truthfully says:

"Trees are a valuable asset to any city. Their number on the older streets of Sacramento, the pictures and the shade their spreading branches afford, make this city distinctive. Without them this would be a bare and unattractive place, and the streets far less comfortable during the summer months."

Notwithstanding which it must be confessed that less than half the people seem to appreciate that fact. We have never yet witnessed an effort at public improvement without a vigorous kick from those who are to be benefited, because of cost, unacceptable plans, or some similar excuse.

This is true of the cities and equally true of country districts. Riverside has solved the problem through the work of a most enthusiastic tree warden, but, unfortunately, few sections have a J. H. Reed to impress upon all the advantages secured from beautifying roadways. These advantages are not simply in increasing valuation of real estate. If so, it would give some cause for the opposition of people who, having no desire to sell, claim that the only result is increase in taxes. But far beyond increase in money value, beautiful surroundings bring a higher grade of people to a community, which means better social conditions, and better social conditions mean much to the family of the producer as well as to the family of the city dweller.

The city of Riverside was not spared opposition to improvement, but it is gradually being overcome, and street tree planting is becoming the habit and the pride of that section. Nothing else offers such great returns for expenditure as roadside improvement, and all sections, whether in city or country, should consider the matter.

OVERPRODUCTION.

With our 40,000 or 50,000 cars of citrus fruits going out this season, and with planting continuing unabated, more talk than ever is made of possibility of overproduction. Yet when we consider the number of acres which are going out of bearing, either from town lot subdivision or neglect; also the prices received for the fruit this year, the greatest of all years in citrus shipments, there seems some little ground for the belief that California is far from producing too much citrus fruit. Granted, that we are producing too much low-grade fruit and marketing some of the high-grade to poor advantage, yet, with twenty-six thousand cars of oranges already shipped, every one bringing good returns to the shipper, we are justified in the belief that the industry will remain as profitable as it has been for the past few years. Always there remains the question of tariff and general financial conditions of the country, but these confront every industry, and there is no profit in anticipation.

It is estimated that Riverside County has 350,000 acres yet to come into bearing, Los Angeles 350,000, Orange 325,000, San Bernardino 200,000, and Tulare tops the bunch with a claim of 800,00. This means an enormous increase, but we have heard this overproduction talk in California for more than twenty-five years, and are frank to say we do not hold pessimistic views of the citrus industry.

PURE FOOD JUDGMENTS.

In a big bunch of "notices of judgment" under the food and drugs act which recently came to this office we note one stiff fine, afterward suspended, for the misbranding of "pure olive oil" which upon analysis was shown to contain more than 75 per cent of cotton seed oil. Cotton seed oil is all right, but, branded as olive oil, all wrong.

Another judgment was for adulteration of olives found "to consist in large part of decayed, wormy and shriveled olives with rancid oil." This victim was fined $25, and the sentence not suspended. Certainly he got off easy.

A package of figs was condemned because it contained "97 per cent of filthy, mildewed and decomposed figs." This judgment does not show any fine imposed, but the figs were destroyed.

Ladle butter also came in for certain findings; one package containing "gas-producing organisms and bacteria of the B-coli group." We confess ignorance of that particular group, but it doesn't look good to us. In this bunch of foul butter were seventy tubs. The product was seized and, after condemnation, forfeited.

COAST NURSERYMEN.

George C. Roeding, of Fresno, who is president of the Pacific Coast Nurserymen's Association, informs us that plans are hatching for one of the most interesting sessions of the association ever held. The convention will be opened in San Jose June 21, and will continue three days. Secretary Joseph T. Brooks, of the San Jose Chamber of Commerce, is pushing things locally to have something doing every minute. C. A. Tonneson, of Tacoma, Washington, is secretary-treasurer of the association, and can give information to nurserymen who may wish to know more of its workings.

CORRECTION.

In the article, "Some Fundamentals," by Mr. J. B. Neff, in the irrigation number last week, an error was made in the sentence: "About five acre-inches is needed for oranges, and from five to ten inches more for lemons." This should have read: "About twenty-five acre-inches is needed for oranges."

In an endeavor to impress upon its readers the fearful loss of moisture from uncultivated soil, an Eastern paper makes this statement, referring to lands saturated by recent rains but not cultivated: "It will take 750 teams constantly hauling water for one week on a quarter section of land to restore as much water as will evaporate in that same week under those conditions. That evaporation can very largely be prevented by thorough tilth."

The thirty-sixth annual convention of the American Association of Nurserymen is to be held at the Southern Hotel, St. Louis, Mo., June 14-16. Membership in this association costs $5, for which the privileges of the association are granted, including badge book. The serious discussions will be supplemented by various side trips, taking in the 3,200 acres of city parks and the Missouri Botanical Gardens, one of the most famous parks in the world.

One of the most consistent believers in green manuring, or more properly "brown manuring" is Mr. Gerald Geraldson, of Newcastle, Placer County. While in Los Angeles recently, disposing of a bunch of those excellent figs he processes, he dropped in to convince us that the only way to take humus into the soil is to allow the native grasses to have their own sweet way for an entire season in half of his orchards. The other half, or each alternate row, is kept well cultivated. The following rainy season the dry weed stalks are plowed under. Mr. Geraldson's idea is that these dried weeds contain cellulose, which makes humus, whereas the plowing under of succulent growth turns back into the soil practically nothing but water. In any case, Mr. Geraldson insists that we must have humus, and in that the orchardists of the state are with him.

The "discoverers" of dry farming are endeavoring to impress upon Californians the desirability of introducing that practice into their state. These people are usually theoretical "farmers" who haven't yet absorbed the idea that California was in the dry farming class long years before they began to spring their theories on the public. These theorists, some of them, are so extreme that they do more harm than good to the cause of dry farming. Misstatements are so attractively put that ignorant people rely on dry farming to accomplish impossible results. Dry farming is all right, but its practice requires more intelligence than many writers on the topic possess.

The American Lands and Irrigation Exposition management is making arrangements to award "the handsomest and most valuable prizes in the history of American agriculture" at the exposition to be opened in Madison Square Gardens, New York City, on November 3. Exhibits are assured from Alaska and Canada, and the government of Mexico has promised to make a display of its agricultural products.

Percheron breeders are elated over the great showing made by their favorite breed in the imports to this country. The total importations of the one breed exceed those of all other breeds of draft horses combined. Illinois leads, with 2,237 animals imported during the year 1910; all other pure-bred draft sires aggregated 1,131.

As wonderful a plant as alfalfa is for the stock grower, it is not a typical pasture plant; it may hardly be called a pasture plant at all. In Imperial Valley, where it has been used for pasture, great care is taken not to allow stock on it after watering; even then it proves short-lived.

The retail grocers of Columbus, Ohio, are pushing before their state legislature a bill calling for the selling of all products by weight. This includes eggs, fruits, etc., and is an entirely new departure for that section.

Assembly Bill No. 946, passed and duly signed, permits county boards of education to pay for transporting children from remote sections to a central high school. We trust this will result in increasing the popularity of this plan.

France reports a failure in its crops of wheat, potatoes and wine grapes. The first two will be imported during the coming year, wheat to the extent of over eighty million bushels.

Agricultural News Notes of the Pacific Coast

Northern California

The regular annual cannery picnic will be held at Gridley June 2.

Almond buyers manifest a willingness to sign contracts at 14 cents.

Dairymen at Red Bluff anticipate the early establishment of a creamery.

Irrigation ditches near Live Oak, Sutter County, are being extended.

Durham, Butte County, finds almonds but little injured by the cold.

Nevada County contemplates the drainage of several thousand acres of richest lands.

An Oakland man has filed on 40,000 inches of the Feather River near Biggs, Butte County.

San Francisco people are urging that the Panama-Pacific Exposition be kept out of Golden Gate Park.

Acreage of sugar beets in the Sacramento Valley will be materially increased over that of last year.

Dairy people of the northern coast counties are pleased at the signing of the dairy bill by the governor.

Sheep owners near Petaluma have had many pure-bred sheep destroyed by dogs during the past few weeks.

The Chico Alfalfa Meal Mill Company has filed articles of incorporation; it is capitalized for the sum of $25,000.

The cold weather which has prevailed all spring over the Sacramento Valley is responsible for lateness of vegetables.

The pure-bred stock on the University Farm at Davis was put on exhibition during the annual farm picnic last Saturday.

Three thousand acres of the Fair Estate in Alameda County have been purchased and will be subdivided into small holdings.

Commencement exercises of the first class to go forth from the University Farm School were held Friday afternoon, May 5.

Some Sacramento Valley apricot growers predict 17 to 20 cents as the price of dried apricots before the end of the drying season.

Orland is preparing for a big irrigation jubilee to celebrate the opening of the government irrigation project; it will be held in June.

A pump thrownig a stream two feet in diameter will be installed near Princeton, Colusa County; it will irrigate a large tract of land.

Buyers of Thompson Seedless at Yuba City are more anxious than ever to close contracts, and have increased offering price to $20 per ton.

The Eldorado County Fruit Alliance held a meeting at Placerville last week and perfected organization for handling the coming fruit crop.

The third annual basket picnic at the University Farm was the usual success; it is estimated that over 2,800 people were on the ground.

The ground on which the famous orange tree at Bidwell's Bar, Butte County, stands is to be deeded to the county and preserved as a historical landmark.

The State Agricultural Society met in Sacramento recently, and C. H. Telfer was elected to succeed J. A. Filcher, who has filled the office of secretary for years.

Central California

Steps have been taken to form a Tulare County Poultry Association.

Santa Cruz County reports a good crop of apricots despite adverse conditions.

A berry special has been put on by the Southern Pacific, leaving the Pajaro Valley each day for San Francisco.

It is proposed that growers sign an agreement that only such fruit as will pass inspection may be sent out of the state.

Owing to the dry season, apple scab has not yet appeared in the Pajaro Valley orchards; mildew, however, is developing.

At a meeting of fruit growers held in Lindsay recently a standardization scheme with compulsory inspection was suggested.

A petition is being circulated in Kings County asking for the calling of an election to vote upon the question of good roads bonds.

Orange planting in the Plano district, Tulare County, shows greater activity; lands in that section are now commanding $125 per acre.

Harvesting of grain in the San Joaquin Valley will be at least two weeks later than usual; the crop will not be quite as large as in the past.

Horticultural Commissioner Volck of Santa Cruz County reports that the early spring spraying with arsenicals in the apple orchards is materially greater than any past season.

East Side farmers near Stockton are discussing plans for construction of a private levee which will divert storm waters from their holdings.

The irrigation and reclaiming of a large tract of land near Alpaugh, in southern Tulare County, is to be taken up by a corporation recently perfected.

The Fresno County Fair Association has elected a new secretary and is planning for one of the best fairs ever this fall; the racing program is already arranged.

Commissioner Schulz of Tulare County is continuing his fight against mistletoe, maintaining that it is harboring scale insects which later infest orange and olive trees.

Fresno reports over 2,000 tons of raisins in the hands of the growers. Packers are reported well stocked. It is thought the holdover will readily command 4½ to 5 cents.

The bonds of the Tipton irrigation district were canceled at the First National Bank, Visalia, on Tuesday, May 2. A public burning of the bonds and a celebration is contemplated.

Wood choppers have been found taking away valuable old live oak and other trees from the roadsides near San Jose. The Outdoor Art League of the county is looking up the matter and proposes to stop the vandalism.

The Farmers Union of San Jose held a meeting recently for the purpose of discussing the orchard help question, and remained by the position formerly taken that the school children of the country should be released so as to be of help to the fruit-growing interests.

Southern California

Brawley is shipping about 100 crates of summer squash daily.

Ventura reports hay and grain very short all over the county.

A Coachella Valley chili pepper grower is netting 25 cents a pound.

Tomatoes are being shipped in large quantities from the Imperial Valley.

The Calexico Creamery Association made its first run last week; it has a capacity of 5,000 pounds daily.

Residents of the El Cajon Valley, San Diego County, are planning a celebration of "El Cajon Fruit Day."

The Coachella Valley has filed on 25,000 inches of the Colorado River.

Coachella Valley shipped its first okra last week, which sold for 40 cents per pound.

Many ornamental trees have been planted along the roadsides of the El Cajon Valley, San Diego County.

Deputy State Horticultural Commissioner Maskew is investigating work of ladybirds in the Imperial Valley.

The estimates of acreage planted to cotton in the Imperial Valley this season ranged from 20,000 to 30,000 acres.

Citrus growers are pleased because of the $25,000 appropriation for the Riverside Citrus Experiment Station.

Ventura is endeavoring to secure the establishment of a plant for the manufacture of California eucalyptus wood.

The first roasting ears of the season were brought into Los Angeles from Coachella Valley, in Riverside County.

Fillmore, Ventura County, is hoping for the establishment of a cannery; apricots will be the principal fruit handled.

An Imperial Valley farmer is having doubletrees sawed from three-year-old eucalyptus trees measuring six inches in diameter.

With the amount of Navels being reduced every day, Valencias are coming to their own, and will soon be going forward in train lots.

A Hemet orchardist has prevented attacks on his orchard by army worms by surrounding the entire orchard with furrows containing water.

The Southern California Sugar Company at Santa Ana is erecting a $100,000 beet pulp drier. The plant expects to start early in July, and will handle about 6,000 acres of beets.

County Horticultural Commissioner Beers of Santa Barbara reports that the setting of walnuts is very encouraging and that large arceage of young walnuts was planted during the past season.

One of the heaviest fruit trains ever sent east over the Santa Fe was on last Thursday, when fifty-two cars of oranges were pulled out by four engines of the Santa Fe's biggest type. There were more than 2,000 tons of fruit on the train.

Chairman Cuttle of the Reforestation Committee reports that he has a written statement from the forest service that it will set aside an amount equal to an appropriation of the State of California up to $10,000 for continuing the work of a fire protective system in California mountains.

The Coast

All grain at Rudy, Utah, has been planted.

Grays Harbor, Washington, has an Orpington hen which lays four-ounce eggs.

San Simon Valley, in Arizona, has developed a 400-gallon-a-minute artesian well.

Poultrymen at Everett, Washington, have fixed upon December 4-8 as next show dates.

Garfield, Washington, is becoming the center for the production of seed of field peas.

Potato growers at Puyallup, Washington, are now selling their holdover crop at $45 per ton.

The reclamation service has rejected all bids for work on the Lake Kachess dam project.

Alaska was visited by a hurricane and blizzard during the last of April which did much harm.

The Portland cattle market reached a point last week where seven cents was offered for hay-fed steers.

General rains over various sections of the Inland Empire last week proved of great benefit to the wheat crop.

Nearly 70 per cent of the wool of the United States is produced in what may be called Pacific Coast states.

A large bunch of horses intended for the Philippines failed to pass the inspector at Seattle, and all were rejected.

Cherry growers at Eugene, Oregon, have sold large quantities of cherries to the California Fruit Canners Association.

The poultry association of Asotin County, Washington, is preparing for a "comparison show." The date is not yet fixed.

The first wool sale at Pendleton, Oregon, was held last week, and three clips, amounting to about $100,000, were sold.

Yuma Valley alfalfa growers are selling hay in the stack at $8 to $10 per ton. The average for the past season has been $12 to $13 baled.

Many orchards of the Valley of the Yakima and Columbia Rivers are affected with a bud and leaf eating insect called the climbing cutworm.

Wool growers near Spokane, Washington, are elated over reduction in freight rates which gives promise for more prosperity to the wool grower.

All of the states of the Coast are taking alarm at the prevalence of the alfalfa leaf weevil which is doing so much damage in the alfalfa sections of Utah.

Farmers of Yuma Valley held a meeting at Yuma last week and discussed disposition of the hay crop; it is expected to perfect a marketing organization.

A contract has been signed by the Commercial Club of Bend, Oregon, which will secure for that city the Union Woolen Mills, and will call for the erection of a $250,000 mill.

The state veterinarian of Washington reports 150 outbreaks of contagious diseases among the farm animals of the state during the past year. Glanders and tuberculosis were the principal diseases.

Have you seen the Norwich Automatic Feeder and Exerciser?

Thousands have and are using them.

Agricultural Colleges endorse them. WHY?

Because you save 50% in labor, 25% in your feed bill and your egg production is increased 18%. Think of it. We guarantee all these claims. It costs you nothing to prove them. Send for printed matter.

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Breeders for 40 years Standard bred Fowls.

Send for circulars.

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S. C. White Leghorn Breeding Stock for sale, all large hens and heavy layers. Also a few yearlings.

Write for prices.

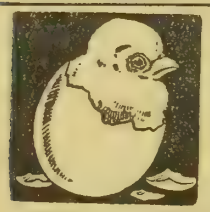
White Leghorn Eggs for hatching	$1.50 per 15
White Plymouth Rock Eggs	$1.00 per 15
White Indian Runner Duck Eggs	$3.00 per 13

EARL M. HUBBARD Colton, California.

Rancho Mirasol White Leghorns

Eggs for Hatching, January to June. Day Old Chicks, March to June.

PASADENA, CALIFORNIA.



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On a separate farm, we have an extra fine lot of Buff Orpingtons, from which we can furnish stock, eggs and baby chicks at popular prices.

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Baby Chicks

Gardena Hatchery, Gardena, Cal.

(Egg capacity 100,000)

Largest in So. California.

After May 1st we reduce prices on our *Baby Chicks.* Any one still in the market will do well to write for prices, as we can furnish them at a low figure. We guarantee a full count of *live* chicks at your Express office.

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Winners from Seattle down. Bred as layers first. Stock, any age for sale. Eggs $6 and $10, per 100. Settings $2 up. Send for New Free folder and prices.

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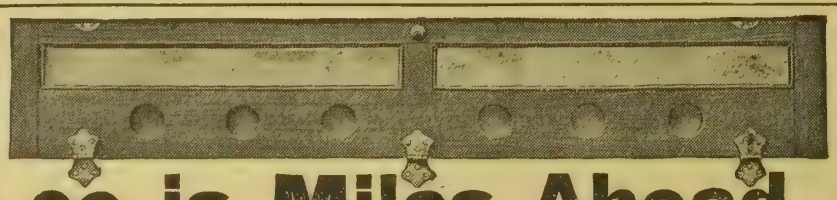

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READ the story of the Mandy Lee triumph in our new catalog. Other incubators are already preparing to imitate and profit by our great discovery.

No guessing with a Mandy Lee

You cannot afford to buy an old-theory incubator which may go out of date and be discarded next year. You should know the truth *now* about the great discovery. The book is free. Ask for it.

There IS Something New in Incubators

We have taken the boldest and most important step ever taken in incubator building. See the openings into the egg chamber? They mean the saving of chicks' lives. It is the key to *right* hatching. Ventilation in the Mandy Lee is now perfect. It goes on all the time, neither above nor below, but right *at the eggs.* Every minute of the hatch the life-giving oxygen is freely passing in to the eggs and the carbonic-acid gas is passing out. And correct ventilation is just one of the great Mandy Lee features.

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The Mandy Lee is as far in advance of other incubators in heat and moisture as it is in ventilation. We do not guess at anything. The sensitive regulator controls heat to the fraction of a degree and *we measure moisture* just as accurately with the Mandy Lee Hygrometer (one sent with every incubator). You know what you are doing. *You* measure and control moisture; *you* control the hatch. The Mandy Lee is the all-season, all climate, all condition hatcher, always producing the most and the strongest chicks.

Mandy Lee Brooders give direct contact heat to the backs of the chicks. That is *real* mothering, the most important thing in poultry. Hovers are raised and lowered as weather gets warmer or cooler—heated from end to end. Chicks do not pile up and smother. Write to-day for catalog and full information.

NEW OUTDOOR BROODER Heated—Storm-proof

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Practical Poultry Culture

Practical poultry people who may have ideas from their experience as to methods of feeding and housing and general care of poultry will convey a favor upon the Cultivator and its circle of readers by sending in concise accounts. Mrs. Basley is always willing to answer queries which with the experience of others should make this a most valuable feature in poultry life on the Coast. Opinions or matters of a personal nature should be omitted, but a concise statement of facts is always valuable.

CANARIES.

By Mrs. A. Basley.

All my life I have loved canaries. The prettiest and dearest of "our little feathered brothers of the air." The wonder to me is that so few of them are kept and loved in California.

In England, in France, in Germany, and in most of the European countries, canaries are a source of income as well as of pleasure to the artisan or mechanic class. I have known personally shoemakers, plumbers, harness makers, carpenters, who were really expert canary breeders. I have myself patiently ground a little bird organ for hours day after day to teach the youngsters to whistle a certain tune, and at one time I took a number to the forest of Montmorency so that they could learn the nightingale song from the wild nightingales of the forest.

Canaries were brought to England about three hundred and fifty years ago from the Canary Islands. Since that time they have been extensively bred as household pets. During the three hundred and fifty years of its domestication the canary has been the subject of careful artificial selection, the result being the production of a bird differing widely in color of plumage and even in size and in form from the original wild bird.

In England, as well as in other countries, canary breeding is a hobby. There are hundreds of canary shows in England, and thousands of the lovely little pets are exhibited annually, but the climax show is at the Crystal Palace every February, when the champions from all over the country meet, and the judges have a hard time to select among so many almost perfect specimens the best canary in all England. The winner of each class in that Crystal Palace show means the choicest of ten to twenty thousand from over all England, Scotland, Wales, and even Ireland. The enthusiasm in England over these beautiful little pets is greater than in any other country, and it is not surprising, when one realizes that the expense of feeding a canary is next to nothing, and the care of them only a pleasure.

The price of canaries in England varies from one dollar to five hundred, for it all depends upon the beauty and the singing quality. In some places there are singing contests for some varieties. For show and singing and for general excellency the Norwich Canary carries the palm. It is the favorite breed in England. Understanding the judging of these little birds has become there quite an art, which we have yet to learn.

We now have among us an English judge and breeder of English Norwich Canaries, who later on will give the readers of the Cultivator a few hints on the breeding and rearing of canaries.

DUCK RAISING.

By Mrs. H. Byfield.

For a quarter of a century we have raised ducks in a small way. Our ducks, with the exception of a few culls, were always sold for breeding stock, so we know little of the profits when sold in the market. We dressed those that failed to attain a desirable shape and size, and they sold very readily for a fair price.

The amateur in duck raising may not be able to glean the few important facts from a neighbor, as might be done in the case of chickens. There are always amateurs, and for them I write, and very particularly for the woman whose start is a trio of ducks and a goods box she has wheedled out of the grocer.

Let me tell you those ducks stand for an added comfort in the home, but not if they have the range of the dooryard. A low fence will hold them, and their yard should be where water can be supplied from a hose. Lucky you are if you have a pasture of alfalfa fenced hog-tight, but even then a small yard in connection with a dry sleeping shed is necessary, for to make sure of getting the eggs the ducks must be confined until 9 a. m.

A low trough should be placed in this small yard and filled with fresh water daily. A convenient one is made by taking two planks four feet long and sixteen inches wide, or even twelve inches will do, and shaping like rockers at each end. Use these for the sides of the trough. Get a piece of galvanized iron about twenty-six inches wide for the bottom. For the ends use pieces of 2x4, the length your iron is wide. A trough like this is easily rocked back and forth to cleanse and empty. Ditches and streams upon which ducks may swim away are a drawback hard to overcome. We always fed our breeding stock a morning meal of cooked refuse, vegetables and bran. After the breeding season was over a bit of grain at night was all the feed given, as they lived in the pasture, and this was only given to insure their return at night.

Duck eggs may be set under hens or in incubators, but not under ducks, as they are poor setters; at least the Pekins are. Mammoth Pekins are all we know about. They require twenty-eight days for incubation, and care should be taken to have the eggs quite fresh. Duck eggs spoil quickly, and a week is long enough to keep them. If hatched under hens, great care must be taken to free them from lice. As good a way as any is the old-fashioned one of using a bit of lard on each little head and under the wings. Add a few drops of coal oil to the lard, and never grease the whole body. I have raised hundreds of ducklings without hen mothers or heated brooders. Very rarely we lost any, and I would certainly discourage the use of hen mothers. We usually managed to have from fifty to seventy-five come out at once, and a home was made for them by setting four boards on edge for a pen and using a shed-roofed box for sleeping. Sometimes, if the weather was cool, I gathered them into a box covered with an old blanket and set them in the back kitchen at night, until they were a week old.

Feeding and water play an important part in making a rapid gain in weight.

They are gross feeders, and if raised to twelve weeks in pens, plenty of green food should be furnished, as well as their regular mash, a mixture of bran, shorts, cornmeal, and a small percentage of sand. Several times a week ground meat should be added. In Nebraska, if grasshoppers threatened the welfare of my garden, the ducklings were turned in when three weeks of age, and the harm done the garden was small until tomatoes began to ripen. Their services were invaluable as insect destroyers. Water must be furnished ducklings in covered fountains until old enough to put in the pasture.

Duck feathers are another source of income, as they yield a quantity. After the breeding season is over, the breeders are picked every six weeks until cold weather begins. The early ducks also are picked, but not more than once, as it is desirable to keep them in good shape for selling.

We advertised our stock, and shipped breeders to many states. We also shipped eggs in their season. We have no ducks in California, but from what we have seen of the climate we believe anyone with an alfalfa pasture for them could put the Eastern duck raiser away in the shade. Ducks are hardy, and there need be no loss with the young. They are easily changed from one situation to another. A fence twenty-four inches high is really higher than necessary to confine them. The housing need cause no anxiety. The bodies make lovely roasts, and the feathers fat, soft pillows.

Exercise is very essential to keep breeding stock in the pink of condition. Breeding stock must not be too fat and must not be overfed. There should be a natural flow of eggs without using too much forcing in the production so as to weaken the vitality. Keep the breeding females busy scratching for grain in the litter. Those laying hens which are workers are usually the best parent stock. The drones are of no value and should be weeded out of the flock.

HOW TO PRODUCE GOOD MARKET EGGS.

By A. G. Phillips, Associate in Poultry Husbandry, Indiana Experiment Station.

There is a growing sentiment among some farmers and egg buyers of Indiana for the production of better eggs for the market. The buyers demand better eggs than they have been receiving and some farmers desire a better price for their good eggs. To produce these better eggs the farmer should have a thorough knowledge of conditions that may affect production. The egg is manufactured by the hen from the food that is consumed, hence her feeding should be carefully considered. No ration should be made up wholly of grain, but it should contain with the grain, a mixture of bran, shorts and beef scraps or skim milk. The grain should be fed in a deep litter to induce exercise. Green food of some kind, grit and oyster shell should always be handy for the fowls. The number of eggs produced will depend largely upon the breed used, the ration fed, the congeniality of surroundings and the care given. If any of these things mentioned be omitted, the number of eggs produced will be decreased. A male bird is not necessary for the production of eggs, hence should be removed from the flock at the end of each breeding season, in order to insure infertile eggs. Infertile eggs keep better and are very desirable upon the market.

Select Hens That Lay Large Eggs.

Farmers should look well to their flocks when considering the question of egg production, and select large hens of the breed which they keep, culling out and disposing of all undersized birds. By this means they will be able to obtain eggs of desirable size.

What the Market Demands.

All people do not agree on the definition of a good egg and even some do not realize the conditions that sometimes affect its quality. In order to meet any demand for first-class eggs, the eggs should weigh one and one-half pounds to the dozen, be uniform in size, naturally clean, not washed, strong shelled and fresh.

A fresh egg is one that was laid by a healthy hen, is only a few days old and has been kept in desirable surroundings. A fresh egg is not one that was allowed to stay in the nest for a day or two, until it became convenient to gather it, or was taken from a stolen nest, or an incubator, or from under a setting hen.

Conditions That Affect Eggs.

Age causes an egg to become stale and shrunken and it can never be classed as a fresh egg. Heat seriously affects the quality of eggs and in warm weather they should be gathered daily and marketed as often as possible. Moisture causes molds to develop and quickly changes the quality of the egg. Muddy weather means dirty nests, consequently dirty eggs. Nests built upon the walls of barns and hen houses are often used as roosting places, causing filth to accumulate, resulting in dirty eggs. Dirty eggs must be handled as second grades; washed eggs are just as bad. Eggs deteriorate in quality if they are left behind the kitchen stove or are stored in damp or musty cellars.

When to Market Eggs.

It is not desirable to keep eggs any length of time before marketing, although it sometimes becomes necessary to do so. When it becomes necessary to keep eggs, a cool, dry cellar should be used and the eggs kept in some receptacle, such as an egg case, that will prevent them becoming broken or stained. Such eggs should be marketed as soon as is possible. Only eggs that are properly handled can be accepted by egg buyers as first-class stock.

Water is the cheapest of all the supplies requisite to egg production, and is of the utmost importance, for it enters more largely into the composition of the egg than any other one ingredient, yet it is more often withheld than anything else. More failures in getting eggs are directly due to this neglect to supply the fowls with water, regularly, than to improper feeding.

P & O

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This is the one that you have heard everyone talking about.

Send for our Special Pamphlet on Sub-Surface Packing, the best known system for "dry farming," a method of absolutely insuring bumper crops with a minimum rainfall—the salvation of semi-arid regions.

Made in Three Sizes, with 10, 16 and 24 wheels, is heavy and strong, and the frame is made to carry all the extra weight required. Write for Catalog No. V

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Etc. Etc. Etc.

See last week's Cultivator, page 593, for some of our prices—compare them with what you are paying elsewhere.

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Growers, Packers and Canners:

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Premium stock can be made by Likfreshing the fruit that reaches your cannery a little too ripe for successful handling with your present equipment.

The Likfresh process is not only less expensive, but it does the work in less time.

The advantages of Likfresh do not end with economy of production.

LIKFRESHED FRUITS AND VEGETABLES are not merely "dried". They are "like fresh", as the name indicates.

For example, Likfreshed peaches or apricots soaked in cold water, then eaten with sugar and cream, will taste as if just picked from the tree. Apple sauce made of Likfreshed apples, has the flavor, firmness, and appearance of sauce made from the fresh article. Likfreshed roasting ears, cabbage, string-beans, cauliflower, pumpkin, squash, rhubarb, strawberries, loganberries, raspberries, etc., will have the appearance, flavor and in every way resemble the fresh article when cooked.

This means higher prices for your cured products. Cheaper production and higher prices mean more profits for you.

Inquiries have been received from all over United States and Canada, asking for samples and information as to where the product can be bought in large quantities. The market is ready—it is time for you to make ready to supply the demand.

We install your plant for you ready to run. We build the first fire, test the machine and teach you to run it. In short, turn the plant over to you in perfect running order and under your control.

Every fruit man should see the Likfreshing machine in operation. You are invited to visit our demonstrating plant at Berkeley, bring something with you and watch it put through, bring as much as you like.

BUT BY ALL MEANS SEE IT, IT MAY MEAN A BIG SAVING TO YOU THIS SEASON.

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THE WANN COMPANY, Selling Agents

614 Union Savings Bank Bldg., Oakland, Cal.

Demonstrating Plant,
near Shattuck Hotel,
Berkeley, California

References as to reliability:
First National Bank, Berkeley, Cal.
The Wellman-Robbins Mercantile Agency, Oakland, Cal.

Queries

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Soft Brown Scale.

I send prune branches affected with some disease. What is it, and how can I rid my trees of it? They are heavy with crop, and I wish to remove this disease if possible. I have sprayed with bluestone, sulphur, lime and water. This year, however, they were sprayed with distillate and water, as was suggested to me, but this seemed to do no good.—P. J. C., Parlier.

This "disease" is a good, healthy attack of soft brown scale. The healthiness, however, is largely on the part of the scale, and not the trees, or at least will not be in course of time. We would advise treating the trees with kerosene emulsion, though this could have been done more cheaply when trees were dormant and leaves on the ground, but where as badly infested as this we would not wait. See issue of November 3, 1910, for method of mixing wash. The distillate spray, if used of proper strength and thoroughly mixed with power sprayer, should have been sufficient to control the insect; the bluestone, of course, has no effect on animal life.

Renewing Blackberries.

Please inform me how long Mammoth blackberries should bear profitably. Mine are five years old, and have been heavily manured twice during that time. They stand near the ditch and look healthy, but the berries are small and pinched.—Subscriber, Visalia.

Profitable bearing age of blackberries varies according to soil and treatment; we presume yours have reached the limit and should be replaced. If the old stool has become so weak that the shoots are not large and strong, and the fruit, as you say, is small, we should uproot and fertilize the ground heavily, plowing deeply and establishing new plants. Eight years is usually considered the limit, and yours, having gone the five, may well be renewed. The best method of renewal is to have different rows planted succeeding years.

Bordeaux for Mildew.

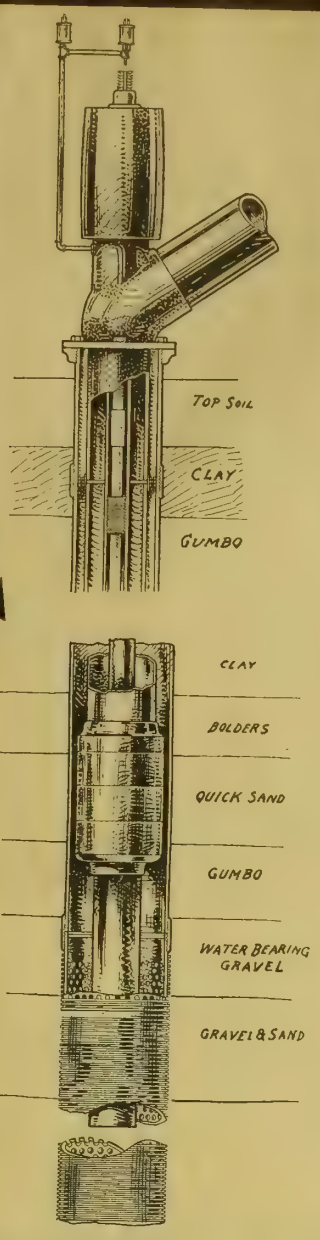
We were told on the demonstration train which passed through here some weeks ago that Bordeaux was worthless in prevention of mildew on grapes. We understand Mrs. Sherman claims that at a lesser expense she can control mildew with the Bordeaux. Which is right? It is too late for spraying this year, but would like views of vineyardists on this subject; they will be of value in next year's work.—H. B., Sanger.

We hope the suggestion of H. B. will be acted upon by our subscribers. Is not the Bordeaux usually sufficient? Mrs. Sherman's assertion seems amply proved by the fact that in twelve years she has had to use sulphur but twice. We are inclined to think the subscriber misunderstood the demonstration train instructor. The application of Bordeaux for this purpose is made when the vines are perfectly dormant and soon before their leaving out. In any case those which were not thoroughly treated this season, or application on which was followed by a rain, may well be sulphured.

Mortality of Incubator Chicks.

I hove lost quite a few chicks from one to two weeks old, and in holding postmortem I find that the yolk of the egg that is drawn into the chick during the last twenty-four hours of incubation has not been absorbed, which no doubt caused death. I did not incubate these chicks myself, so do not know anything about their incubation. In holding the postmortem I could not see where the yolk came in contact with any part of the digestive organs, and therefore I came to the conclusion that it is caused by faulty incubation,

(Continued on Page 627.)



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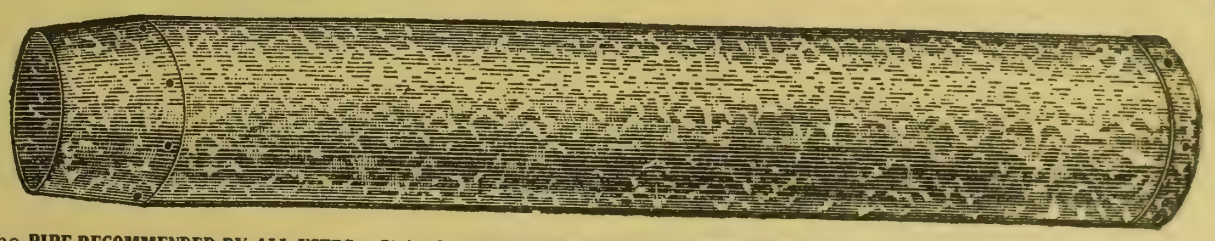

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10,000 feet 6-inch Riveted Pipe, depped, good as new, 16-guage	20c
10,000 feet 4-inch Riveted Pipe, dipped, good as new, 16-guage	10c
20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.	

Telephone and Telegraph Poles

20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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LIVE STOCK

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon, 66619, 2 years old. Dark gray. Dam weighs a ton. Liberty 74310. Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old. Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—Two Fine Registered Jersey Bulls. One is son of Brown Bessie's Twelfth Son and St. Lambert Dam. The other is Golden Fern, Sultanne, St. Lambert blood. Perfect forms. Price and pedigrees on application, Tribble Bros., Elk Grove, Cal.

For Sale or Exchange for good cow or heifers, brood sows and pigs of all ages. L. A. Thompson, El Monte, Cal. Home Phone Black 29.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Pure Bred New Zealand Rabbits, young does and bucks for breeders. Prices and stock right Write to Chas. W. Mixter, Banning, Cal.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

Three Holstein Friesian Bulls, splendid young animals for sale, well marked and subject to registry. Write at once to Geo. G. Roeding, Fresno, Cal.

WANTED

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big-paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, L 448 Marden Bldg., Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 200 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Wanted—Situation to keep ranch accounts by a competent bookkeeper. Address Thomas W. Ward, 520 15th St., Oakland, Cal.

MACHINERY

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, harness, disc, gang, walking, riding and side hill plowers; slip, Fresno and wheel scrapers; header, baler, seed sowers, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.

12 ft. steel aermotor, tower, 10,000 gal. tank, tank stand, pump complete, $150 f. o. b.; also many others at half new price.

ENGINES.

2 H. P. R. & V. engine, jack and pump complete, $99 f. o. b.; also many other sizes.

TANKS, TANKS, TANKS.

50 gallons to 50,000. Special price on 30,000 gallon. 20 tanks, 500 to 1,000 gallons, $5 to $14; 38 tanks, 3,000 gallons each, cost $48.50 new, at $29 while they last. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—Complete pumping plants, new and second-hand. Electric and gas engine driven. All sizes. Send us your details for our recommendations, irrigating appliances and pipe molds. We can save you money on your installations. H. U. Roeding & Co., Foxcroft Bldg., San Francisco, Cal.

Gas Engines—We have snaps in second-hand gas engines. Every machine guaranteed. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

DAIRY SUPPLIES

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles Phone Sunset Main 7496.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade, the live stock and poultry industries, are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

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Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

For Sale—One 5-passenger Winton auto, extra tires and inner tubes. Also one autocar runabout, fully equipped. M. Jacobs, 201 Howard St., San Francisco, Cal.

NURSERY STOCK

For Sale—Sour Orange Seed Bed Stock. Clean and thrifty, having excellent fibrous roots. $3.00 per hundred, $25.00 per thousand. We ship safely to all parts of the country. Armstrong Nurseries, Ontario, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Barbara, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

TREES

For Sale—About 3000 each of Washington Navels and Valencias, 1 to 2 ft. high, at 35c each. Also several thousand each of Washington Navels and Valencias, 2 ft. high and upwards, branched, at 50c each. All the above are 1-yr.-old buds; guaranteed clean, healthy, vigorous trees. Carroll B. Smith, Box 9, Redlands, Cal.

One thousand one and two-two Eureka Lemons, two thousand two-year Valencias, sweet and sour orange seed bed trees, five hundred camphor trees. Southland Nurseries, F. H. Disbrow, Prop., R. D. 1, Pasadena.

Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seed bed stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For Sale—Very cheap, 2000 choice navel or lemon trees, early 1912 delivery; care guaranteed. Half cash deposit required. O. E. Van Slyke, Glendora, Cal.

For Sale—A few hundred W. Navels of fine, vigorous stock from ¾ to 1 inch and 4½ to 5 ft. high. Nursery near Cypress Station on Santa Ana line. John L. Preston, Anaheim, Cal. Phone 1472.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

Marsh Seedless Grapefruit—600 large trees for sale. E. S. Thacher, Nordhoff, Cal.

MISCELLANEOUS

It requires but 2 to 4 cents worth of the darkest and cheapest honey to make a gallon of the richest and most delicious beverage drink. It is a perfect substitute for fruit where fruit is scarce, and a perfect substitute for water where water is poor. A tablespoonful of evaporated milk in a glassful makes buttermilk that is worth twice as much as the natural kind. Process and right to use it two years 25 cents. C. W. Dayton, Chatsworth, Cal.

For Sale—A modern seven-room house and lot 160x150 adjoining Whittier College campus. Mrs. C. L. McCleery, 705 E. Philadelphia St., Whittier. Phone 152.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

For Sale—Pure Italian queen bees, untested, one $1, three $2.70, six $5, twelve $9.50; tested, one $1.50, three $4, six $7.50, twelve $11.25. W. A. Gilstrap, Ceres, Cal.

RARE PLANTS

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nurserv. Pasadena. Cal.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Bronze Turkey eggs $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J Rhode Island Red and White Leghorn eggs and baby chicks.

White Holland Turkey Eggs from extra large vigorous stock, 35c each. Gobblers $7. Poults June 2nd 60c each, hen-hatched from my own stock only. Mrs. Hocking, Guasti, San Bernardino County, Cal. Winner of first prize Los Angeles 1911.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

POULTRY

This is My Last Notice for the Season. Those who desire eggs from either "Kellerstrass" White Orpingtons or Buff Wyandottes should write at once and book orders. Orpington eggs 20c each, Wyandotte 10c straight. Good stock. Satisfaction guaranteed. Frank Haasis, Ontario, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

Settings from splendid strains White and Buff Wyandottes. Prices reduced for months of May and June W. C. Parker, 113 Pacific Ave., Santa Cruz, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Kellerstrass White Orpington Eggs, $2.00 per 15; $12 per 100. R. L. Warren, National City, Cal. R. F. D. 1.

POULTRY

Lasher's Hatchery, 15 Kent St., Petaluma, Cal.—Why my chicks live and grow in the hands of my customers. They are all hatched from free range stock, bred right, mated right, fed right. I have the most up-to-date hatchery building in the country, built of brick, with dead-air space in wall, giving me a uniform heat that means strong, healthy chicks; 16 years in the hatching business, 10 years at present stand. It is no experiment or guesswork with me. Prices per 100, White Leghorn, from general flock, $7.25; special matings, $8.50. Leghorn cross, $7.25. Black Minorcas, $10. Barred Plymouth Rocks, $15. Terms, cash with order.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

White Orpington and White Wyandotte eggs for hatching. My winnings at Los Angeles 1911 were 1st cock, 1st hen, 1st and 2nd cockerel and 1st pullet on White Wyandottes. White Orpingtons, 1st, 3rd, 4th and 5th pullets, and 2nd and 4th hens. Eggs sell at $3.00, $5.00 and $10.00 per 15. Order direct from this ad and your order will receive my most careful attention. A. W. Huskins, 713 Waterloo St., Los Angeles, Cal.

The Goodacre Strains—Just the time to get our Quality Reds, our special offer on eggs from choice matings of $3.00 per 15 or $5.00 per 30 is hard to equal; our commercial day-old chicks we now offer in 100 lots at $12.00; our Reds have been constant winners the past three years in our Coast shows. We can sell you choice eggs, Buff Orpingtons, Anconas and White Runner Ducks. Write us today. Goodacre Bros., Compton, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Eggs $1.00, 15; $5.00 per 100. Chicks $15.00 per 100, $12.50 for incubator lots. R. I. Reds, Barred Plymouth Rocks and B. Orpingtons. A few B. Orpington pullets for sale. Cash with order or stamped envelope for reply. L. W. Neilsen, R. R. 2, Box 1 A, Petaluma, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. Eggs for hatching $5.00 per 100. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

BONNELL'S S. C. BLACK MINORCAS
WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs at $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

Baby Chicks from thoroughbred White Leghorns, "bred to lay," not simply chicks, but "Stock," the kind that breed true to color and fill the egg basket; May and June, $8.50 per 100; safe delivery insured. F. W. Dobbel, Buena Vista Poultry Yards, R. F. D. No. 1, Sonoma, Cal.

The White Wyandotte Farm — Eggs for hatching $1 per 15, or $6 per 100 in incubator lots. Day-old chicks $2.40 per dozen, or $15 per 100. Farm at Vista del Valle, on Covina line. P. O. address, Baldwin Park, Cal. C. M. Thompson.

Barred Plymouth Rock and Black Langshan eggs, $1.00 per 15; $5.00 per 100. Langshan cockerels, $2.00 each. Mrs. J. W. Greene. Waukena, Tulare Co., Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles. Cal.

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Hicks Jubilee Hatchery, now booking orders. Write us your wants. We use eggs from first-class stock only. Try us. W. J. Hicks, Petaluma, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

White Minorcas (Exclusively)—Eggs for hatching from first-class pure bred stock. L. V Peterson. Guerneville. Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos. Cal.

For Sale—Rhode Island Reds, mature stock, chickens a bargain to one taking the entire lot. Mrs. C. L. McCleery, 705 E. Philadelphia St., Whittier, Cal. Phone 152.

French Houdan Eggs $1.50 per 15, $4.50 per 50. Pen headed by prize winner. Mrs. Hocking, Guasti, San Bernardino County, Cal.

For Sale—Day-old chicks. Rhode Island Reds, 12½c, and Barred Rocks, good stock. S. Stone. Moneta, Cal.

For Sale—150 Purebred Barred Plymouth Rock hens, 15 months old, and 15 roosters. S. Malnick, Gossage Ave., Petaluma, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

FARM LANDS FOR SALE.

An Exceptional Opportunity to secure at a bargain, an ideal apple orchard, located in the best apple section of the world's greatest apple district—Pajaro Valley, Santa Cruz County, California.

The property consists of 51.85 acres. Number of trees, 3784. Number of bearing trees, 3601. Age of trees, 7 to 10 years. Varieties: Belleflowers, 926; Newtons, 1140; Spitzenbergs, 1219; Missouri Pippins, 203; Baldwins, 132; other varieties, 164.

Dwelling house, 4 rooms and storeroom, 3 porches. Packing house, first story 55x70, second story 38x70. Blacksmith shop, barn and wagon house; main building 25x40, shed 18x40. Chicken house 12x30, and small house. Cement tank for water, 6000 gals. Water piped to dwelling, chicken house and barn.

Personal property: Two horses, 2 sets harness, 1 heavy and 1 light orchard truck, 1 wagon sled, 1 spring sled, 1 gasoline engine, Bean pump and 150 feet spray hose, 1 wheel cultivator 2 side-hill plows, 1 drag harrow, 1 1000-gal. tank, windmill and pump. 2000 tree props, 150 cull boxes, 6 ladders, 25 chickens. Dec. 1st, 8 tons hay, forge, blower, tongs, pinchers and other tools Some pieces household furniture.

1910 crop 10,500 loose boxes—4450 Belleflowers, 2833 Newtons, 1711 Spitzenbergs, 1456 other varieties. Estimated crop for 1911, 20,000 boxes, or about 300 tons. Buyers now offering $25 per ton orchard run. Crop goes with place if sold before July 1st, 1911

This property is located about seven miles from Watsonville, only five minutes' walk to Corralitos Postoffice and splendid school. Soil: Santa Cruz loam and Pajaro sandy loam. No irrigation, no freezing, no burning. Ideal California climate. Price $17,500. One-half cash. Adjoining properties in same class are held at $500 an acre. For further details and list of 50 orchard bargains write at once to Watsonville Farm & Forest Realty Co., 320 Main St., Watsonville, Cal. Reference: Pajaro Valley National Bank.

40 Acres, near Dinuba, Tulare County, ¼ mile from Southern Pacific, 3 miles from Santa Fe, within 3 miles of three towns; all dry. Accredited high school, telephone, rural delivery. First-class soil, level and under irrigation in best and cheapest irrigation district in this state. Water right with land. Produced 14 tons dried peaches and 25 tons raisins in 1910. 2 acres variety fruits and nuts, over 100 varieties. 2 acres pasture. Plastered cottage, large tank house with 3 finished rooms. Excellent water piped to house and barn. Work shop, fruit, poultry and wood houses. Fully equipped for fruit drying with trays, boxes, transfer fruit car and steel track throughout. Everything about place in first-class shape. $1500 worth personal property. Everything goes with ranch, including furniture. Price $14,000. For terms address owner, Chas. F. Collins, Dinuba, Cal.

A Eucalyptus Snap—70 acres ideal sandy loam soil; 60 acres now planted to Eucalyptus; 30 acres 2 years old; 30 acres planted this year; 8 acres in full bearing Apples; 2 acres in Apricots. Net income last year $568; this year's fruit crop will bring $800. This will increase in value $50 per acre yearly. The bare land is worth the money asked. Price $8500. Write at once to Farm & Forest Realty Co., Bank Block, Watsonville, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station, climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Price $65 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

200 Acres Good Level Land—13 A. orchard; shade trees; 12-room house; 2 barns; windmill and tank house; fruit houses; cream separator; engine; etc. Price $21,000.

12 A. orchard home, good house, 4 rooms and bath, barn, fruit houses, windmill, equipment; complete place. $3600.

Yolo & Solano Counties. Wyatt & Wilson, Winters, Cal.

Another Bargain—80 acres of fine level land, sandy loam, no hardpan or alkali. Altitude 2500 ft. Very healthy. Will grow anything; no irrigation required. See the crops growing here in Santa Barbara Co. Owner needs money, so $20 per acre takes it; ½ cash, balance 3 yrs., 10 per cent. No trades. Wm. Mantz, Maricopa, Cal.

For Sale—One of the oldest and best orange groves in the Redlands Junction section. 10 acres, house, barn and outbuildings. This grove is a heavy producer and is a snap at $20,000. Only $5,000 cash, balance mortgage on place for a long time. John W. Shepardson, 215 Katz Building, San Bernardino, California.

For Sale or Trade—Five acres of land in Greenfield, under irrigation. Set to alfalfa and family orchard. Small buildings and well on place. Will exchange for other land, good cows or mares. Price $750.00. M. A Sloan, Greenfield, Cal.

San Joaquin Valley alfalfa land for sale with railroads, schools, electric power and cheap water at hand. 40-acre tracts and up at reasonable prices. Also several large stock and alfalfa ranches with artesian water. C. H. Biggin, Pixley, Tulare Co., Cal.

For Sale—Fine alfalfa ranch. 86 acres. Owner is hard up and must sacrifice. Only $300 per acre. $10,000 cash is all that is needed to handle this. Near Corona, half mile from railroad station. Abundance of cheap water. John W. Shepardson, 215 Katz Building, San Bernardino, Cal.

For Sale—Ten-Acre Poultry Ranch, fully equipped for 1,000 laying hens. 450 laying hens and 450 small chicks on place, all S. C. White Leghorns. Call on or address R. A. Claus, Greenfield, Cal.

For sale—80 acres of land, four miles south of Hanford in the heart of the dairy belt, nearly all in alfalfa. Good buildings, fences and water rights. All checked and leveled. Telephone and rural mail delivery. Address Frank McClellan, Hanford, Cal.

Pacific Coast Lands—Farm lands appraised for prospective investors. Reports on agricultural projects, soils, irrigation, drainage, etc. Paul Goodloe, 1049 Phelan Bldg., San Francisco, Cal.

FARM LANDS FOR SALE.

Eighty acres finest eucalyptus land, 4 miles from Santa Maria, Santa Barbara County, about one mile from railroad; price $2000, if sold at once. A. Frederiksen, Arroyo Grande, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—5 acres, joining Roeding Park, Fresno. Address Mrs. Florence L. Bollinger, Fresno, Cal., General Delivery.

FARM LANDS WANTED.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 12 Palace Bldg., Minneapolis, Minn.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S WHITE FOWL FARM, Moorpark, Cal

CARNEAUX IN CALIFORNIA

Carneaux and Plymouth Rock Homer Pigeons, guaranteed thoroughbred and mated. The largest breeding plant on the Coast. Satisfaction guaranteed. Postoffice Box 355, San Pedro, Cal.

QUERIES.

(Continued from Page 625.)

and am writing you as I want to right myself on this point for my own future work.—O. C. S., Pasadena.

There are several different causes for the yolk of the egg not being absorbed. You are entirely right in supposing that the non-absorption of the yolk is the cause of the death of your chicks. I have studied this subject long and earnestly, and the conclusions that I came to are that the reason the yolk is not absorbed or digested is because either the little bowels have been overheated or chillled just before or soon after exclusion, and that this overheating or chilling has so weakened the bowels that the yolk remains in the bowel cavity and there putrefies, and the chick dies of blood poisoning. Sometimes, if the chick has been several days hatched and most of the egg has been assimilated, the chick hatched from vigorous parents will only have a little diarrhoea or be "stuck up behind," and will recover from the attack, although he will probably not be as large and sturdy as if he had never gone through this illness. There is also another thing that prevents the yolk from being absorbed, and that is feeding the chick too early in life, feeding it before the yolk has had time to be absorbed. This draws the gastric juice to the crop and leaves the yolk, and it then takes as much as ten or twelve days to digest, and before that time begins to go bad. For that reason we are told not to feed the chicks till they are about two days old. This is nature's plan. The nearer we can copy nature in raising the babies, the better will be our success.—A. B.

Brown Spots on Fig Leaves.

Referring again to question as to brown spots on fig leaves, Mr. C. O. Smith, of the Southern California Pathological Laboratory, after examination of fresh leaves, says: "The trouble with the trees is one quite similar to what we are finding to be present in other localities in the state on fruit and nut trees. It is due without question to the long dry season of last year. We would advise irrigating liberally if the trees seem to require it, and possibly fertilizing the trees to start out vigorous new growth. I am observing the blackish spots on leaves, but cannot find they are diseased with fungus or other organisms."

White Scale.

I send box with scale or insect which is infesting my young orange trees. What are they, and how may I eradicate them?—R. C. H., Anaheim.

This is the cottony cushion or white scale, more properly icerya purchasi. It is easily controlled by distillate or whale oil soap spray, or still better by fumigation. Without question, if you will write to the State Horticultural Commissioner, Sacramento, and ask for a colony of vedalia, it will be supplied, and that will probably be sufficient. This little predaceous insect has always proven abundantly able to cope with the pest.

Fumigation vs. Scutellista.

I am not long a resident of the state, but I have acquired two things I value since I came, viz., a subscription to the California Cultivator, and an orange grove of ten acres. I like the Cultivator first-rate and as a mark of faith I write for advice. An agent for a fumigating company called on me this week to sign up for fumigating next fall. I have been planning to send for some scutellista to turn loose in the orchard, but cannot get the address where to apply for them. I have some scale in my orchard, but I have to hunt to find many, and think from what I have learned that the scutellista would clean them out.—J. A. S., Covina.

We do not think that we would depend upon the scutellista or any other insect to control scale in the orchard unless it be the vedalia to control white scale. This little worker has fully made good, as has the scutellista in many cases. The investment in an orchard and the cost of irrigation, cultivation, taxes, etc., is so great that an orchardist cannot afford to experiment or to wait for slow action on the part of our insect friends. If there are pepper trees adjoining or near the place, they might well be colonized in order to establish a good colony. Colonies may be had by addressing State Horticultural Commissioner, Sacramento.

Chuckawalla Valley.

Please give me information regarding lands in Chuckawalla Valley and Palo Verde in eastern Riverside County. Can a man with small amount of capital make a living there? Is the soil good, and how is the climate? Is there much rain? How deep to water?—Subscriber, Burbank.

The Chuckawalla Valley is not yet far enough advanced for any definite information regarding it. As to soil we believe it is all right, a deep silt loam prevailing over most of the lands. The climate is very much like that of Imperial so far as anyone can tell, though there have never been continued observations. There are a few wells in the valley, but so far as we have learned not with sufficient water to be used for irrigation; some give only salt water. Water for irrigation is planned ultimately to be delivered by the Chuckawalla Development Company which is now about to construct a dam in the Colorado River. The Palo Verde Valley, a few miles east of the Chuckawalla is already partly supplied with water and other conditions are practically the same, excepting that the soil is heavier than in Chuckawalla. Both sections need a railway to give outlet for their products before any great prosperity can come to them. Ultimately both, we believe, will be sections of great wealth.

Three Queens in Small Hive.

My hives are 12 by 20 with six frames each. What time of the year can I take honey and how much from these hives? Do three queens ever bunch together in one swarm? I had three bunches of bees hanging on different trees and after two or three hours they all went together and I put them in one hive. The following morning they came out. Was it possible there was more than one swarm and was the hive too small?—M. E. M., Santa Ana.

This question was referred to Mr. Albert Dodge of Pasadena, and he answers:

"You may look for honey being gathered by your bees in your locality during this month and next. The quantity depends so much on the condition the colonies are in that no estimate can be made. Your hives are too small, but if you give them plenty of comb in upper stories, and do not limit the room for brood rearing too much, you should get a fair quantity of honey, otherwise you are apt to be troubled with excessive swarming and consequent loss in the honey crop. During the swarming season frequently two or three or even more swarms will come out at the same time, each from a different hive and unite in the air. If hived together they may not stay in the new hive. Where possible the queens should be separated and placed in separate hives, and the cluster of bees divided and apportioned among those hives with the queens. By putting a frame of brood with eggs in the cells in each hive it will not only help hold the bees in the hive, but should you fail to get the queen in the hive, the bees will proceed to raise a new queen from the eggs in the comb. It is possible that the swarm you speak of was so large the bees would not remain in such small quarters as you provided for them, even though there was but one swarm, and it came from a small hive. Your hive should be not less than 14 by 20, and 16 by 20 is preferred by most beekeepers.

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

Potash on Orange Trees.

How much potash can safely be applied to seven and eight-year old orange trees? I wish to apply it for the purpose of hardening wood and smoothing up fruit? What form of potash is best to apply?—Subscriber, Glendora.

The subscriber asks a question which, like many others which come to this office, is impossible to answer with much satisfaction. Intelligent fertilization must be founded on some knowledge of soil and sub-soil, mechanical and chemical conditions and former treatment. However, this question was referred to Dr. Chas. B. Lipman and he gives some valuable general information as follows:

I cannot reply directly to the question which your correspondent asks, because I do not believe that any experimental work has been done which casts the least light on the effect of potash on "the hardening of the wood and the smoothing up of the fruit," to quote from your own letter. That being the case, I can see no necessity, nor can I see the wisdom of random application of potash fertilizers in trying to attain objects which they have not the power, so far as we know at the present time, to bring about. Moreover, if I had evidence of a lack of potash in the soil of your questioner for normal plant development, I should say that he might attain the objects which he has in view, because an abnormal plant will not have the power to produce a hard wood and a smooth fruit, but that I do not know, and, further, I have no information as to the mechanical condition of the soil in question, nor as to the other chemical constituents, especially plant food ingredients, which may be present there. If I knew how these matters stood with respect to that soil, and how it had been plowed and cultivated, how irrigated and fertilized, whether or not cover crops were used, whether or not liming was at all practiced, I think that I should be able more readily to give some intelligent reply to your question.

You ask another question with reference to the best form in which to secure potash, which either for your purpose or the case in question, I am glad to reply to, and that is that I believe the sulphate of potash is the best form of potash fertilizer to use: First, because it is a high grade product with a high percentage of potash, and therefore necessitates less filler and less freight on filler; and, secondly, because it does not seem to have any harmful effects on certain plants, as does the chloride of potash, commonly known as muriate of potash, which in every other way may be as high grade a fertilizer.

I might add one word more with reference to the matter above discussed, and that is that our information at the present time with reference to the definite functions of potash in plant nutrition, our information with reference to the same material and its relation to its natural supply in our soils, our information with reference to the biological effects of potash fertilizers in soils, and finally on the mechanical condition of soils, is so slight and in such confused condition, that I believe no one is justified in drawing hasty conclusions from random experiments carried out by growers in an unsystematic way.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

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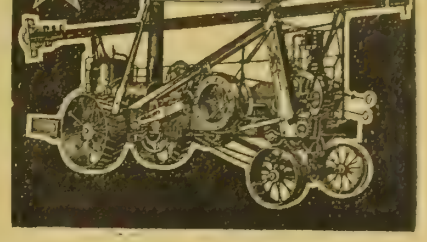

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How are you going to know what sort of timber is

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Even if you were a wagon expert you couldn't tell.

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Household Department

WILL AND BEES.

My grandpa is the greatest man in
all the world, I bet,
And all his hair has turned as white
as it can ever get;
But one day, when they didn't know
that I was there, I guess,
My grandma called my grandpa Will
and he called grandma Bess.

My grandpa's kind of tall, and once
he held me on his knee
And said I was the kind of boy my
father used to be;
And then he laughed and grandma
cried—I don't know why she
should,
Because my father hasn't died, and
his health's awful good.

My grandpa's very old and seems to
know most everything,
And people bow to him so low you'd
think he was a king;
But something funny happened once;
I think about it still—
My grandpa called my grandma Bess
and she called grandpa Will.

THE STORY OF THE ONE CENT LADY.

At the junction of Union Square and one of the cross streets leading out of it there is a fruit stand kept by two Italians—one thin and dark and bent, the other plump and red-cheeked and blue-eyed, although his hair is black.

Every evening about 6 o'clock a frail little old lady, with tiny clusters of veins like seaweed about her temples and little rosettes of wrinkles about her soft brown eyes, used to stop at the fruit stand on her way home from the publishing house on the opposite side of the square. It was always from the "one cent each" tray that she purchased, and so after a while she came to be known to the fruit partners as "da one cent lady." She had a ready smile and a quaint, old-fashioned courtesy that was not kept for special occasions, and the Italians had learned to watch for her and to miss her when she did not appear.

Long before her hair had whitened and her eyes dimmed the One Cent Lady had begun to work for the firm across the square, clipping book notes from the newspapers and magazines. And the firm had let her stay on during these last years, although she had ceased to be af any actual service to them. Her salary had never been large, and its capacities seemed to shrink with her increasing frailties. More than once she had gone a block out of her way on her homeward journey so as not to pass the corner of temptation, for fruit was the one indulgence she allowed herself.

On the occasion of one of these periods of disappearance, which had lasted for several days, the keepers of the fruit stand consulted together with much lifting of eyebrows and shrugging of shoulders. It might even be that she was ill. At last the thin one took down a paper bag, several sizes larger than the one usually required for her purchases, and filled it from the "two for 5" division in his display, putting a 5-cent orange on the top.

The red-cheeked one took it across the avenue to the dingy-faced house where she lived, and not knowing her name, left it for the "ol' lady—pretty lady—ane one cent a lady."

Somehow it reached her, and although the two men waived all responsibility in the matter, and stoutly refused payment, still the lonely lady knew the truth in her heart. Stray papers and magazines began to find their way to the fruit stand—papers from "we-a home, Papoli," among them. There were few words on either side; those who live life close to the bone have less need of speech, but month after month there grew a simple understanding that would not shame the name of friendship.

One afternoon in late July the One Cent Lady, crossing the hot, flagged walks of the square, suddenly felt too weary to go on. There was one vacant bench left on the shady side of the circle, and she sat down limply on it. The city, like a great hour-glass turned, was pouring its busy crowds back into their homes. But the One Cent Lady sat quite still, her eyes on the dancing fountain. The red-cheeked man watched her for some time, then went over to her.

"This is very good of you," she said slowly, and almost as if she had been expecting him. "Will you help me home?"

The next day she did not come—nor the next. On the third day, with a troubled face, the tain, bent man put on his coat, and carefully brushing his cap with his sleeve, set off down the street with a bag of his best grapes.

But she would not need them, they told him kindly at the door; she had died that morning. Was he the fruit stand man? She had left a little parcel addressed to him; they would get it for him if he would wait?

He waited, speechless, his cap in one hand, his grapes in the other. When, on his return to the fruit stand, the two, with reverent hands, opened the package, they sat down and cried like children. It held a small Neapolitan watercolor—the sole ornament of its owner's room—and a slip of paper with the words, "For the two friends who helped to brighten my days."

No more fruit was sold that day. Instead, more than a week's earnings went for the purchase of a great armful of snowy roses—roses such as were rarely seen in the dingy-faced house where the One Cent Lady lay, as still and almost as white as they.

The little bit of color that was her gift hangs, framed and protected, inside the fruit stand at the corner, where passersby who, seeing only the surface of things, still call this big city of theirs a cold and heartless place.—Esther Harlan in Youth's Companion.

SELLING BY APPEARANCE.

Is your place for sale? If so, have you done anything to make it more attractive in the eyes of the prospective buyer?

Many a farm has been placed upon the market for disposition and sold at a price that could have been greatly enhanced had the seller touched it up here and there. Also, there are farms that have not been sold, for the reason that they were permitted to remain in a state of semi-decay—visual evidence to the buyer, as he sees conditions, that the place may have been unproductive.

Question of Soil.

Naturally, the first consideration of the purchaser of a farm is the question of soil. To that he gives immediate attention; but also does he cast his glance about the environments. If he finds the fences down here and there, or sagging badly; should he notice piles of refuse thrown into odd places; were he to discover rotten timbers in the outbuildings, he would give due heed. Should the house be devoid of paint and sadly in need of repairs, it would add to his calculations of the deductions he would make in his offer, supposing he considered the land worth a purchase.

The Weak Spots.

Are the weeds triumphant everywhere and would it not materially add to the looks of things to kill them? Is the farm machinery in order; has it been safely housed from the destructive weather elements, cleaned and bearing evidences of care? Is the pump, or the windmill, in good condition, together with the countless incidentals that show wear and tear?

Dressing up a farm for sale requires no specially onerous or expensive outlay of time or money, compared with the net returns that would come from a smart and attractive appearance of the property. Your profits will be magnified if your place has an enterprising, snappy look; while inversely, should the farm bear the hallmarks of carelessness and disintegration you stand the chance of a prospect passing by or otherwise making you an offer not approximating the value you have placed upon the farm.

The best looking farm brings the highest price in the market, and as it is a matter of dollars and cents it would seem to be a good business stroke to put a salable property in the very best condition for the benefit of a prospective purchaser.

SALT'S MANY QUALITIES.

Besides being an esesntial part of the culinary art, salt has many other uses perhaps not generally known. Salt cleanses the palate and furred tongue, and a gargle of salt and water is often efficacious. A pinch of salt on the tongue, followed ten minutes after by a drink of cold water, often cures the ick headache. Salt hardens the gums, makes the teeth white and sweetens the breath. Salt added to the water in which cut flowers stand keeps them fresh. Salt used dry in the same manner as snuff will do much to relieve colds, hay fever, etc. Salt in warm water, if used for bathing tired eyes, will be found very refreshing. Salt and water will stop hemorrhage from tooth extraction.

RHYMED RECIPES.

Orange Compote.

Take oranges of medium size,
The peel remove I pray;
From each a round cut from one end
And scoop the seeds away.

Fill up the little cups thus formed
With strawberry-preserve—
That flavor mixed with orange-juice
Is more than most deserve.

Then top each orange with whipped cream,
A cap all soft and white,
Made up of puffs, while for rosettes
The strawberries gleam bright.

On separate plates the fruit then serve
With lady-fingers slim
And I've no doubt a king would say,
The dish was fit for him!

Butter-Scotch.

One cup of sugar—brown, not white—
One half of water clear,
One teaspoonful of vinegar
(In candy—oh! how queer),
A piece of butter, walnut size,
Add flav'ring to your taste;
Now boil some twenty minutes, say,
Then take it off with haste.

Chocolate Caramels.

One cup of sugar, one, also,
Molasses-filled and one of milk,
Small spoon of butter—these, you know,
With chocolate, grated fine as silk
(Unsweetened, too, a quarter pound),
Are creamed by stirring 'round and 'round.

This mixture's boiled until it's done
(Cracking in water proves that true),
Then into buttered pans it's run,
Inch-thick or even less will do;
Now one thing more and all is told—
Mark off in squares when nearly cold.
—Woman's Home Companion.

THE DECAY OF MANNERS.

Thomas Nelson Page writes in the April Century "On the Decay of Manners"—manners which are the hallmarks of "that life of quality, the foundation of which is good breeding, the native air of which is refinement, and the membership of which are all gentlefolk the world over." Here are some of his points:

"The bloom on the ripened fruit of civilization, and the proof of its perfection, is delicacy."

"Whatsoever the form may be, and there are many forms in which good breeding may present itself—as many, indeed, as are the incidents of social intercourse—whatever tends to put at ease the person one meets is good manners, and whatever tends to the opposite is rudeness."

"Whoever takes advantage of another we know cannot be a gentleman, for the first word of the law of good breeding, as the last, is kindness. The Golden Rule contains the last word of manners, as it does on most other laws of living."

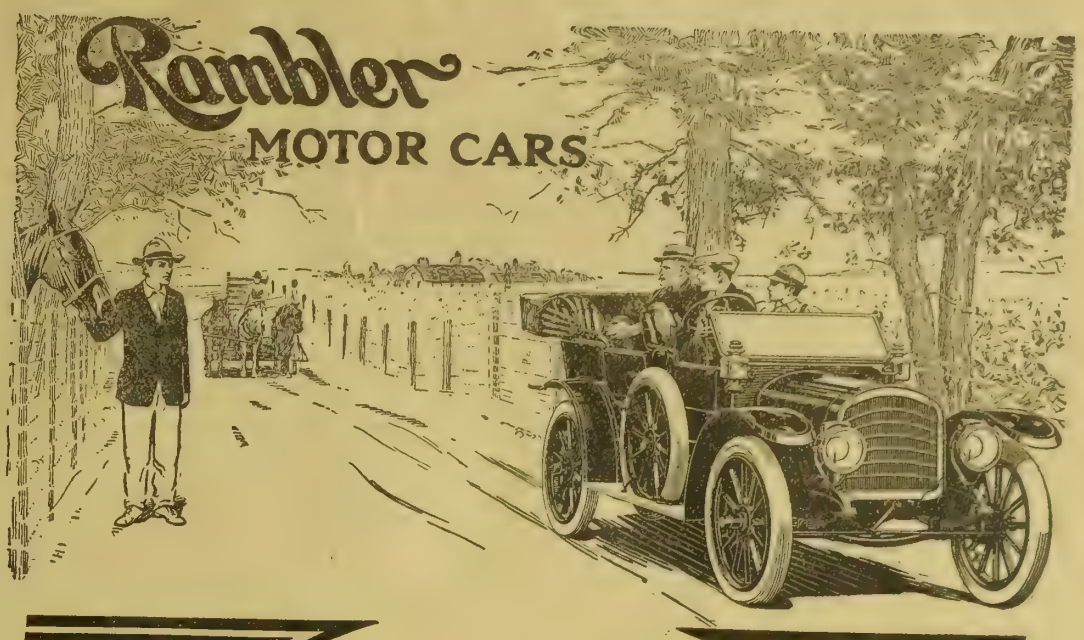
"The express train and the 'crush-hour' are in many ways great advantages, but they are not conducive to good manners.

"To revive ancient good breeding and bring back the old-time manners, it is necessary to set aside money as the chief foundation of respect, and to set up once more the ideals of courtesy and kindly conduct.

"Women make both the manners and the morals of the people. Neither rises higher than the gage which women set in a community."

"If those who are gentlefolk—who possess the rare, but often unprized, treasures of refinement, culture, taste, and high ideals of living and thinking, would scrupulously hold themselves above pandering to vulgarity simply because if has wealth behind it, a society would soon be formed which would have not only the stamp of good breeding, but, as possessing the thing itself, would have the authority and power to dictate its own terms."

A fore-handed man is much better than a three-handed one. I never heard of a three-handed man. Well, Cubbage is one. He's a right hand, a left hand, and a little behind hand.—New York Sun.



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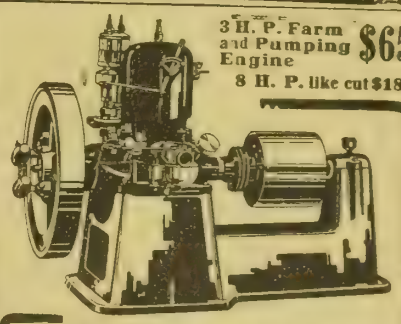

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When writing advertisers, mention Cultivator.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 17., 1911.—

Butter.

Daily receipts of butter about 66,000 pounds with quotations exactly as last week, but with easier tone to market.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	23½
Firsts	22
Ladles	18
Country	14

Cheese.

Oregon Daisy	16½@17
Northern	15
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Egg market is steady with heavy demand and receipts nearing the 500-case mark.

Paying price f. o. b. Los Angeles is:

Local ranch candled	23½
Case count buying price	19½
Northern	17½@21
Eastern	21

Dealers pay for live poultry f. o. b.:

Hens, per lb	12@14
Roosters	10@12
Broilers	23
Fryers	25
Roasters	25
Turkeys	23@26
Ducks	20
Geese	16
Guinea hens, doz	4.00
Squabs, doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7
Prime steers	6
Heifers	6
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.25@2.40
Oregon	2.90@3.00
Sweets, yellow, cental	8.00
New potatoes, lugs	1.10@1.35

Onions.

Wholesale quotations:

Imperial, crates	1.90@2.00
Silverskins, box	1.00@1.10
Texas Bermudas	1.90@2.00
White Wax, crate	2.25
Garlic	10@12

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	50@80
Asparagus, lb.	4@7
Beets, doz. bunches	35
Bell peppers, lb.	35
Beans, lb.	8@10
Beans, wax	8@10
Green chilis	25
Cucumbers, Texas, box	2.00@2.25
Cabbage, sack	90@1.00
Celery, crate	4.00@5.00
Carrots, sack	90@1.00
Corn, doz.	25
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, doz	40
Lettuce, crate	1.25@1.75
Oyster plant, doz	40
Peas, lb	4@6
Parsley, doz bunches	35@40
Parsnips, doz bunches	50@60
Radishes, doz bunches	20@25
Rhubarb, Strawberry	1.25
Rhubarb, crimson winter	75@90
Spinach, doz	20@25
Squash, summer	70@90
Tomatoes, Mexican, crate	2.25
Turnips, sack	1.25@1.50

Citrus Fruits.

Navels	2.75
Grapefruit, seedless	1.75@3.00
Lemons	1.25@1.75
Tangerines	1.75@2.00

Fresh Fruits.

Wholesale prices on the market are:

Alligator pears	3.00@4.00
Pearmains	2.75@3.00
Newtown Pippins	2.50@3.00
Cherries, black, box	1.75
Cherries, bulk, lb	15
Bananas	4½
Loquats, lb	3@5
Pineapples	10
Blackberries	7@8
Raspberries	12@15
Strawberries	5@7

Dried Fruits.

Wholesale prices are:

Apricots	16
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	9@10
Nectarines	10
Pears	13@14
Prunes	12@14½
Plums	10

Beans Dried.

Wholesale quotations:

Limas	6.75
Black eyes	7.50
Pinks	6.00
Lady Washington	4.25
Small white	3.75@4.00
Mexican reds	5.00@5.25
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	17@18
Chestnuts	10@12
Almonds, IXL, lb	17@18
Pecans, polished	15@18
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

The army worm has made inroads in many alfalfa sections and reduced the present cutting, so that a material though supposedly temporary advance has been made.

Buying prices f. o. b. cars Los Angeles are:

Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	13.00@15.00
Alfalfa	11.00@13.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.75@1.80
Corn	1.60
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.95
Seed barley	1.56
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.65
Cracked wheat	1.90
Shorts	1.85
Bran	1.50@1.60
Oil cake meal	2.50
Feed meal	2.50
Rolled barley	1.55

San Francisco Market

SAN FRANCISCO, May 16, 1911.—

Butter.

With receipts between 71,000 and 72,000 lbs. daily the butter market is firmer and a half cent advance is made.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	23
Prime firsts	22½
California firsts	22
Seconds	20

Cheese.

California flats	10@12½
Cal. Y. America, fy, new	13½@14
Oregon fancy	12½

Eggs and Poultry.

Market in eggs is much firmer in tone and a slight advance is noted.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	21½
Prime firsts	20½
Seconds	18½
Select pullets	19
Firsts	19½
Eastern seconds	17½
Hens, doz	4.50@10.00
Fryers, doz	6.50@7.00
Ducks	6.00@10.00
Broilers	2.00@4.00
Roosters, doz	4.50@10.00
Geese	2.00@2.50
Pigeons	1.75@2.50
Squabs	2.00@3.00
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	5@6¼
Cows and heifers	4@5¼
Calves, lb	5½@6½
Hogs	5@7
Milk lambs	5¾@6
Wethers, No. 1, unshorn	5@5¼
Ewes, No. 1, unshorn	4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

Salinas Burbanks, cwt	2.85@3.00
Oregon Burbanks, cwt	2.50@2.65
Lompoc	2.85@3.00
New potatoes, lb	2½@3

Onions.

New green, box	50@65
Red, new, sack	2.50
Australian brown	3.50@3.75
Bermuda seed	1.75@2.00
Garlic, lb	4@5

Vegetables.

Wholesale quotations:

Asparagus, box	75@1.50
Beans, string	5@11
Cabbage, cwt	40@50
Carrots	60@75
Cucumbers, hothouse, doz	50@1.50
Celery, crate	1.50@2.50
Beans, string	10@20
Chili peppers, lb	20@25
Egg plant, lb	15@20
Lettuce, crate	75@2.00
Okra, lb	15@20
Peas, sack	1.75@2.25
Rhubarb	75@1.25
Summer squash	75@1.00
Tomatoes, Mexican, lug	2.00@2.25
Turnips	60@75

Citrus Fruits.

Navels, new	1.25@3.00
Valencias	2.00@2.75
Grapefruit	75@2.50
Lemons	1.75@4.00
Limes, Mexican	4.50@5.00
Tangerines, halves	1.25@2.00

Fresh Fruits.

Alligator pears, doz	75@1.00
Apples, box	1.75@2.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.90@2.00
Spitzenberg	1.50@2.75
Cherries, Purple Guignes	1.50@1.75
Cherries, Black Tartarians	2.00
Cherries, white, box	75@1.00
Gooseberries, drawer	1.50
Bananas, Hawaiian	1.00@1.50
Raspberries, basket	15@17½
Strawberries, Southern, crt	1.00@1.75
Strawberries, Lgwths, ch	9.00@11.00
Malindas, chest	6.00@8.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b. carload lots, per lb.—Apples, 11¾@13c; Apricots, 12½@15½c; do, Moorparks, 14c; Peaches, 7¼@8¼c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 11½c; Prunes, 1911 contracts, 4⅜@4½c, with a premium of ½c and 1c on large sizes; Figs, 1911, 4½@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: Seeded, per pkg. —Fancy; No. 16, 7@7½c; Choice, No. 16, 6¾@7¼c. Loose Muscatels in 50-lb. boxes—Standard 4-crown, 6@6¼c; do, 3-crown, 5½@5¾c; do, 2-crown, 5¼@5½c. Seedless—Muscatels, 4¾@5c; Sultanas, 5½@5¾c; Thompsons, 6@6¼c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	14½
Almonds, '10 Nonp	16½
Almonds, '10 I X L	15½
Almonds, Peerless	13
Pecans	14@17
Chestnuts, California	6@8

Beans Dried.

Limas	6.30@6.40
Pink	5.20@5.25
Black eyes	6.50@6.75
Small white	3.40@3.45
Large white	3.35@3.40
Kidneys	6.25
Garbanzos	2.75
Bayou	4.60@4.75
Horse beans	3.00
Red Mexicans	5.25
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	21@24
Hops, 1911 contracts	17@20
Hops, 1909	17@19
Hops, Oregon	14@17

Honey.

Water white, comb, '10	13@15
Dark comb	12@12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner and Miller say:

Arrivals of hay for the past week have amounted to 2935 tons, an increase of 50 per cent over last week's arrivals, which were 1927 tons. These receipts consisted chiefly of the medium and poorer grades, which have moved off slowly. A few cars of fancy which have arrived have sold at 50 per cent above our top quotations, but it is so seldom that a fancy car is in evidence that it is hardly quotable. Fancy red oat hay would also bring in excess of our top quotations were it available.

Considerable buying of old crop is reported from country districts at prices at which it could not be handled on this market at the present time, buyers evident figuring on holding same for a raise in the market which is extremely dangerous at this time of year, as crop conditions are daily reported better owing to the cool weather which has continued throughout the week, and we now believe that our new crop will be much larger than many figured a few weeks ago, in which case we do not look for any advance in the present market. Reports state that cutting of hay is becoming general in the San Joaquin Valley district, and that new hay will probably be shipped to this market within the next ten days. This, of course, will have its effect on prices of old hay.

There is practically no movement of alfalfa hay.

We quote the wholesale prices in round lots on today's market as follows, viz:

Fancy wheat hay	13.50@14.50
No. 1 wheat or wheat & oat	11.00@12.00
No. 2 wheat or wheat & oat	10.00@11.00
Choice tame oat	10.00@12.50
Other tame oat	8.50@10.50
Wild oat	9.00@10.00
Stock hay	6.00@8.00
Alfalfa	9.00@10.50
Straw, bale	40@50

Grain.

Barley, fancy	1.50@1.51¼
Barley, good to choice	1.45@1.48¾
Barley, poor to fair	1.40@1.45
Oats, white	1.50@1.60
Rye, new crop	1.40@1.50
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	28.00@29.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	32.00@33.50
Rolled oats, ton	29.00@30.00
Middlings	33.00@35.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	29.50@30.00

"I cannot understand ze Engleeshe language," said the desperate Frenchman. "I learn how to pronounce ze word 'hydrophobia,' and zen I learn zat ze doctors pronounce it 'fatal.'"—Tit-Bits.

Make the most uv ev'rything, beginnin' with yewrself.

Citrus Fruit Market

LOS ANGELES, May 17, 1911.—With Navels running largely to over sizes, also becoming a little bit soft and some of them not arriving in market in the best of condition, there is a very slight easing of the orange market. The better grades and firmer fruit, however, are practically up to the quotations of last week. Valencias are being forwarded from some sections and the fine quality is commanding top quotations. Another week, or possibly two, will see Navels and all others excepting Valencias, cleaned up at this end, although those in transit and cold storage will keep them in the markets for a few weeks.

The quantity of foreign lemons afloat is much smaller than usual and Californias are being well received in all markets; prices if anything are rather better and will continue improving as the weather warms.

Shipments of oranges to date since November 1st, 1910: 26,437 cars; lemons 3385; total 29,772. To same date last season: Oranges 18,173, lemons 2450; total 20,623.

LOS ANGELES, Wednesday May 10.—Six cars of oranges were sold here today.

	Avge.
Heap Good, Fy, Or, Valencias, Riverside, not shipped	$2.15
Heap Good, Fy, Valencias, Riverside, not shipped	1.90
Red Raven, Fy, Bloods, Riverside, shipped May 6, pre-cooled, iced	1.55
California, Ch, Bloods, Riverside, shipped May 6, pre-cooled, iced	1.30
Lone Palm, Xc, Sweets, Santa Ana, shipped May 8, iced	1.45
Tourist, Ch, Sweets, Santa Ana, shipped May 8, iced	1.35
Beach, Sd, Sweets, Santa Ana, shipped May 8, iced	1.20
Independent, Or, Sweets, Highlands, shipped May 8, iced	1.60
Beauties, Sd, Sweets, Highlands, shipped May 8, iced	1.35
Triumph, Or, Seedlings, Riverside, not shipped	1.55
Hemet Heights, Sd, Riverside, not shipped	1.30
Red Raven, Fy, Riverside, St. Michales, not shipped	1.60
Heap Good, Fy, Or, Budded Seedlings, Riverside, not shipped	1.35

LOS ANGELES, Friday, May 12.—Six cars oranges sold.

	Avge.
Equator, Valencias, Fy Or, Santa Ana, not shipped	$2.17½
Blue Ball, Sd, Val, Fy Or, Santa Ana, not shipped	1.92½
Heap Good, Fy Or, Val, Riverside, not shipped	2.15
Equator, Fy Or, Sweets, Santa Ana, not shipped	1.55
Blue Ball, Sd Or, Sweets, Santa Ana, not shipped	1.30
Triumph, Or, Seedlings, Riverside, shipped May 10, iced	1.42½
Hemet Heights, Sd, Seedlings, Riverside, shipped May 10, iced	1.17½
Independent, Or, Sweets, Highlands, shipped May 9, iced	1.62½
Beauties, Sd, Sweets, Highlands, shipped May 9, iced	1.37½
Heap Good, Fy Or, Budded Seedlings, Riverside, not shipped	1.50

LOS ANGELES, May 15.—One car Valencias, one sweets, one seedlings and one lemons sold.

	Avge.
Heap Good, Fy Or, Valencias, Riverside, not shipped	$2.15
Equator, Fy Or, Sweets, Santa Ana, not shipped	1.65
Blue Ball, Sd, Sweets, Santa Ana, not shipped	1.40
Heap Good, Fy Or, Budded Seedlings, Riverside, not shipped	1.57½
Stock Label, xc, Lemons, Los Angeles, not shipped	2.10
Stock Label, Sd, Lemons, Los Angeles, not shipped	1.85

NEW YORK, May 15.—Forty-two cars navels, three bloods, seven seedlings, seven sweets, one Havana seedlings, eight St. Michaels, one Valencia and one lemon sold. Market lower on oranges; unchanged lemons. Fair.

NAVELS—	Avge.
Pinnacle Iced, O K Ex	$3.95
Majesty Iced, O K Ex	2.70
Athlete Iced, S A Ex	3.00
Golden Crown Iced, A C G Ex	3.75
Red A, (Red X)	2.85
Prong Horn Iced, O K Ex	3.30
Buck Iced, O K Ex	2.65
Lotus Iced, O K Ex	3.85
Monogram Iced, O K Ex	2.85
Diamond S, Iced, O K Ex	2.60
Iris Iced, D M Ex	3.40
Violet Iced, D M Ex	2.80
Jasmine Iced, D M Ex	2.15
Golden Cross Iced, O K Ex	3.55
Red X Iced, O K Ex	2.75
Blue Jay Iced, O K Ex	2.00
Doe Iced, O K Ex	2.65
Robusta Iced, A H Ex	2.95
Segunda Iced, A H Ex	2.50
Hobo Iced, A H Ex	2.10
Quail Iced, O K Ex	2.40
Heart of Gold Iced, A F, High	3.20
Honor Bright Iced, A F, High	2.75
Eagle Iced, A F, High	2.70
Glendora Heights Iced, A C G Ex	2.05
Blue Globe, I M P Iced, Rix Ex	3.20
Red Globe, I M P Iced, Riv Ex	3.05
Carlo Iced, S A Ex	2.60
Knight Iced, or., Elu Gilmore	3.05
Bishop Iced, or, Elu Gilmore	2.55
Mahala Iced, L V W, Brown	3.20
Swastika Iced, L V W, Brown	2.60
Green Banner Iced, Sutherland	2.70
Laverne Heights Iced	2.35
Wildflower Iced, ch, Randolph	2.30
Lighthouse Iced, sd, Randolph	2.10
Golden Sceptre Iced, Rialto O	2.20
Orchard, or, National O	2.40

SEEDLINGS—
Butterfly Iced, Covina Ex..... 2.25
Red C Iced, Covina Ex..... 2.20
Red Globe Iced, Riv. Ex, Riv..... 2.30
Outing Iced, Riv. Ex..... 2.05
Violet Iced, D M Ex..... 2.65
Jasmine Iced, D M Ex..... 2.30
Golden Orchard, Fy Or, Ind F..... 2.15
Santa Anita Iced 2.40
El Toro Iced 1.95
SWEETS—
Glendora Hgts Iced, A C G Ex....$2.20
Gold Buckle Iced, A H Ex..... 2.70
Glendora Hgts Iced, A H Ex..... 2.25
Titus Ranch Iced, San Marino..... 2.90
Heap Good Iced, Pattee & Lett..... 2.25
Camellia Iced, xf, Red M O Dis.... 2.70
Redlands Best Iced, Red M O Dis... 2.20
ST. MICHAELS—
Carmencita Iced, S T Ex.....$2.80
Colombo Iced, S T Ex..... 2.50
Red Shield Iced, A C G Ex..... 2.85
Green Crown Iced, A C G Ex..... 2.50
Gold Buckle Iced, R H Ex..... 2.90
Butterfly Iced, Covina Ex..... 2.65
Carmencita Iced, S T Ex..... 2.80
VALENCIAS—
Glendora Hgts Fy, Iced, A C G..$3.80
Glendora Hgts Cr, Iced, A C G..... 3.50
Evolution Iced 2.75
Glendora Hgts, Fy Iced, A C G Ex... 3.95
Glendora Hgts, Ch, Iced, A C G Ex. 3.50
Evolution Iced 2.90
Camellia Iced, Red M O Dis..... 3.25
GRAPEFRUIT—Carmencita Iced, $1.60; Santa Anita Iced, $2.00.
BLOODS (Halves)—Quail Iced, $1.40; Heart of Gold Iced, $1.40; Red C Iced, $1.35; Golden Sceptre Iced, $2.40; Uplander Iced, $1.55.
ST. MICHAELS (Halves)—Glendora Hgts Iced, $1.45; Kenilworth Iced, $1.50; Blue Globe Iced, $1.35; Camellia Iced, $1.40; Magnolia Iced, $1.50.
TANGERINES (Halves)—Bear Iced, $1.70; Camellia Iced, $1.00.
LEMONS—
Laurel $3.60
Princess 3.15
Santa Anita Iced 2.85

CLEVELAND, May 15.—Four cars navels, two lemons, five mixed cars sold. Market higher all varieties. Weather favorable.

NAVELS—	Avge.
Colombo, S T, Fullerton	$2.55
Morning Glory, S A Ex	2.55
Royal Knight, R H Red	3.15
Moose, O K Ex	3.55
Carmencita, S T, Placentia	3.45
Morning Glory, S A Ex	2.30
Holly, Covina Ex	2.50
Newsboy, R H Red	2.95
Prong Horn, O K Ex	3.40
Colombo, S T Placentia	3.25
SEEDLINGS—	
S. S., S S Orange	$2.75
Billiken, Riv Pach	2.50
Fiesta, Riv Pach	2.75
Playmates, R H Red	2.90
SWEETS—	
S. S., S S Orange	$2.45
Billiken, Riv Pach	2.70
Fiesta, Riv Pach	2.75
LEMONS—	
Monte Vista	$2.65
Oriole	2.85

GRAPEFRUIT—Carmencita, $1.70.
VALENCIAS—Searchlight, $3.10.
GRAPEFRUIT—Carmencita, $2.15.

ST. LOUIS, May 15.—Eleven cars sold. Muggy. Market weak on navels.

NAVELS—	Avge.
Red C, Covina Ex	$2.35
Hunter, A C G, Azusa	1.40
Spanish Girl, A H P	1.90
Fruit and Flower, R H Red	2.00
Crystal, Rix Ex, Riv	2.25
Cougar, Covina Ex	2.00
Prong Horn, A C G, Azusa	1.60
Searchlight, S S, Orange	2.00
Newsboy, R H Red	2.40
SEEDLINGS—Searchlight, S S, Orange, $2.40; Playmates, R H Red, $2.65.	
SWEETS—Searchlight, S S, Orange, $2.30; S. S., S S, Orange, $2.00.	
LEMONS—	
Coyote	$2.70
Blue Jay	2.30
Pet	3.90
Arab	3.60
Pup	3.35
Anchor	2.65
Queen	2.45

ST. MICHAELS (Halves)—Orchard Run, $1.55; Playmates, $1.15.
VALENCIAS—Santa Anita, $3.30.

PITTSBURG, May 15.—Twenty-one cars sold. Market fairly steady on sound fruit; lower on decayed oranges; steady on lemons. Weather favorable.

NAVELS—	Avge.
Orchard, Or, National O Co	$3.45
Lotengo, Fy, Sparr Ft Co	3.10
Red Globe, Riv Ex, Riv	2.60
Outing, Riv Ex, Riv	2.00
Possom, A C G, Azusa	1.85
Pointer, A C G, Lateen S	2.30
Possom, A C G, Lateen S	2.25
Owl, O K Ex	2.25
Newsboy, R H, Red	2.85
Morning Glory, S A Ex	2.65
Teal, Covina Ex	2.35
SEEDINGS—	
Rubidoux, ch, Pattee & Lett	$2.25
Hunter, A C G, Lateen S	2.40
Orchard Run, Riv Pach	2.20
Pointer, A C G, Lateen S	2.60
Fiesta, Riv Pach	2.70
Billiken, Riv Pach	2.35
LEMONS—	
Crestmore	$2.60
Commercial	2.50

BOSTON, May 15.—Twenty-four cars sold. Cool, cloudy. Market doing better.

NAVELS—	Avge.
Kenilworth, A H, Riv	$2.95
Peasant, Q C Corona	2.80
Homer, Q C Corona	2.80
Linnet, O K Ex	2.75
Robusta, A H Ex	3.30
Segunda, A H Ex	3.05
Hobo, T, A H Ex	2.60
La Mesa, Riv Ex, Riv	3.30
Paul Neyron, S A Ex	3.15
Morning Glory, S A Ex	2.50
Tunnel, S T Fernando	2.85
Tunnel, S T Fernando	2.80
Princess, Q C Corona	3.00
Peasant, A H, Riv	2.60
Quality, S T Nordhoff	2.55
Camel, Q C Corona	2.65
Alta Cresta, A H Pach	3.70
SWEETS—	
Quality, St, Nordhoff	$2.40
Marguerite, xc(Earl Ft Co	2.85
Delicious, High Prot, F A	2.75
Del Rosa, Growers Ft Co	2.45
Ideal, High Prot, F A	2.95
Champion, Denman Sons	2.80
Palomita	2.50
ST. MICHAELS—	
Champion, Denman Sons	$3.15
Poinsettia, Fy, Earl Ft Co	2.90
Highland, Growers Ft Co	3.00
LEMONS—	
Tunnel	$3.35
Urchin	2.80
Sunrise	2.50
Homer	4.35
Camel	3.40

BLOODS—Quality, $2.40.
BLOODS (Halves)—Homer, Ruby, $1.35; Camel, $1.30; Homer, $1.45; Camel, $1.25.
NAVELENCIAS—Homer, $2.65; Camel, $2.45.
NAVELS (Halves)—La Mesa, $1.65.
JAFFAS—Rey, $2.80; Tunnel, $2.50.
GRAPEFRUIT—Ideal, $1.70; Delicious, $1.35; Del Rosa, $1.30.

PHILADELPHIA, May 15.—Seventeen cars navels, five mixed cars, two cars seedlings, one St. Michaels, two lemons sold; also six cars Floridas. Florida oranges, $1.55 to $4.30; average $2.60; grapefruit, $1.15 to $2.70; average $2.25. Market easier.

NAVELS—	Avge.
Butterfly, Covina Ex	$2.45
Hunter, A C G Glendora	1.80
Hunter, A C G Azusa	1.50
Colombo, S T Placentia	1.65
El Capitan, S A Ex	1.90
Moose, O K Ex	3.65
Blue Ensign, O K Ex	2.85
Carlo, S A Ex	2.30
Swallow, O K Ex	2.10
LEMONS—	
Greenleaf	$3.05
Swallow	3.00

GRAPEFRUIT—Carmencita, $1.30.
ST. MICHAELS—Carmencita, $3.30; Colombo, $3.05.

CINCINNATI, May 15.—Market firm on good fruit. Five cars navels, one St. Michaels, two lemons sold. Weather warm.

NAVELS—	Avge.
Spanish Girl, A. H. P	$2.25
Spanish Girl, A H Prenda	2.30
Red Globe, Rix Ex, Riv	2.85
Outing, Riv Ex, Riv	2.90
Parrot, S A Ex	1.55
Cal. Orange, Riv Ex, Riv	2.85
LEMONS—	
Canoe	$3.25
Our Beauty	2.45
Planet	2.50
Searchlight	2.25
S S Brand	2.10

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Cough.

Kindly send me a good cough remedy for horses.—Subscriber, Arroyo Grande.

Mix chlorate of potash 2 ounces, powdered belladonna 1 ounce, powdered nux vomica 2 ounces, and powdered fenugreek 10 ounces, and give one tablesponful twice daily in the feed. Also give one tablespoonful of Fowler's solution in the feed with each dose of the powders.—F. G. M.

Garget.

A Jersey heifer, which I have been milking eight months, has been giving stringy milk containing bloody specks the past six weeks. Please state cause and remedy.—Subscriber, Stockton.

This is a form of garget. Use Iodin Petrogen as a local application twice daily over the affected quarter of the udder, and rub gently but thoroughly. Give the cow one tablespoonful of hyposulphite of soda morning and evening in the feed.—F. G. M.

Teats' Orifice Contracted.

I have a cow four years old and with her third calf, in the pink of condition. We must be careful to strip her instead of milking in the ordinary way, as it seems to hurt her and she kicks. The openings of the teats seem to be closed. Could teat plugs be used to stretch the openings?—Subscriber, San Diego.

Teat plugs are indicated. Inserting the plug may be painful, hence it would be well to secure the hind limbs, one to the other, with a strap or in some other way, to prevent kicking, and thus protect yourself and avoid soiling the teats during the manipulations. Sterilize the plugs in boiling water and cleanse the teat thoroughly with an antiseptic solution before using the plugs.—F. G. M.

TULARE GRANGE.

(Continued from Page 613.)

stimulating to industry and thrift is a blessing.

Sister Ella Stiles read an interesting paper on "My Summer Vacation." It is best enjoyed in the woods, at the ocean, in the open, in touch with nature, nature's works and nature's creations. It leads us to better thoughts and a better life, gives us better health, and leads us to think more and better of our friends and to carry those thoughts through life.

The Grange being informed that Mrs. M. E. Sherman was in a sanitarium in San Francisco, the secretary was directed to send her the kind sympathy of the Grange and our earnest wishes for her safe and speedy recovery.

The Grange was informed that Sister Fay, an octogenarian and past chaplain of Tulare Grange, had suffered a stroke of paralysis, but is improving. The sympathy and best wishes of the Grange were sent to her.

At each meeting a plain but appetizing lunch is served, during which an hour of enjoyable social intercouse is indulged in.

LANDSCAPE GARDENING.

(Continued from Page 619.)

than grow plants for the money we may save or gain by them. It does not matter whether we have in mind a great park or a small city square, a large estate or a modest dooryard, we must go about our work in an artistic spirit if we want a good result. Two trees and six shrubs, a scrap of lawn and a dozen flowering plants, may form either a beautiful little picture or a huddled disarray of forms and colors."

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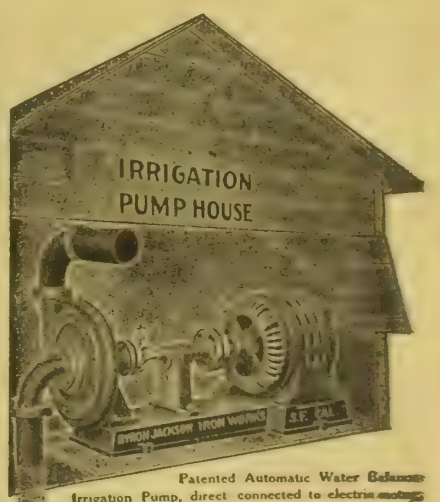

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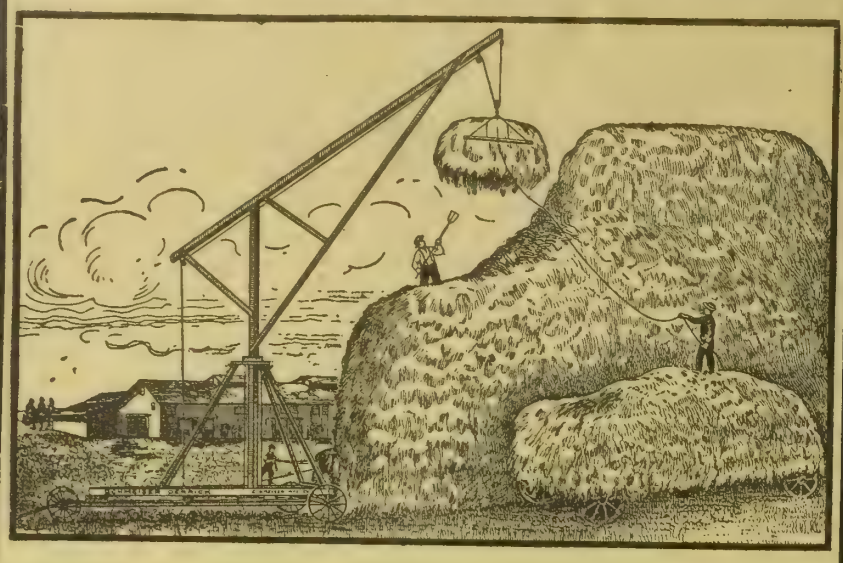

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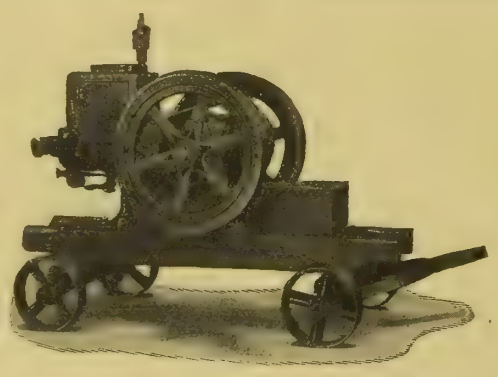

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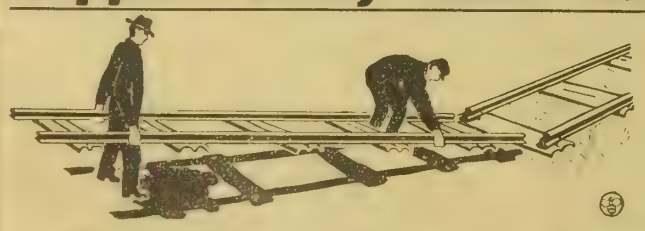

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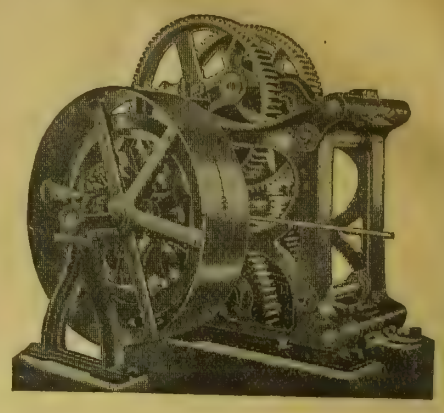

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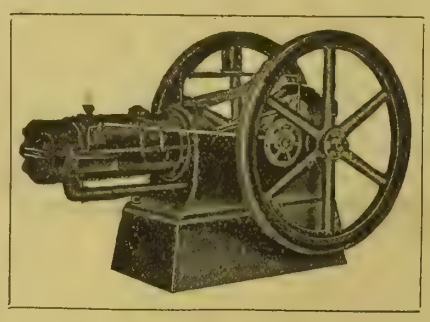

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LOS ANGELES MAY 25, 1911 SAN FRANCISCO

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By Courtesy Century Path, Katherine Tingley, Editor.

New Type Vertical Pump

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New Type Horizontal

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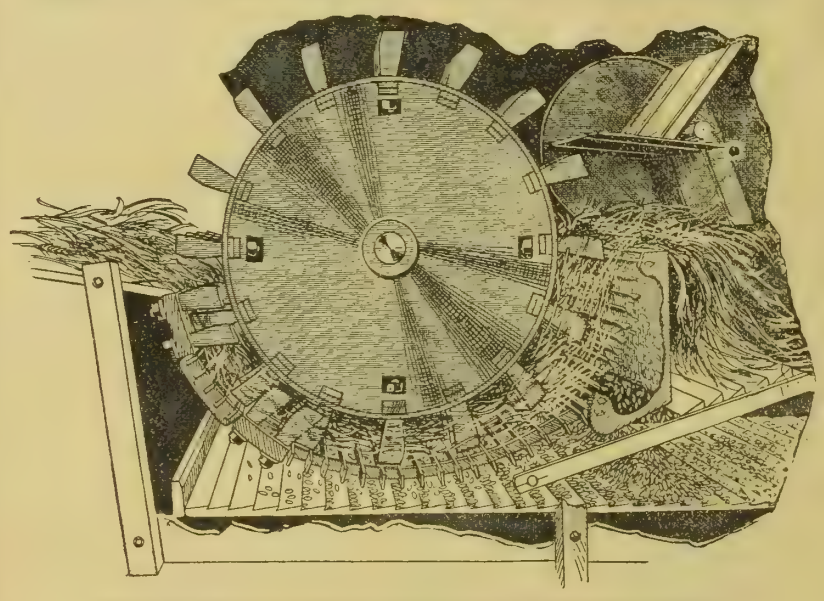
Found only in **The Red River Special**



This cut shows the Cylinder and Grate in the Red River Spacial

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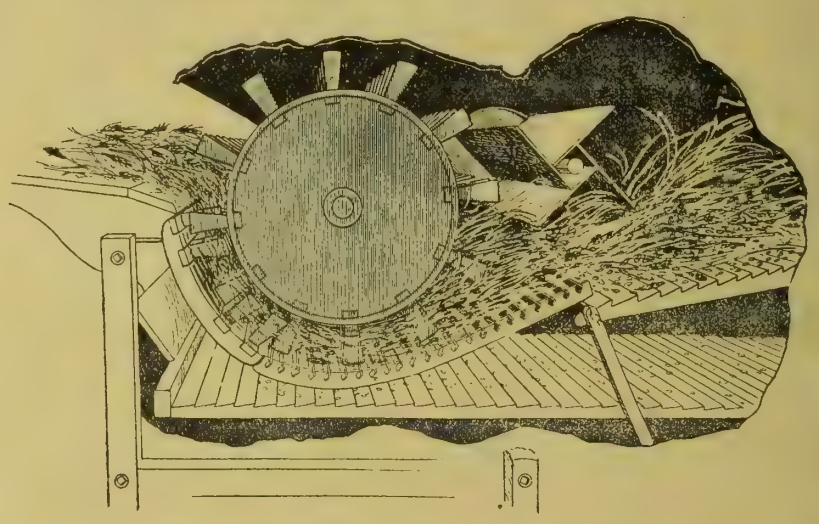
Drives the Straw and Grain Against the Grate and Beats the Grain Out Right There



This cut shows Cylinder and Grate in the Other Kind

☛ See our advertisement in the Cultivator of May 11, on Page 608, or come in and see the machine.

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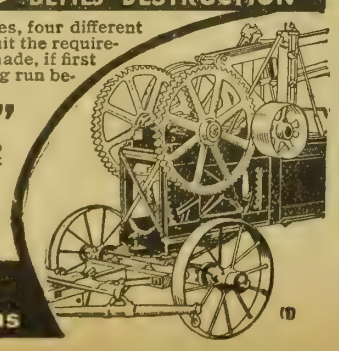

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California Cultivator

Vol. XXXVI. No. 21. LOS ANGELES: THURSDAY, MAY 25, 1911 One Dollar the Year

Tree Troubles--- Their Causes

The Relation of Climatic and Soil Conditions to Cases of So-Called Mottled Leaf, Withertip, Dieback, Little Leaf, Etc.

By Prof. Ralph E. Smith,
Southern California Pathological Laboratory

THE PAST winter and spring have been marked by a prevalence of fruit tree troubles of the general nature of dieback, yellow or mottled leaf, failure to start into growth in the spring, weak, yellow, sickly growth, failure of fruit production, death of buds and similar phenomena. The most prominent and important of these troubles have been the "Mottled Leaf" and "Dieback" of the orange in certain portions of Southern California, the so-called "Little Leaf" of the peach in the San Joaquin Valley and the "Yellows" or "Dieback" of the walnut in the southern part of the state. Various causes have been ascribed to these troubles and the present article by no means aspires to settle the cause of these obscure troubles at one swoop. Certain observations, however, made in various, widely separated localities, are extremely suggestive at this time.

The Dry Year of 1910.

We would first call attention to the fact that the calendar year 1910 was one of the dryest on record in Southern California and in the San Joaquin Valley, the rainfall for the year in these sections averaging only from four to five inches. An almost equal amount fell in December, 1909, and again in January, 1911, but from January 1, 1910, to January 1, 1911, there was practically no heavy, well-sustained precipitation. The result of this was that the soil dried out unusually early in the spring of 1910 and by the time rain came again in January, 1911, unirrigated land was extremely dry and to an unusual depth, while irrigated soil, unless given an unusually large amount of water from early spring to late fall, was in the same condition. In the majority of our irrigated orchards the owners expect to use more or less water during the summer, which application is supposed to be supplemented by copious rainfall during the winter months. Such rainfall is expected to soak the ground more completely and deeply than can ordinarily be accomplished by irrigation and is counted upon particularly to create a subterranean store of moisture in the subsoil. The citrus grower expects, in an average season, sufficient rainfall to make all irrigation unnecessary during a period extending from about November first to May first. Relying upon such an expectation his inclination is to withhold irrigation after October, waiting for the expected rain, and to put it off as late as possible in the spring for the same reason. The grower of deciduous fruits, whose crop comes off in the summer or early fall and whose trees are leafless and dormant during the winter, stops irrigating still earlier and is apt to pay little attention to his trees after the crop is gathered.

Most seasons this confidence in the elements is not misplaced, rain coming soon enough and late enough to prevent serious damage. But when a dry fall follows a dry spring, making a whole year with very little rain, trouble is likely to occur. In such a season, even with more irrigation than usual, the soil does not get the deep soaking which only long, heavy rains can give it, and the subsoil is likely to dry out. This condition is most pronounced, naturally, on soils underlaid with a porous subsoil not having the greatest water retaining capacity, or where there is hardpan or other hard material beneath the surface, preventing a deep soaking in of the water. The average irrigation comes far from equalling a good rain in wetting the ground. When the winter rain is up to the average in amount and distributed over its normal season, orchards which receive even tolerable irrigation, upon soils of even moderate water retaining capacity, may go through in fairly good condition, but after a season like 1910 unusual effects and conditions are to be expected.

Mottled Leaf of Citrus Trees.

Affected trees show a yellowing of the leaves between the veins, with the green color only along the mid rib and the lateral veins, giving the leaf a mottled appearance. Examination shows that leaves once green never become typically mottled thereafter, although they may become lighter in color, or even bright yellow. Typical mottled leaves are found only towards the ends of the shoots, and represent leaves in which the green color has never completely developed, rather than those in which the chlorophyll has once existed but then disappeared. Mottled leaf is a case of non-development or slow development of chlorophyll. Along with the mottling of the leaves there also occurs, if the trees are badly affected, a decided shortage in the amount of fruit, and in typically bad cases the fruit present is of very small size, becoming fully colored when only an inch or two in diameter. Considerable dieback also occurs, and the foliage is thin and weak, giving the tree a brushy look, with many small, dead twigs at the extremities.

Mottled leaf is by no means to be always regarded as a symptom of disease or a cause for alarm. Frequently in the winter, young, rapid growing trees or shoots show such a condition in their youngest leaves, especially during periods of long continued cold rain. This is to be regarded as simply a temporary setback in the development of the leaves, and with warm

(Continued on Page 648.)

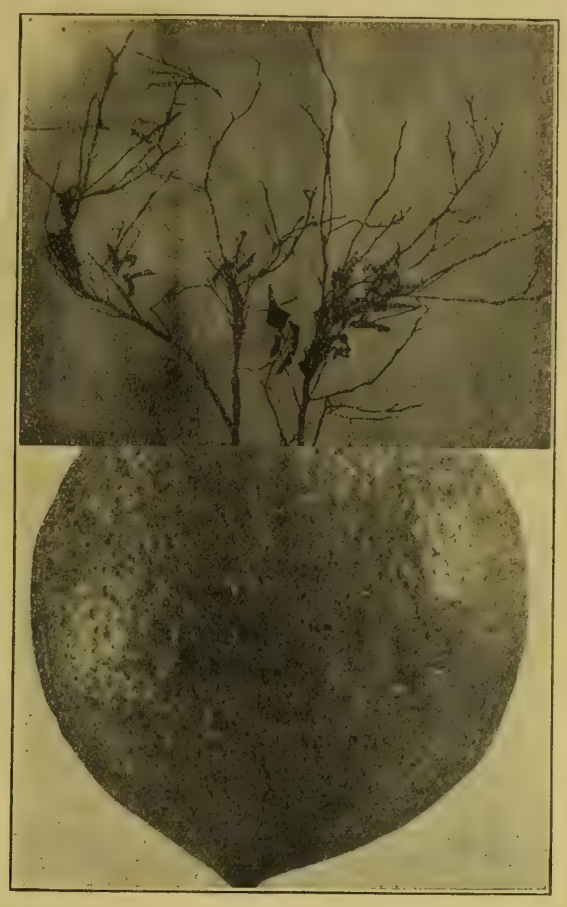


Fig. 3. Above an orange branch killed by withertip, some of the dead leaves still hanging; below a lemon showing red spot caused by withertip.

Withertip and Its Treatment

A Discussion of a Most Perplexing Trouble and Easy Method of Control. Used by Courtesy Pomona Journal of Economic Botany.

Written by E. O. Essig,
Horticultural Commissioner, Ventura County

FROM OUR knowledge of this disease it appears to be increasing, and we are probably justified in predicting that it has not yet reached its worst. The disease is in all likelihood an introduced one, and it may be looked to to attack the sweet orange in addition to the lemon, lime and pomelo.

History and Distribution.

The fact that the wither-tip had existed as a serious citrus pest in other places first led progressive growers to fear it in this country. At the present time it is known in practically every citrus-growing section in the world, in spite of the fact that many hold that it can do damage only where certain moisture conditions are secured.

In California.

In this state the disease may be found in practically every citrus-growing section, but it is not contended that it has been doing damage in all.

Description.

The presence of the fungus is best told by its appearance on the leaves. The most common forms are leaf-spots which show up while the leaves are still clinging to the tree and appear to be healthy in every other way. The spot is usually light brown to nearly colorless and is surrounded by a very characteristic brown ring, which separates the dead from the living tissues of the leaf. Arising from the dead discolored spot are numerous minute dark acervuli (fruiting bodies of the fungus). The spots may begin at any point of infection and spread so as to run into each other, almost entirely destroying the texture of the leaf. They may start at the tip-end or at an edge and cut out deep margins. It appears that this condition is brought about by the fact that after the infection started the leaf was able to retain enough vigor to resist the attacks, so that the diseased areas only were killed, instead of the entire leaf succumbing and falling off as is usually the case.

This latter form is perhaps the most common indication of wither-tip on the lemon trees. The leaves first turn a sickly yellow color, gradually become brown and fall to the ground. Many may fall while still in the yellow state, while large numbers have been collected and the withertip obtained from them, which were still green when they fell. Not a few leaves may be found which begin to turn brown at the tip, the infection working backwards to cover the entire surface before the stem is reached and severed.

On the sweet and navel orange trees the infestation is very marked and sudden. The leaves die, curl up and turn a greenish-brown color while still hanging to the twigs. Entire twigs may thus be affected, and the foliage does not fall until it is thoroughly dead and dry. One can always tell this stage by the dark color of the leaves.

On the Twigs.

The twigs on the Havana Sweet orange trees at Santa Paula often died as far back as did the leaves, but in most cases they first remain green but bare for some time after the leaves have been killed and dropped.

The twigs of the lemon trees do not succumb to the attacks of the disease as rapidly as do those of the orange. They remain bare for a long period, and though green and healthy-looking, do not bear leaves or fruit. So far as worth to the tree is concerned, they might just as well be dead. In time they do turn brown and slowly die from the tips back.

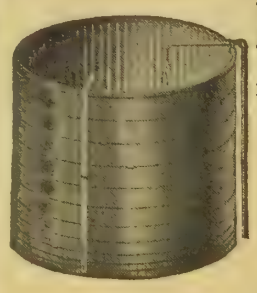
On the Fruit.

The fruit spot, commonly called lemon spot, orange spot, and pomelo spot or anthracnose, is the most easily recognized. On the lemon it usually develops in the packing house, and is first simply a dull green blotch, remaining so after the lemon has turned yellow in curing. Later the center of the spot, which may enlarge, becomes from a sickly yellow to a brown color, and is softer at the margins, which have retained the same firmness as the rest of the lemon. This stage develops the black or dark brown acervuli, which appear in the center of the spot, giving it a dark color. The tissues begin to sink, forming a depression in the center of the spot. The fruit may keep in good condition when thus infected for a long time without any apparent progress in the work of the fungus, and again it may decay very rapidly. The green spot may not develop to form the fruiting stage until after the lemons have been placed upon the market, so may admit of the marketing of the fruit, but it places it in the lowest grade.

It will be interesting to note that many have considered this spot a result of sweating, and not a fungus at all, but it is the withertip brought out, perhaps, in greater abundance by sweating than under normal conditions, which has given rise to this belief.

On the orange the first symptoms appear as greenish or brownish irregular blotches, resembling greatly those described on the lemon. These spots grow rapidly while the fruit is still on the tree, and may assume nearly half the size of the fruit.

It is the dropping of the young fruit that is considered the most serious work of the fungus in the lemon orchards. At times it seems as if a



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NITRATE AGENCIES COMPANY

W. S. SPARR, Agent, 321 Stimson Block, Los Angeles

third of the young setting lemons were dropped by it. The brown mummies on the ground or still clinging to the leaves are full of the wither-tip spores.

The first sign that we notice in connection with the wither-tip dropping of bloom is that a great number of unopened flower-buds have fallen from the tree. As this effect may be the result of other causes, the mere fact that we find unopened flower-buds on the ground should not be considered as proving that we have a case of wither-tip bloom dropping. Upon closer examination, however, we find that where the bloom has dropped on account of being affected with the wither-tip fungus there are little red markings upon it; and the buds or blossoms may be partially, or even entirely, covered by these red patches.

When much bloom has dropped as a result of being affected with the wither-tip fungus, one almost invariably finds the typical signs of wither-tip on the tree. The most prominent of these are the dying back of small sprigs, and the very characteristic want of leaves on the inside of the tree. Whenever one sees a tree in the orchard that has no interior foliage, it should be noted as a suspicious specimen.

Fig. 2. Spots caused by withertip on lemon; the same on orange

Conditions Favorable to Growth.

Any climatic condition unfavorable to the growth of the tree is liable to bring on an attack of wither-tip, especially in a country which has been subject to this attack.

Frosts kill the twigs of the trees and afford excellent places for the fungus to germinate and produce spores.

Hard winds whip the trees so as to cause numerous abrasions and wounds, which afford excellent entrances to the spores of the wither-tip.

Perhaps no better condition is afforded for the infection of the plant

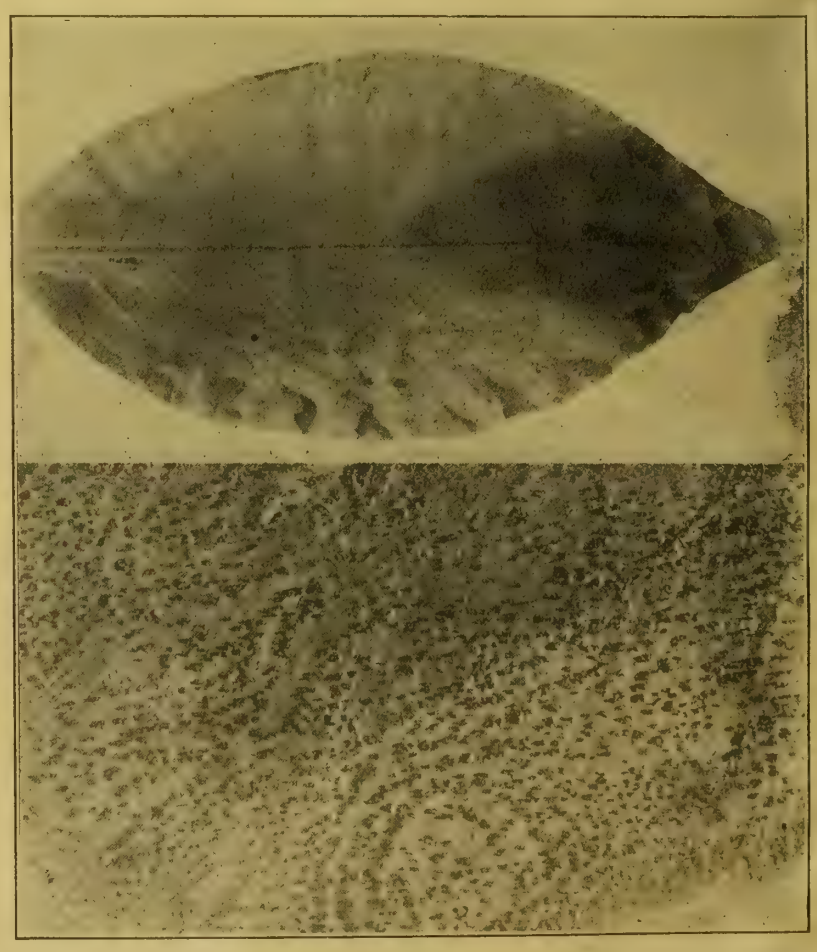

Fig. 1. Above a lemon leaf showing darkening area by incipient withertip; below the magnified surface of an orange leaf covered with numerous acervuli of withertip, each one of which contains great numbers of spores.

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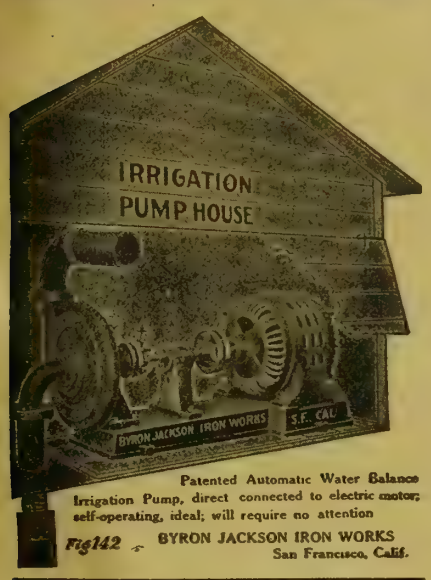

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The Orange County Dried Fruit Association will handle from one-third to one-half the crop of dried apricots produced in that county.

tissues than that due to the attacks of insects. Scale pests constantly draw sap from the trees, and the slightest rain washes the spores down the limbs and into their punctures. It might be expected that this disease would be worse in dirty orchards than in those which are kept perfectly clean.

Gummosis has certainly had something to do with the production of the "red spot" so often referred to. As has been stated, the two conditions have been associated together as arising from a common cause. The spot is probably caused by the weakening of the tree due to the gummosis rather than any other reason. It might naturally be expected to find the withertip upon any diseased trees which are suffering from gummosis, die-back, foot-rot, etc.

Poorly fed trees have been observed to succumb to this disease first—the leaves showing the spots, the twigs dying, and the fruit spotted before it appeared elsewhere. The cure is obvious.

This is perhaps the most important factor in contributing to the growth of this disease. As with all of the fungi, a moist condition produces ready and rapid germination and excellent conditions for future growth. The early observations of the withertip were all connected with the belief that it could thrive only in a very moist climate. This belief caused some surprise to the Florida experts, who thought that the climate in California was too dry.

The attack in Ventura County was preceded by an unusually heavy rain, which brought on the attack almost immediately.

Modes of Distribution.

The spores are so minute that when they become dry they may be carried for miles by the wind. These spores are usually blown into the tops of the trees, and the heavier attacks may be expected in these places. In Southern California it must be expected that, if the disease is common along the coast, the coast winds are sure to carry the spores to all inland sections, and these need only the moisture conditions to produce the disease.

If the spores find lodgment in the tops of the trees they are sure to be carried to all parts of the undergrowth by the first rain. This is the most effectual way of infecting all parts of the tree. The "tear-stain" is produced by the dripping of the water from an infected twig or "mummy" to an uninfected lemon.

Insects.

Prof. Rolfs attributed much of the redspot to the work of the red spider, and this indeed is a very important factor in scattering the spores on the leaves and fruit as well as a means of inoculating those portions of the tree. Other insects, as young black scale, plant lice, as well as the silver mite, prove efficient distributors of this disease.

Methods for Control.

The methods used in the control of this fungous parasite must necessarily be preventive. After the disease is once established in the tissues of the host it can never be destroyed without first destroying the host also, because it works within the tissues, and until the acervuli appear upon the surface to expose its conidia or spores for distribution, it is protected by the epidermal layers of the host.

Many methods have been recommended. It may be that certain measures taken in some localities may prove impractical in others, while a combination of all may be successful in special cases.

Spraying.

In all the work that has been done with sprays in combating the withertip, the Bordeaux mixture stands out as the most efficient, and we are wont to give it the first place in this consideration.

The formula now used at the Limoneira orchard is known as the 4-4-50 or

Unslacked lime	4 lbs.
Copper sulphate (bluestone)	4 lbs.
Water	50 gals.

Pruning.

Because of the fact that the fungus has never killed the limbs of the lem-

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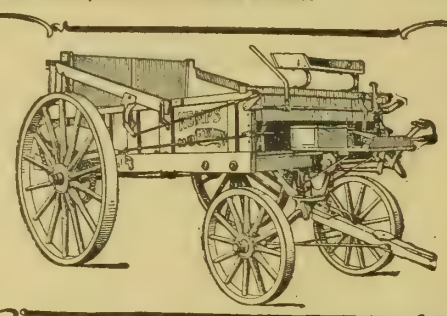

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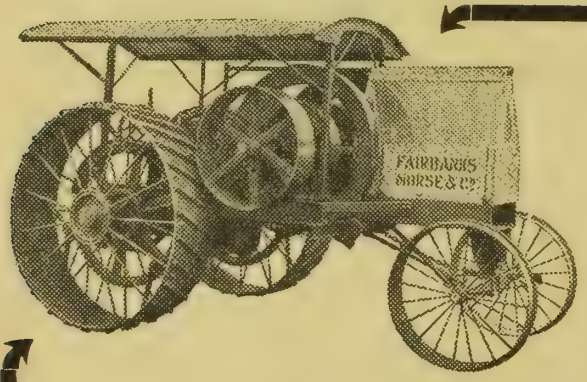

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ons outright, and it was difficlut to ascertain just which wood was infected, the matter of pruning has never been taken up. Then, too, the disease was so general that the possibilities of eradication or control seemed hopeless by means of so slow a method.

How to Prune.

The important thing in pruning is to cut out enough of the wood in order to get rid, not only of the bare branches, but also of all the branches that show even a slight sign of the disease. In severe cases of wither-tip there are seen, in addition to bare branches, many limbs on which the yellow leaves are about to fall. Close examination will show that the disease is slowly making its way back and poisoning these limbs. This poisoning may start from an infection at the tip, or from an infection on a side branch lower down, from which the poisonous effect has spread to the main limb. Sometimes only one side of a tree, or only one branch, is severely affected, while the remaining part of the tree is uninjured. Whatever may be the conditions, it is important to get rid of these poisoned limbs. All limbs that show the beginnings of the disease must be taken out. Drastic measures must be employed, and many bearing limbs may have to be sacrificed. To prune only half-heartedly may make matters worse, rather than better. When pruning, care should be taken to make smooth cuts, usually at the base of a branch or limb, so as not to leave any projecting stubs, in which infection is almost sure to start again. After pruning, paint the larger cut surfaces with carbolineum or pine tar.

The grove should be given unusual care after a severe pruning of this kind. It should be fertilized, so as to bring about a vigorous, healthy growth, and to render the trees resistant to further attacks of the fungus.

When to Prune.

Winter pruning for wither-tip should be done between the middle of December and the middle of January. It is important not to delay the work beyond this date. Do not prune while the new growth is putting out, for this is almost sure to result in injury rather than benefit.

Orchard Practice.

It has been made very plain by all authorities that a weakened condition in an orchard under certain conditions is liable to bring on an attack of wither-tip. That this is true cannot be doubted.

Every possible means should be exercised to keep the orchard in excellent physical condition. As cultivation is a very important factor in this work, it should receive its full quota of attention. In groves subject to this disease the soil should be stirred deeply enough and often enough to insure all that is demanded from it by the tree.

A starved condition of the tree cannot be brought about more effectually than to cut off the water supply. Thus such a condition favors the attacks of the disease. It is not necessary to warn watchful growers against this state of affairs, for it is a condition not desirable in any grove.

Fertilization.

The lack of fertilizers might cut off the food supply and have a tendency to bring on wither-tip, but it is not in this regard that I wish to call attention to this point. It is what Prof. Rolfs has to say in this regard: "In choosing fertilizers to aid in warding off these diseases (various stages and phases of wither-tip) a large percentage of potash should be used in the compound. The source of potash does not seem to be important, but sulphate of potash has proven a general favorite among growers of citrus fruits.

"Sulphate of ammonia is somewhat slower in acting than nitrate of soda, but gives a firmer leaf. Nitrate of soda will produce a very quick growth and a large leaf, but these are especially subject to the attack from the fungus unless well balanced by a generous supply of potash. Organic ammonia in the form of dried blood, cotton-seed meal and bone meal should not be used in combating this trouble, as it is very likely to produce die-back in addition to the softening of the wood, and so lay the tree doubly open to attack."

Fig. 4. Above a characteristic leaf spot of lemon, probably also due to withertip; below fully developed acervuli of withertip on orange twigs.

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Deciduous Fruit Culture

CONTROL OF THE BLACK PEACH APHID.

(Aphis persicae-niger Smith.)

By E. O. Essig.

Nursery Stock.

The first and most important measure in dealing with this pest is to see that the young trees from the nurseries are free from the pest at the time of setting them out in orchard form. This can be brought about by the proper treating of the young trees in tobacco extract or by fumigation with carbon bisulphide or hydrocyanic acid gas. Care should be taken to see that all peach trees from eastern and middle western states are so treated before allowed to enter this state or any county therein.

In the Orchard.

After the pest is once introduced as in the case of many localities in California, the methods of control must be thoroughly understood and carried out to secure good results. That the insect can be controlled is the experience of a great many scientific men, without any very great cost and no injury to the trees. To dig out trees for this pest is like digging out our orange trees for black scale, an act of pure folly. The task is, indeed, not a small one and must be pushed throughout the entire year. Winter and summer treatment may be necessary, though where the former is rightly done there may be no need of the latter. Methods of control, then, must fall under two heads as follows:

Winter Control.

Due to the fact that this insect passes part of its existence upon the roots of the trees, it is somewhat difficult to handle. It is usually during the winter months that it will be found underground. In the winter treatment, then, it is necessary to effect some measures for destroying these underground root forms which come to the top early in the spring and attack the first young buds. In handling the root forms two types of remedies have proven very useful, viz., preventives and insecticides.

Preventives: It has been found that the application of certain minerals, which benefit or do not hurt the tree, have done much toward making peach trees immune to the attacks of the black peach aphis. Those so used are as follows:

Manure. Heavy applications of stable manure around the base of the trees before the first winter rains have driven away the root forms and prevented the appearance of the spring broods.

Kainit. This compound has been successful as a preventive for various underground insects and will give good results here. Dig away some of the surface dirt around the base of the tree and apply a good dressing to a considerable distance from the tree so as to insure a quantity of the dissolved mineral salts reaching all of the lateral infested roots. The insect usually works just below the crown and an application near the trunk may be all that is found necessary.

Gas-lime. This has also some value as a preventive, as nas wood ashes in large quantities, though the latter may not benefit the health of the tree.

Insecticides. These contact solutions, seeping through the soil and coming in contact with the soft-bodied insects, work the same as a spray on the forms above ground, and are:

Tobacco Decoction—
Tobacco stems or waste..... 1 lb.
Water ..... 6 lb.
Soft soap ..... 1 lb.

Liver of Sulphur—
Potassium Sulphide ..... 1 oz.
Warm water ..... 1 gal.

Carbolic Acid Emulsion—
Crude Carbolic Acid..... 1 gal.
Whale Oil Soap..... 8 lbs.
Water (hot to mix)..... 8 gals.

Dilute one part to 20 parts of water before application.

Applications. In applying all of above the nature of the soil must be taken into consideration. If the soil is sandy and allows a free passage of the liquids it will take several gallons, poured around the trunk, to insure a good killing, but with only one or two applications during the winter, while a heavy soil will not admit so much at a time, but will require more applications. The soil should be removed around the base so as to expose the crown roots and the liquid poured in, but not allowed to stand for any length of time in contact with the base.

Carbon Bisulphide. In light, sandy soils this may be used very effectually upon the root forms. Make deep holes around the trunk of the tree and pour in each a small quantity (2 tablespoonfuls) of the liquid, promptly covering up the hole to prevent the escape of the gas.

Spring or Summer Control.

As soon as the aphids begin to appear upon the small limbs and buds is the time to begin spraying. The first broods in the spring are all wingless. In April and May winged specimens begin to appear and these spread rapidly. The point is to kill the first broods before these winged individuals appear. Careful watch should be made of the trees individually and as soon as any insects are found spray with one of the following before the blossoms open:

Kerosene Emulsion—
Kerosene ..... 2 gals.
Whale Oil Soap..... ½ lb.
Water ..... 1 gal.
For use dilute 1 to 20 of water.

Whale Oil Soap Spray—
Whale Oil Soap..... 1 lb.
Water ..... 6 gals.

Tobacco Decoction—
Tobacco refuse ..... 1 lb.
Water ..... 6 gals.
Soft or Whale Oil Soap..... 1 lb.

"Black Leaf" (Tobacco Extract)—
Black Leaf ..... 1 gal.
Water .....60 gals.
Carbolic Acid Emulsion (see above).

Application—In small orchards it is necessary to use a hand pump and very good results may be obtained if care is taken to make the application thorough. Use as much force as possible and do not be stingy with the liquid. A power pump should be used if available and a pressure of from 150 pounds to 200 pounds maintained.

Conclusions.

1. Be sure that you have the Black Peach Aphis before applying underground methods. The adult insects are always black, while the young are reddish-yellow or amber. The adult wingless forms are deep shiny black and highly polished.
2. If you are sure that your peach trees are affected, treat in winter as directed.
3. Spray in early spring before blossoms appear.
4. Repeat in summer if necessary. It may be that the lice are kept down by natural insect enemies and no further work need be necessary.
5. Intelligent work will always handle this insect, and it is never necessary to dig out trees in a generally infested district.

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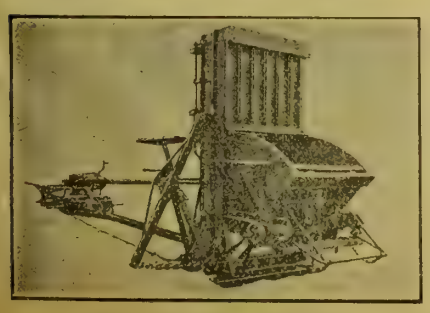

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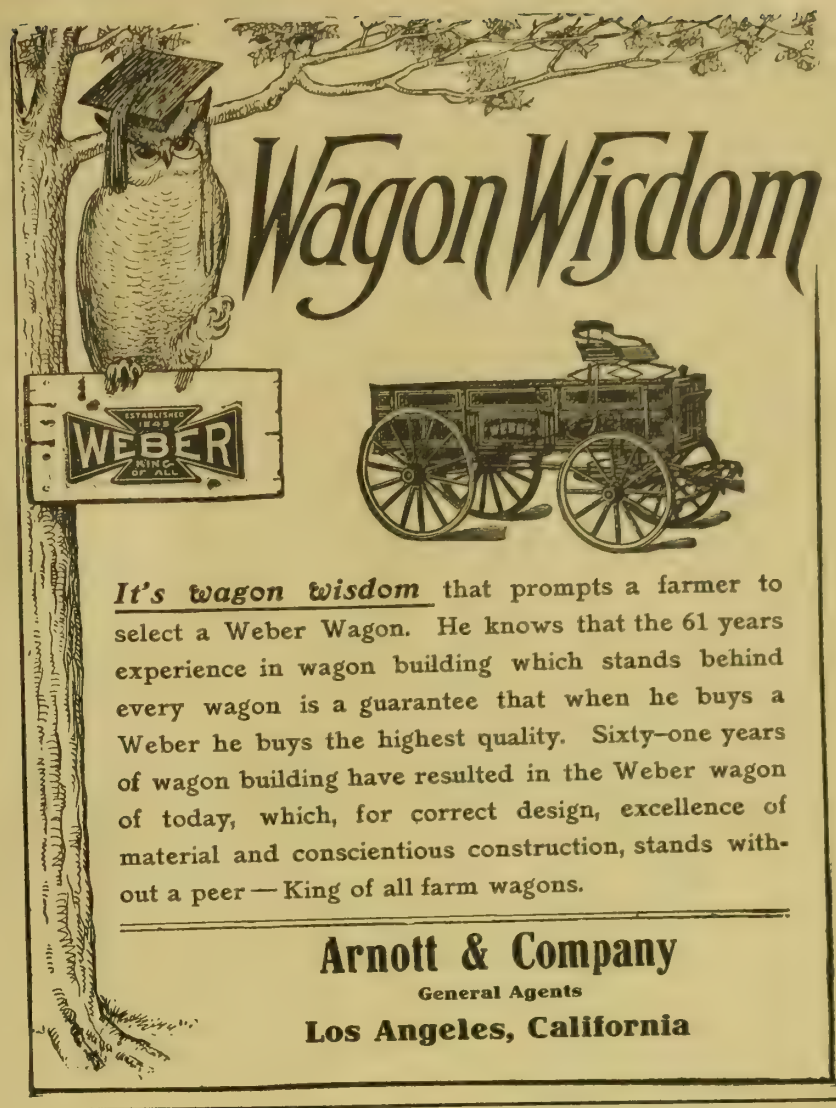

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Both plows can be had with or without steering device. Write or call on us direct if your dealer does not have these tools.

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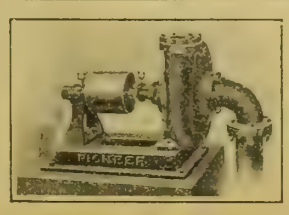

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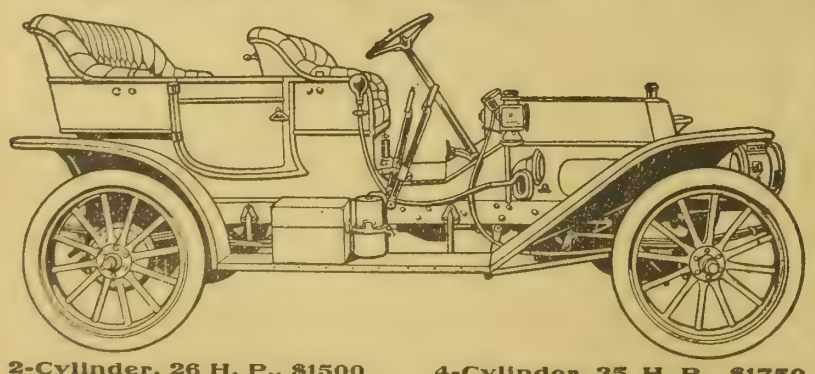

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A cow, to be a good one, must have large lung capacity, but in order to produce well she must be supplied with a sufficiency of pure air, else this is of no advantage to her.

A case to illustrate this is given herewith: I was testing two cows at home for over a month; one gave more milk and butterfat than the other right along. They both had the same air supply, standing side by side, but one was able to use much more than the other as her general conformation showed she was a cow of large lung capacity. The same two cows were brought down to Guelph, Ont., in a dairy test; both were equal in heartiness and feeding well, but at this time the cow that had always produced the heaviest did not produce any more than the other.

The reason, I consider, is that the stable where the dairy cows were kept at Guelph was so constructed that pure air could not be supplied to the cow at her head without reducing the temperature of the stable too much. The ceiling was too high for one thing, then the cows were tied up against a solid wall and their breath had not a chance to get away from them, and they had to breathe much of the same air over and over again. A cow taking too much impure air into her lungs is injured rather than benefited. The way many stalls are built a cow should breathe through her tail, as the air has a better chance to circulate behind.

Men who have done much testing know that heavy milk cows are greatly affected by hot weather in the summer. I was testing a four-year-old the latter part of June, 1907. She was making 2.5 lbs. of butterfat a day. A very hot spell came on, she went down to 1.85 lbs. per day, due to nothing, I am sure, but the heat. This is only one instance of many that go to show the same thing. In this case the cow was using her lungs to the best advantage when the weather was cool, but taking into her lungs so much air that was necessarily hot, it, with heat from the food she consumed (and it was only grass) made her too hot. It is just as detrimental for a cow to go to the other extreme and have it too cold. With pure air, not too cold nor yet too hot, a cow does her best. The oxygen derived from the pure air goes to the nerve centers, producing in her energy necessary for heavy production.—Coleman's Rural.

BREEDING PRINCIPLES.

B. W. Hunt of Eaton, Ga., was one of the most successful breeders of Jerseys in the South. He was not a mere mater of male and female, a blind devotee of pedigree, but he saught to look deeper into the problem. Here are a few of his ideas:

"I never bred for pedigree without performance—never bred for beauty—never bred for color of hair—but always with the idea of producing animals that would yield the utmost salable product and bring up the farm's net income to the highest."

Then again:

"My observation years ago led me not to value the son or the daughter of a phenomenal cow or race more. What a breeder should prize above all things is a high average of excellence extending as far back as the pedigree records."

There is no doubt of the soundness of Mr. Hunt's ideas. The principal difficulty, however, is that pedigree records extend much farther back than do records of performance.

But the true breeder is one who breeds for a high herd average, not a few cows of phenomenal performance. His idea of not placing value on the son or daughter of a phenomenal cow is in accord with our own observation. Some of the sorest disappointments that have come to men have been right in this line. They have paid high figures for such sons and daughters only to find that the cow in making her phenomenal record had nothing left to endow her progeny. The cow cannot burn the candle at both ends.

Prepotency, that most valuable thing in a sire, simply means a surplus of stored-up heredity in a given direction. Much safer would it be to hunt around and find the first and second calf of the phenomenal cow to which she gave birth before she had exhausted her vitality.

In our own herd, the bull Espanore 2nd was the son of the grand old cow, Custer's Belle. His prepotency was such that he has seven daughters in the Advanced Registry. None of her subsequent sons proved as prepotent sires of cows. How illy that accords with the quite general notion that the first calf of a heifer is not as prepotent as those born at more mature age.

High breeding and moderate feeding, with easy, not forced, records, should be the motto with all breeders. An Advanced Registry obtained in that manner bespeaks the natural virility of the cow with an abundance left for her calf.—Hoard's Dairyman.

ZEBRA HYBRIDS.

When Negus Menelik, of Abyssinia, presented two fine Grevy zebras to ex-President Roosevelt, he regarded them as ornamental creatures that would make an interesting addition to the Zoological Gardens in Washington. But the ex-president saw in them the possible solution of the beast-of-burden problem that has so retarded the development of Africa.

Eighty per cent of the oxen imported into East Africa die within the first six months, horses cannot stand the climate, donkeys are too small and too slow, zebras won't work, and African elephants, since the days of Hannibal, have never been trained to make themselves useful.

If the strength of the zebra and the working qualities of the donkey could be combined in one creature, the greatest obstacle to the development of the country would be overcome. The zebras were given into the keeping of the Bureau of Animal Industry to experiment with as they would.

Breeding the zebras to mares has as yet been unsuccessful, no living progeny being produced. With jennets the experiments have succeeded better, and the bureau now has eight young zebrasses. Of the various important breeding experiments with draft animals, few are as interesting and encouraging, at the present time, as these experiments.

Three of the zebrasses are now two years old, and have been broken to drive single and double. One of them has been broken to the saddle. Their conformation and action leave little to be desired, and they promise to have great industrial value. Unlike their sires, the hybrids have good dispositions, and little difficulty was experienced in breaking them.

Zebra-hybrid breeding is still in the experimental stage, and no one can foretell its future. But indications point to its one day becoming a great industry in our Southwest. Climate and soil there are admirably suited to zebra raising. If the hybrids fulfil their present promise, the demand for them will be something enormous. It will be years, at least, before the African call for beasts of burden can begin to be supplied, and it is more than likely that the demand will be echoed within the borders of our own country before we have any for export.—Eugene Smith, in Farm and Fireside.

A horse accustomed to hard work and good feed should not be so heavily fed during a rest,—probably no grain at all, or at least a very small quantity, should be given on Sundays and other rest days.

Irregularity in time of feeding and quantity will cause indigestion.

CHAMPION AYRSHIRE COW.

Netherhall Brownie 9th 23985. Official record for 365 consecutive days, 18,110 pounds of milk and 820.91 pounds of butter fat, equal to 958 pounds of butter.

It gives me great pleasure to announce the completion of the year's test for admission to the Advanced Register of the above cow. She was tested under the supervision of the Washington State Agricultural College, and has given the largest official record both in milk and butter fat of any Ayrshire cow in the world, so far as heard from. This record places her above the cow Rena Ross, who has held the world's championship for the Ayrshire with the official record of 15,072 pounds of milk, 751 pounds of butter.

As an indication of progress in Ayrshire breeding, and as exemplifying the value of advanced registry testing, I would say that the first Ayrshire cow to stand as the world's champion Ayrshire cow was Rena Myrtle, with a record of 12,172 lbs. of milk and 546 lbs. of butter, tested by the Vermont Experiment Station.

This record she held for a number of years, until the Association inaugurated the Advanced Registry System of testing, which brought to the front the Ayrshire cow Keepseke, with a record of 12,365 lbs. of milk and 548 lbs. of butter, making her the world's champion Ayrshire cow, which she held until Rena Ross came along with a record of 15,072 lbs. of milk and 751 lbs. of butter, and now Netherhall Brownie 9th goes ahead with a record of 18,110 lbs. of milk and 958 lbs. of butter.

All this shows what we have always claimed, that there are Ayrshire cows kept in obscurity, that would astonish the world if the owners would only give them an official test, and we believe the above is only the beginning of a far more abundant harvest, and that the 20,000 lbs. milk and 1000 lbs. butter yield is not far distant.—C. M. Winslow.

WARBLES.

If you will examine your milch cows at this time of the year, you will likely find some lumps or protuberances on the sides and along the back. When your cattle are out on a warm day, they will be racing around the yard or rubbing themselves against posts. These protuberances are warbles. We are not going to tell you how they got in there. You would not believe us if we did; and we have wasted so much time trying to make you believe it that we are not going to waste any more.

The thing for you to do is to get rid of those warbles. You will find them on the poorest cattle, although we have seen them on steers nearly ready for market. The warbles are not on the cattle because they are poor; but the cattle are poor because they have warbles.

How to get rid of them? Well, if there are not too many, the easiest way is to take your thumbs and press on each side close up until they pop out, and then put your foot on them. You will find over each warble a minute hole in the skin, through which it receives air. Fill up that hole with any thick oil, and thus smother the beggar. Some use sheep dip or other poisons.

We are not particular about the method used, just so you get rid of them. If you do not, you will have warbles next year in all your cattle. You cannot afford to feed even forty-cent corn to a lot of miserable worms, and that is what you are doing just so long as there are warbles in your cattle.—Wallace's Farmer.

Protein, starch, fat, sugar and fiber are the nutrients that make up foods. Protein is the only one from which muscle and tissue can be made—the others serve to produce heat, energy and fat. Starch and sugar are equal in food value. The fiber in the plant cut green has the same food value as starch—when the plant is mature the fiber becomes largely indigestible as in straw. Fat serves the same purpose in the animal body as starch; it is more concentrated, having two and one-fourth times as much nutriment in a given weight.

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There could be no greater mistake on the part of the intelligent dairy farmer than to put off the purchase of a cream separator this year because cream and butter prices are unfortunately lower than they have been for several years past.

Nor could there be any greater mistake than to be tempted to buy an inferior separator at a trifle less first cost on this account.

There may be money in dairying when prices are high with a second or third grade separator or even without any at all.

But when prices are low the use of a De LAVAL separator, with its greater saving and more economical operation than any other, usually marks the dividing line between profit and loss in dairy farming.

There is still money in dairying with a DE LAVAL separator, but the chances are that there is very little without one.

Moreover, you don't have to pay cash down for a DE LAVAL separator, if it may be inconvenient to do so. You can buy one on such liberal terms that it will actually pay for itself from its savings, even at present dairy prices.

With butter prices as they are there never was greater need to buy a DE LAVAL separator, nor stronger reason not to buy an inferior separator or to get along without any.

You need not be in doubt about it. Just arrange with the nearest DE LAVAL agent to see and try a DE LAVAL machine for yourself. Do this if you already have another kind, and try any other kind at the same time if the maker or agent will let you do so.

If there is no De Laval agent near you write us direct for any information you desire, and with the height of the dairy season at hand by all means don't delay prompt action.

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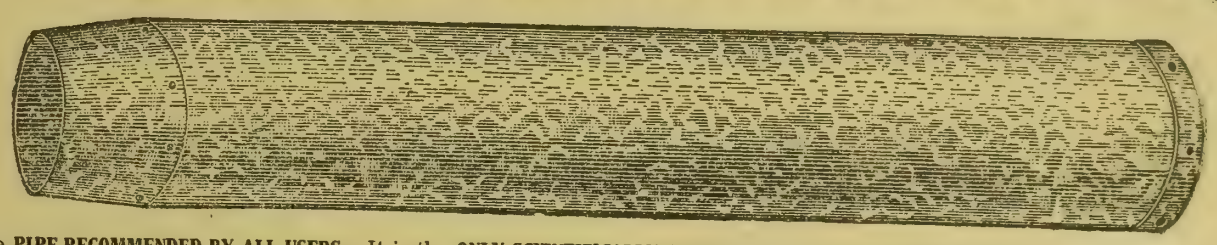

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—Wotton.

Small Fruits and Vegetables

GOOSEBERRY CULTURE.

A north or northeasterly slope is better for gooseberries than a southern slope on account of the advantages of late spring, more moisture and richer, deeper soil. The gooseberry is very partial to a moist, rich, deep soil, prefers a thoroughly enriched, deeply tilled, well drained, strong clay to a light sand loam. However, it will do very well, even on a gravelly, sandy soil. The general tendency is toward light crops on sandy soils, but the reverse is not always true on heavy clay soils. Gooseberries are especially adapted for the intercroppage of young orchards since they will cheerfully submit to partial shade, providing it does not become so dense as to seriously encourage the gooseberry mildew.

In reference to propagation, while the cuttage method of multiplying the named varieties can be used the same as for many other plants, it is not so successful or satisfactory as the layer age method for the gooseberry. Layering is accomplished by two common methods. One consists in bending the lateral shoots down to the ground and covering their tips with moist earth; the other, of mounding the entire plant with earth. The latter is the more simple and more rapid plan for a nurseryman to follow, while the former is probably best adapted for the amateur who desires to secure a few for home use. The work of layering is done any time while the plants are in active growth, but gives better results when done in early spring than early summer. The rooted tips and layer are usually dug in the fall and either stored in a plant room or immediately planted in nursery rows for another year's growth. When planted in the fall they should be mulched to prevent heaving or winter injury.

One-year-old plants from layerage will give better results than either younger or older plants. A well-rooted plant, even though the top is small, is far better than a large top with a poor root. The early ripening of the wood in the summer and the long, leafless or dormant period preceding winter weather, combine in making fall the ideal time to transplant gooseberries. The early shoots and root formation in spring, and the ease with which these are seriously injured, makes late spring planting very unwise. If for some reason early fall planting is impossible, then very early spring is the next best time for planting.

The same special care should be used in transplanting gooseberry plants as is used in the transplanting of larger plants. The roots should be well spread out in a roomy hole, and never crammed down in a slit in the ground made with a spade.

The soil should be firmed about the roots to prevent drying out, and when completed the plant should stand one to two inches deeper than it formerly stood in the nursery.

One of the serious difficulties of most plantations is that they are planted so close together that development of the plant is practically impossible. The square planting plan of 6x6 feet gives very satisfactory results, except where the soil gets very dry during the summer and where the heavy annual rainfall produces an abnormally large wood growth. Under such conditions it is better to plant the rows seven or eight feet apart and still maintain the six-foot space between the plants in the row.

Gooseberries are shallow-rooted plants, but very heavy feeders and so must be treated accordingly. Most of our soils need an abundance of well-rooted nitrogenous material to make them ideal for this class of fruit. Barnyard manure is one of the essentials for successful culture. The shallow-rooting habits of these plants makes deep tillage close to the plants not only impossible, but dangerous, and should never be practiced after the plant has become established. Just as soon as the ground is dry enough in the spring the plantation should be thoroughly worked with a cultivator or disk, tilling as deep as the roots will permit, close to the plants. The subsequent tillage should consist of thoroughly working the surface with a shallow-working tool like an acme, spike-tooth or spring-tooth cultivator every ten days or two weeks until harvest time, and then one or two good cultivations afterwards when the tillage should cease for the season.

A good heavy mulch of rotting straw is a good thing to hold the moisture and keep the soil cool, but attracts field mice and moles so seriously that the station had to dispense with it entirely. As a conserver of moisture, clean tillage or the dust mulch is far superior to the straw mulch system.

If first-class, fine, large berries are desired, the bearing wood of a plant must never be permitted to become old, weak or inactive. The essential thing is to keep the wood vigorous and not permit wood to accumulate in excess of the amount that a plant can thoroughly support. Weak-growing plants and shoots should be severely cut back to compel strong growth.

Since it is impracticable to practice regular fruit thinning gooseberries, a system of thinning when pruning should be practiced. This is accomplished by reducing the number of bearing canes from the large number usually found to from eight to eighteen, depending entirely upon the vigor of the plant. A shoot should not be permitted to bear more than four crops of fruit, after which its place should be taken by a younger, more profitable cane.

The pruning may be done in the summer after the crop is harvested, but our best results have been secured by very early spring pruning, which produced a more vigorous wood growth than summer pruning, and gave better fruiting spurs and wood. Proper pruning does much to simplify picking, and if for no other reason the plants should be thoroughly pruned every year.

A large part of the gooseberry crop is picked while the berries are hard and green, long before they have reached full size, which makes it possible to ship to distant markets in common carriers.

The picking of many American sorts is a tedious, slow, rather unsought task, but the large English sorts, on account of their size and few thorns, are comparatively easy to pick. Like currants, gooseberries should never be picked while wet or hot, since it very materially shortens their lives as a fresh fruit when handled in this manner. While the green fruit will ship long distances, the ripe will not, and must be handled very carefully to avoid heavy loss in marketing.

The common method of marketing gooseberries here in the West is in the 24-quart crate, and while it is a little more expensive than the basket or flat box, yet it places the fruit on the market in first-class shape and nearly always gives better prices than any other method.—Portland Oregonian.

Fine manure in the cow lot may be raked up and applied to the garden between the rows of vegetables during all the summer. It will act as a mulch on the surface soil.

Wood ashes and lime should be sprinkled over the garden and among the growing vegetables often.

ON EITHER SIDE.

They linger at the garden gate—
The moon is bright, the hour is late;
They laugh and talk in accents low,
And so they did an hour ago.
Why do they loiter on the scene?
The garden gate is closed between,
But still they linger, still they wait
On either side the garden gate—
And yet, it cannot be denied,
There's much to say on either side.
—Eugene C. Dolson in Woman's Home Companion.

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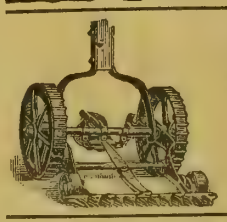

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NOTICE OF STOCKHOLDERS' MEETING.

Notice is hereby given that the annual meeting of the stockholders of the Cultivator Publishing Company will be held at the Los Angeles offices of the company, 115½ North Broadway, Los Angeles, California, at 9 o'clock A. M. Saturday, May 20, 1911, for the purpose of electing the Board of Directors for the ensuing year and for the transaction of such other business as may properly come before the meeting.

R. M. TEAGUE, Secy.
Los Angeles, Cal., May 6, 1911.

The Ornamental Garden

THE ROSE OF SHARON.

There are not many flowering shrubs that have lasted so long in public estimation as the Rose of Sharon. Rose of Sharon is an old name for it, but it goes under these as well: Althaea and Hibiscus syriacus. Why it lasts so many years in universal estimation is undoubtedly owing to its surety of blooming every year, not only blooming, but doing it abundantly. Still another characteristic that enables it to hold its position is that it is a late summer and autumn bloomer, the exact time of its best display depending on the variety it is, for some are earlier flowering than others. Of late years so many new colors have appeared in collections that to get an assortment of two dozen or more distinct sorts is quite easy; and these can be had, too, in both double and single flowered varieties. When one possesses a half dozen or so varieties it is easy to get more by sowing seeds saved in autumn and sown in spring. The flowers mixing one with the other will hybridize, so that much variation from the originals may be looked for in the seedlings; and this is how so many new kinds are obtained.

The Rose of Sharon is in the class of those shrubs that may be pruned back closely every year and to great advantage. The flowers come on the shoots of the same season, therefore the stronger and more length these shoots have the better the display; and the closer the branches are cut back every winter the stronger are the shoots that follow. In this way these shrubs can be kept down to a moderate height, as after every cutting back they are of about the same height as the year before. There are a few of these shrubs having variegated leaves, and these have been used to good purpose by many gardeners to form low hedges, and even as edgings to large flower beds. By cutting them very low every spring and shearing them in midsummer they have an ornamental appearance which is pleasing.—Exchange.

ANNUALS.

Whatever else we may have in the flower garden, we always want a few good annuals. The selection of these is a very easy matter for anyone who has been accustomed to growing flowers for years; but there are always many beginners who are somewhat bewildered by the catalogues and often fail to attain good results through the selection of varieties which need considerable knowledge of floriculture to insure success.

Among those annuals which will grow and thrive and produce an abundance of blossoms for almost anyone, the sweet pea is perhaps the most popular. This plant is extremely ornamental in the garden, and if all blossoms are clipped off as soon as they begin to fade, the season of flowering may be prolonged almost indefinitely, but if seed be allowed to form there will be no more flowers.

The annual aster is exceedingly fine for late blooming; the flowers come in many beautiful colors, and the "branching" type is excellent for cutting.

Phlox Drummondi is a charming little plant, which ought to be more generally seen in our gardens. It blooms continuously from early summer until frost.

Portulaca will grow in hot, sunny places where almost anything else would perish, and it comes in almost all the colors of the rainbow. The double variety is especially pretty.

For a showy bed there is nothing better than the petunia. It should be grown by itself, however, as it does not combine well with other flowers.

The balsam comes in all shades of red, white, pink and purple, both self-colors and striped and spotted. The camelia-flowered strain produces flowers as double and perfect as roses. One peculiarity of this plant is that plants permitted to remain where the seeds are sown often produce only single blossoms, while those transplanted twice from the seed bed will have all double blossoms.

Sweet alyssum is a companionable little plant, which makes neat edgings for beds. "Little Gem" is particularly compact in growth, and covers itself completely with clusters of snow-white, fragrant blossoms. Mignonette is a deliciously fragrant annual, but not showy. It is one of the few things which look best scattered through the garden as though it had just happened to come up there.

For long sprays of green for cutting ,ambrosia is especially desirable. It is at its best when grown in long rows.

The snapdragon is an old favorite which has been greatly improved in the last few years. Not only have new colors and shades been added, but the flowers are much larger, and some varieties are fragrant. With slight protection this plant will live through the winter, and prove even more satisfactory the second season.

For low beds near a path, the verbena is to be especially recommended. The marigold is easy of culture and free-flowering. It comes in all shades of yellow, from the palest lemon to the darkest orange; also in rich browns and maroons.

Very few people seem to know the larkspur, yet it is a most desirable addition to any garden, and a bed of the "hyacinth-flowered" variety will rival in depth and purity of color the real hyacinth.

These are a few of the annuals that any beginners may grow with a reasonable assurance of success, and even if they are rather common, they will be almost sure to thrive and produce an abundance of bright blossoms which will give satisfaction throughout the season.—Wallace's Farmer.

BULB INDUSTRY OF THE NETHERLANDS.

The following information concerning the bulb industry of the Netherlands is taken from an article entitled "Market Gardening in Holland," published in the Department of Agriculture Journal for Ireland.

"Since 1750 the cultivation and export of bulbs has been regularly carried on in Holland, though the trade only reached its present enormous proportions during the last decades of the nineteenth century.

"The bulb-growing industry was first confined to Haarlem and its vicinity, but has gradually extended wherever a suitable piece of land was available. In order to grow bulbs, meadows have been transformed and sand dunes leveled. The preparation of land for this purpose is often very costly, and the value of the best plots varies from £320 to £500 ($1557 to $2433) an acre.

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"England is still Holland's best customer for bulbs, taking nearly 40 per cent of the total export. The number of bulb-exporting firms in Holland is about 200; there are also over 2500 growers who do not export directly, but send their produce through the larger firms. The number of persons employed in the bulb industry is estimated at 4000.

"The Dutch bulb growers are organized into a general federation which now numbers nearly 3000 members, and is divided into thirty-seven local groups. A paper is published twice a week, weekly exchanges are held during the trade season, novelties are examined and reported upon by a committee of judges, and a trade council inquires into and decides all trade differences. Many exhibitions have been organized by the federation, and of late exhibits have also been sent to foreign countries. In addition to the general federation, there are two special societies, one to protect the interests of bulb exporters and the other to protect those of growers who do not export."

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Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,320 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres. and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, May 25, 1911

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This is the time of the year when the commission houses and large handlers of fruits may be dumping into the bay or river quantities of fruit in order to keep up prices. This was done last summer and without question will be this summer. The man who produces fruit will then be called upon to pay the freight to the city, and the consumer who is unable to pay the big prices which the dealers see fit to impose, will be compelled to do without fruit. There is much in our political economy which tends to make socialists.

RECLAMATION.

Making the desert bloom as the rose has been given all kinds of twists and turns, poetical and otherwise, in descriptions of the great work of reclaiming desert lands, but most potent of all have been the actual results in the production of things which have added to human hapiness, and, further, reclamation has vastly increased values of real estate. Without the reclaiming power of water practically all of this land is worthless. With the Roosevelt dam only just completed, lands in the Salt River Valley under its irrigating system are today valued at from $100 to $750 per acre. In California and Arizona, under the Laguna or Yuma dam, lands are worth from $100 to $500. Sacramento Valley lands are not in the class of lands valueless before the work of reclamation, but those under the Orland project have increased vastly in worth; they will now command from $100 to $500 per acre. Even over in Colorado, in the Uncompaghre Valley, $75 to as high as $500 per acre is commanded. So far as government reclamation schemes are concerned, the state of Washington claims the most pronounced case of increase in values in the Yakima system, where lands are now held at from $500 to $2,500.

California has received less material benefit from government work than almost any other Pacific state; the only system entirely within our borders is the Orland, on which less than half a million dollars has been spent, and over 14,000 acres of land benefited. This land has been raised to a valuation of $1,400,000. Of course the Yuma dam covers some land in California as well as in Arizona; in both together about 90,000 acres have been lifted to a valuation of $9,000,000; ultimately it will probably cover a quarter of a million arces worth approximately $20,000,000 to $30,000,000. The Yakima project in Washington, mentioned above, will ultimately cover over 250,000 acres, of which only 17,000 are now under irrigation; these lands when all under irrigation will have a value in excess of $30,000,000. It must also be said of this particular project that its cost to the land owners is the greatest of any of the projects; each one benefited is to pay ultimately the sum of $52. Record for lowest cost is held by the Minidoka system in Idaho and the Truckee-Carson system in Nevada, which will charge $22 per acre.

The feeling was more or less general that changes made in the service might result in less enthusiasm in this work, but we now believe that a pronounced advance will be made in the reclaiming of desert lands. It requires vast sums of money, and the work must be taken up with caution. Some mistakes have been made, and some systems have cost more than they should, but on the whole there is great benefit.

PLANT WISELY.

Commenting on a former Cultivator editorial advising judgment in extensive planting of avocados or any untried fruit, Mr. W. B. Thomas of Wahiawa, Hawaiian Islands, writes:

"I want to indorse your editorial in a recent issue of the Cultivator wherein you advised planters to go slow on avocados. This is undoubtedly a grand fruit, and large quantities are grown and eaten in the Islands, but like many other tropical fruits, one has to acquire a taste for it. Let growers, as you say, set out a few trees, but go slow on heavy plantings till the market comes up. Half a carload thrown on the San Francisco market now would glut it. I know. I sent 27 small crates there last summer, and owed the commission man $2.00 in the settlement."

Orchardists labor under the disadvantage of having to wait years before their product is ready for the market, hence caution and good judgment must be used to prevent the loss of years of labor. We well recall that a score or more of years ago many orchardists planted extensively the Kelsey plum. This fruit of magnificent size and perfect shape appealed to all as having a great future. It did sell well when first put upon the market and in limited quantities yet commands fair prices, but those who planted acres of Kelseys learned that there was no continued demand for them. As Mr. Thomas says above, vast quantities of the avocado are eaten in the Islands, but like many other tropical fruits one must acquire a taste for it. If his 27 crates were sufficient to stall the San Francisco market so that he had red ink returns, it is wise for our planters to experiment before large plantings are made.

ENCLOSING A STAMP.

The Cultivator's query department has grown so much in interest that it becomes necessary at times to answer some of the queries through the mail. Sometimes a mail reply is requested and in such cases a stamp is usually enclosed. This is often gummed to the letter by one corner, and sometimes the entire stamp is stuck on as tightly as if it were on the envelope. The inquirer must realize that these stamps are useless. Where one wishes to send a stamp it is easy to use a little wire paper clip to fasten to the letter or in the absence of this handy little appliance, pin the stamp to the paper. Sometimes they come wrapped in oil paper, which is perfectly satisfactory, but not as convenient for the sender as the other two methods. Again, there are inquirers who do not take the trouble to enclose stamps, but ask for reply by return mail without fail. In business matters no business house expects stamp for reply, but when the information requested is entirely for the benefit of the questioner and of no general interest, such as request for an address, the sending of a stamp is a matter of courtesy and a slight indication of appreciation of the courtesy asked.

READ CAREFULLY.

We have before referred to the fact that some inquiries are made of us for matter fully discussed in the query department of very recent issues. We have referred to this feature before, but still the questions come. It is a habit with many people to merely glance at the paper, then when need for information arises, they ask for special service. In the interests of sparing as much of this repetition as possible, we will ask our subscribers to be observing.

At this time we may refer to the fact that within a few weeks the index for the present volume will appear, making easily available the fund of information published in the Cultivator for the last six months—if the copies have been filed.

These warm days are putting the dry growth in canyon and on hillside in condition for the careless match tossed aside, the cigarette stub, the discharged firearm and the camp fire, to cause immense damage. Everyone who builds a fire for his own comfort when in the mountains on hunt or picnic can at least grant to his state this much protection, that he will see that every ember is extinguished. From this day until the rains come there is constant danger.

BETTER ROADS.

From statistics issued by the office of the secretary of state it appears that California has in excess of $40,000,000 invested in automobiles. That is a big bunch of money and while some look upon it as a vast sum wasted in pleasure we believe a great many of these machines mean economy in the conduct of business and of farming operations. The point has been raised that the good roads movement is inspired by automobile dealers for the use of the sporting class while the farmer pays the largest percentage of the road fund. We must bear in mind that farm produce is moved at a less figure over good roads than over rough ones. If the money raised for good roads is honestly spent, whether it is inspired by sporting man or farmer is a small matter; the point is, get good roads. The farmer in France moves a certain tonnage of produce to market at a cost of $7 while the same tonnage carried the same distance in America costs $25. America is a new country and an enormously big one, and it will take years to put its roads in the same condition as those of France, but with honestly directed effort at road improvement the cost of haulage will be greatly reduced.

MEMORIAL DAY.

The people of America are the only ones who honor the dead and living war heroes by observing a particular day in commemoration. We say the dead and the living because it is as much in honor of the veterans who are still living as of those who are camping "within the low green tent whose curtain never outward swings."

Memorial Day has been observed since a few years after the Civil War, and while some have suggested that with the passing of the old soldiers its observation will cease, we do not think the time will ever come when America will forego the privilege of honoring those who were responsible for our united country. Many think that in making the day one of picnics, sports and pleasure generally, that its sacred nature would soon have no hold. Without question many do observe the day with little thought of its real meaning. Every effort should be made to keep it, as originally intended, a holy day.

The receipt of printed matter from the departments at Washington seems to be rather more liberal this month than for some time. We do not think this is so pronounced as in the month of May of some previous years, but this is the month in which weights of mail are taken to fix the compensation of railways for the coming year and it is charged that in the past officials have found it advisable to send out a large amount of material at this time.

The next meeting of the Holstein-Friesian Association of America will be held in Syracuse, New York, on Wednesday, June 7th. There will be election of officers, reports of committees and general discussion of matters of interest to Holstein-Friesian people. The President is C. W. Wood and the Secretary, Frederick L. Houghton, Brattleboro, Vermont.

Are you proud of being a farmer? Do you realize that you are following the calling that demands a greater knowledge of the forces of nature than any other? Are you aware of the beauties and natural advantages surrounding you? If not, awake.

Agricultural News Notes of the Pacific Coast

Northern California

The Chico alfalfa meal mill made its first run last week.

Hop raisers are anticipating fancy prices for this season's output.

Tomato canning is one of the great industries of Haywards, Alameda County.

Unsanitary dairies is the charge preferred against some Santa Rosa dairymen by the state dairy inspector.

The Lake County Irrigation Company has filed articles of incorporation with a capital of $500,000.

Professor Shaw of the State University reports that Yolo County is adapted to the culture of ramie.

A reservoir will be built near the headwaters of Kelsey Creek; it will have a capacity of 25,000 acre-feet.

Vacaville reports some cherries as dropping prematurely; this is thought to be the result of the cold weather.

The town of Davis claims credit for shipping the first carload of raisins ever sent from the state of California.

The California Country Life Committee held a meeting at the time of the University Farm picnic at Davis.

The Farmers Club of Ukiah recently held a most enthusiastic meeting and discussed problems of the creamery.

Secretary Snow of the State Board of Health reports four squirrels recently found infested with bubonic plague.

The State Master made a visit to the Santa Rosa Grange Patrons of Husbandry and made an address at its last meeting.

A reclamation scheme is under way by which 4,000 acres of Yolo County will be reclaimed and divided into small holdings.

A scheme of drainage which contemplates the reclamation of 26,000 acres of fertile farming lands of Siskiyou County and Southern Oregon is under way.

County Horticultural Commissioner Gallaway reports extensive plantings of new orchards in the neighborhood of Healdsburg, Sonoma County, during the past season.

A meeting was recently held at Rio Vista, Solano County, to discuss the matter of widening the Sacramento in the interest of navigation and better drainage of the river.

The first carload of cherries from Vacaville was shipped on Wednesday, May 10th; it contained 1168 boxes; this was three days later than the first car from the same place last year.

Sonoma County hop growers are jubilant over the fact that one year contracts have been made on the basis of 20 cents per pound; the indications are that even this price will be increased.

Landowners met at Orland, Glenn County, last week and discussed the matter of signing up for water and the management of deliveries under the government project; it is thought 40,000 acres will be signed.

One of the latest granges to be formed in this state is that at Sebastopol, and yet it has the ambition to entertain the coming meeting of the California State Grange. The next meeting will be held on Saturday.

Central California

Sanger, Fresno County, has voted to incorporate.

Porterville, Tulare County, has shipped some of its finest Valencias.

Hanford people are planning for a Kings County Carnival to be held May 23-27.

Hanford recently made a shipment of twelve carloads of fat sheep to San Francisco.

The apricot growers of San Jose are most hopeful of long prices for canning fruit.

Tulare Grange is urging the local board of education to install a domestic science course.

Madera recently shipped the prize car of beef cattle, the steers averaging over 1300 pounds.

A Porterville blackberry grower claims a profit of about $400 per acre from his small fruits.

Santa Clara Valley prune growers are holding at 4½ to 4¾, some even refusing these figures.

Ceres, Stanislaus County, claims almost a monopoly on the production of Caprifigs and the fig wasp.

Kings County poultry men recently met at Hanford and made plans for a poultry show to be held during carnival week.

The Ceres Courier reports the establishment of a new fruit packing concern which will handle peaches and table grapes.

Salinas, Monterey County, is after a bunch of cattle thieves which have taken and slaughtered cattle from various ranches.

A member of the whitefly family is reported by Commissioner Schell of Fresno County as doing much damage in some of the vineyards.

Professor Quayle of the state agricultural experiment station force is investigating in Fresno County methods of destroying grape leaf hoppers.

Fruit shippers of Turlock, Stanislaus County, recently met with railway officials and discussed methods of handling the coming fruit and melon output.

District No. 1 of Tulare County reports the construction of over fifty miles of good roads and a desire for a great increase in road building for the coming year.

The Watsonville Pajaronian reports the formation of a company which will take in investors on the $1.00 per week basis, the money to be invested in a hog farm and its equipment.

Investigations in the San Joaquin Valley on the extermination of the ground squirrel cause sportsmen to fear that the cottontail may be destroyed in the general campaign.

The state fish and game commission is offering $20 bounty for killing of mountain lions. The entire skin of the lion, with affidavit, must be sent prepaid to the office of the board.

The management of the Apple Annual which was such a success last year, has fixed upon October 9th as the opening date, at which time Governor Johnson is expected to press the button which will set things in motion for a still more successful exposition.

Southern California

Riverside is discussing the matter of certified milk production.

Imperial County reports but very few cattle infected with tuberculosis.

Imperial Valley barley is commanding $1.12½ to $1.13½ per hundredweight.

Bloomington, San Bernardino County, reports one of its heaviest plantings of citrus fruits.

Redlands orange growers are taking up the matter of fumigation by a co-operative association.

Of the 2200 acres of apricots in Ventura County 1540 have joined in the co-operative marketing effort.

The Orange County Dried Fruit Association hopes to control an output of 1200 to 1300 tons of dried apricots.

An Orange County celery grower is trying the plan of plowing under barley to fit celery land for bigger crops.

The second cutting of alfalfa was practically destroyed by army worms in several sections of Southern California.

More than 2500 property owners of the Imperial Valley have signed a petition for the formation of a Wright irrigation district.

Imperial Valley alfalfa growers find parasites attacking the alfalfa butterfly which has been such a pest and greatly reducing it.

Owing to irregularity of work the orange packing house at Bloomington, San Bernardino County, has advanced the wages of its packers.

Imperial Valley has had some trouble with vine hoppers, but some growers have found that they can eliminate 75 per cent of them by the use of oil cages.

The El Cajon Valley in San Diego County will observe a Fruit Day. Towns which will unite are El Cajon, Lakeside, Foster, Alpine, Descansa, Cuyamaca, Dehessa, Jamacha.

The Anaheim Fruit Association has issued a circular to its orange growing members calling attention to the need of better orchard care in order to produce the highest grade fruit.

The Alta Cresta Groves of Riverside, formerly belonging to the late C. E. Rumsey, is shipping Valencias and offering to ship under its brands fruit for surrounding sections.

Enormous quantities of gypsum have been located in Riverside County, not for from Blythe Junction, near the Colorado River. Experts have declared that 18,000,000 tons are in sight.

Preliminary work is being done to launch a reclamation scheme in San Diego County. It consists in damming the San Luis Rey River at the lower end of the famous Warner Ranch. The dam will back up water so as to cover at least 5000 acres of the Warner Ranch.

The trustees of the Bonita High school, Lordsburg, have planted one acre each of Navels, Valencias, also Eureka lemons, on the school grounds for agricultural instruction. They are set out in 9-tree plots on which will be tried various fertilizers and cover crops. This is the starting point of a citrus experiment station which is expected to be of great benefit to the district orange growers.

The Coast

Grazing in the Yellowstone Valley is reported as exceptionally good.

The largest field of corn in the state of Washington is at Rosalia and is of 250 acres.

Kennewick, Washington, will ship about 18,000 crates of strawberries this season.

The acreage of corn about Colfax, Washington, will be ten times as great this year as last.

The tendency of the market on wool is upward, Utah growers now receiving 12 to 15 cents.

There are more acres of grain in Whitman County, Washington, this season than ever before.

Heavy rains fell in Eastern Washington and were much appreciated especially by wheat farmers.

The Idaho State Grain Commission has formulated rules regulating the handling and storage of grain.

President Taft will ask congress for $300,000 more to complete the work of control of the Colorado River in Mexico.

Late frost caught many peaches in the orchards near Clark, Washington, on May 9th. Some claim two-thirds of crop gone.

Well drillers at East Selah, Washington, have struck a fine strata of gravel and are getting a good flow at 400 feet depth.

Fruit growers at Wrightville, Washington, are installing a water pressure pipe system and will irrigate orchards with sprinklers.

An Arizona bean grower has 60 acres of beans nearly ready for market which he now considers will bring him about $10,000.

The week beginning May 15th was an exceptionally good one at the Union Stockyards, Portland, extra quality prime steers commanding $7.25.

A sheepshearer at Hooper, Washington, has utilized an electric horse clipping machine for his work this season, and reports excellent results.

Idaho reports fewer sheep this year and consequent shrinkage in the spring clip; it will aggregate in the state about 17,000,000 pounds as against 20,000,000 last year.

The Intermountain Good Roads Association of Washington is building sample miles of model road in different portions as an inducement to a general extension of good roads enthusiasm.

The warden of the Nevada State Prison reports that the farm in connection with the prison will produce this year over 400 tons of hay, and that it is not only self-supporting but of profit to the state.

A poultryman at Standpoint, Idaho, was surprised to find his birds coming home each carrying a card on which was written "Please keep your chickens at home." This card had been attached by a thread to tempting morsels fed to the hens.

The strawberry season began in the Milton-Freewater district on May 15th. This is two weeks later than it has been for many years. More than 100 acres of new plantings were made this spring in that section. Last year's shipments aggregated 70 cars; this year's will reach 80.

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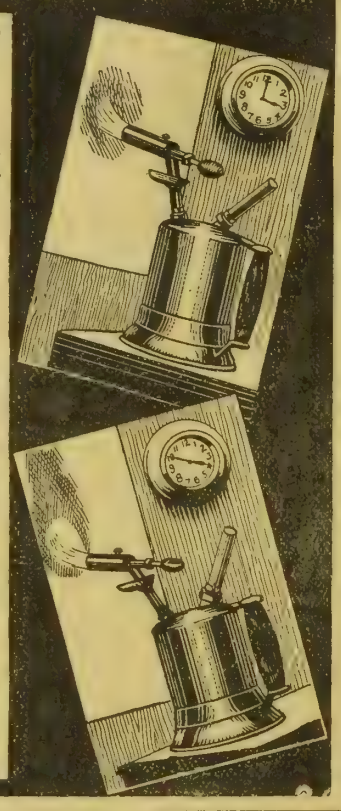

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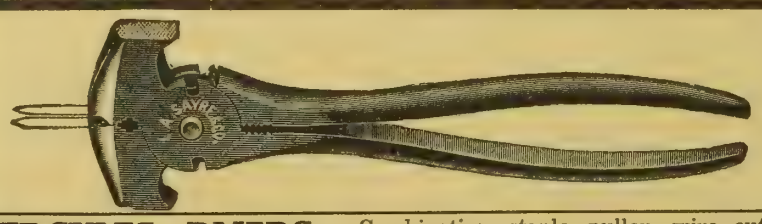

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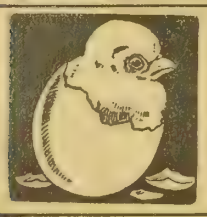

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Practical Poultry Culture

Practical poultry people who may have ideas from their experience as to methods of feeding and housing and general care of poultry will convey a favor upon the Cultivator and its circle of readers by sending in concise accounts. Mrs. Basley is always willing to answer queries which with the experience of others should make this a most valuable feature in poultry life on the Coast. Opinions or matters of a personal nature should be omitted, but a concise statement of facts is always valuable.

TURKEY TALK.

By Mrs. A. Basley.

Letters are coming in to the writer still about turkeys which indicate that more people than ever are taking interest in the turkey business. One letter asks when is the best time for hatching. The best time undoubtedly is nature's own time, that is the spring, but I have successfully hatched and raised turkeys from December to July, in this matchless climate.

I have had turkeys hatched in July that weighed twenty-four pounds (young toms) at Thanksgiving, these, however, lived in a vineyard and had all the grapes to eat that they wanted. They helped themselves. I found that the best matings were from a tom of about a year or eighteen months of age with older hens, although the young hens make good mothers. With turkeys in confinement, remember that their natural food at breeding time is insect life, worms, grubs, grasshoppers, etc., and try to imitate as closely as possible the conditions of nature. Give the turkeys, I mean the parent turkeys, plenty of green succulent food as well as plenty of animal food, with a limited amount of grain. Corn should be avoided, it is too trying for the liver and hard to digest. Corn may be used for a few weeks before killing but is not suitable for breeders unless the effects are counteracted by a large amount of grasshoppers.

A disease called blackhead has attacked the turkeys in the East, in some places wiping out whole flocks. This disease I have not met with in California, except possibly in one instance. I have seen many cases of common liver complaint and by my directions others have succeeded in curing many of these.

The symptoms of blackhead are almost the same as those from common liver complaint; namely, it commences with diarrhoea. The discharges are frequent and generally of a yellowish color. The next symptom is the drooping tail followed by a drooping of the wings, after which death soon ensues. When the disease is at its height the head assumes a dark color, hence the name blackhead. Young turkeys are much more susceptible than the older.

The disease is said to be caused by tiny parasites, which can be detected only by the aid of a microscope. These parasites are sometimes found latent in chickens. This possibly may be the reason that turkeys never do well in the same inclosure with chickens.

Doctor Salmon tells us that the seat of the disease called blackhead is in the caecum. The caecum is sometimes called the blind bowel. It is a sort of appendix in the turkey, having no outlet. It is the two lobes of bowel united by a ribbon of fat (the pancreas). In blackhead and also in some cases of liver complaint an abscess forms in the caecum, but this can only be discovered after death, and I have only found it in a post mortem of one turkey.

First, liver complaint comes from wrong feeding, or overfeeding, which has overworked the liver; secondly, blackhead comes from parasites; thirdly, the symptoms of both diseases are almost exactly the same in the first stages. Doctor Cushman, in discussing this matter, decided that when the bright yellow diarrhoea comes on showing liver trouble, the remedy is something bitter and something sour. This is easy to remember. He also recommends no food but green food and says that turkeys have been known to cure themselves by living on acorns.

My remedy is first a liver pill, or a dose of Epsom salts (about 15 grains) followed by quinine for a week, one or two grains according to the size of the turkey, every night, with sour milk and no food but onions and green alfalfa or grass, keeping this up until cured.

The liver is the largest organ in the body of the turkey, and if you can keep that healthy and active you will have an active and healthy turkey. For this reason I lay special emphasis on the food necessary for the liver of the little turkeys. The food that invigorates the liver the best is onions. One of my correspondents this week asks if it is possible to give too much onion or too much egg to the young turkeys. Not if fed according to my directions in a recent article. You can give both lettuce and onions freely to the little turkeys. The lettuce is 95 per cent water and is refreshing to the bowels and good for the digestion. If you interrogate nature you will find that in the spring time when little turkeys are hatched that the chief food that nature provides for them is succulent green food, and the newly bursting forth insects, the developing bugs and grubs and but very few seeds except those that are sprouting. We can imitate nature in giving tender greens, but the insect life which is so necessary we cannot give enough of, so we must substitute something that resembles it as closely as possible. The hard boiled egg, boiled half an hour to make it tender (if boiled less it is tough) the clabbered milk and the cottage cheese, not boiled but made tender by warming only to a temperature of 98, these are the best substitutes that I have been able to find, and very gradually give the wheat and the oatmeal until at last the turkeys are sporting the red (red comb and wattles), and if we have given them a vigorous constitution by not overtaxing their digestive organs or overworking their livers, or making them take cold by shutting them up at night so that they become overheated (they need the fresh night air), they then are so sturdy that there is no need to worry about them, it would take an axe to kill them. The time of their life called "sporting the red," they need plenty of green food, it is a trying time to some just as teething is to some babies, but those turkeys that have not been overfed in their babyhood, that have not been weakened by lice or mites, get over this period easily and when that is over they grow amazingly.

Keep them growing! Turkeys are such a very profitable crop that it is worth while to give them the green food and the animal food that they need.

You will find that turkeys have little disease except liver trouble, but when the youngsters begin to feel their strength if they do not have free range they will be inclined to scrap together, and it is almost impossible to stop them. I have even known one to break his brother's neck, and they frequently wound each other on the head and neck. The wounds sometimes prove difficult to heal, especially if there is any germ of chicken-pox around, it takes hold and the trouble becomes more serious. The best cure is greasing the sore spots lightly with carbolic salve. This will usually have to be done after nightfall. Twice greasing will cure unless the case is very bad. Turkeys should not be kept in the same yards with chickens, for if the chickens get roup the turkeys are very apt to take it. Use the same cures that have already been given in these columns.

BEGAN WITH SIXPENCE.

A man who began with a sixpence and bred poultry as a boy and has now become the head of one of the large produce houses of England, writes of his first effort in the Small Holder printed in London. We quote from the article and hope it may prove an inspiration to some California boy.

My father, who was in the worsted manufacturing business, had left him at the age of about thirty a farm of

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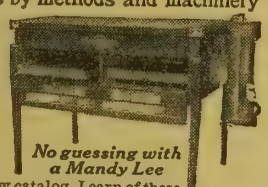

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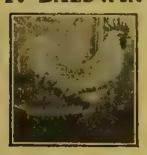

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Actions, looks, words, steps are the alphabet by which you may spell character.—Lavater.

about 100 acres in a most delapidated condition at Kirkby Lonsdale. He immediately gave up his business and took to farming.

At the age of four and a half I was sent to the National School at Kirkby Lonsdale. At twelve years of age I was transferred from the National School to the Grammar School, the headmaster of which was the Rev. J. N. Williams, who is now the Vicar of Chapel-le-Dale and a respected judge of poultry at many of the leading shows, and well I remember his coming, as he brought with him a lot of poultry and pigeons—Silver Penciled Hamburgs, Modern Game Bantams, and Russian Trumpeters. These so impressed me that I immediately fell in love with both poultry and pigeons, but how to get them I did not know.

My opportunity came at last. Mr. Williams wanted to go away on the Christmas holidays, and he asked me to feed and look after his stock while he was away. Of course I was delighted, and on his return, because I had looked after them so well for him and kept record of eggs laid, etc., he presented me with a cockerel and pullet, Silver Penciled Hamburgs.

Well, my joy knew no bounds, but then I began to think what I was going to do with them. They could not go with the common farmyard hens at home; I had no house for them, and could not buy one, as I was like most boys, had spent out the pence as fast as I got it.

However, I went to my mother and asked if she would lend me sixpence to buy a sugar-barrel, but the questions I had to answer before I got the sixpence were searching and numerous indeed.

Still, I got the barrel, knocked in one end, put a perch in the center, and hung a sack partway in front to keep out the wind and rain and put it in a secluded part of the farm.

I used to go and feed them morning, noon and night, and very often took them half my own meals, and, though very few people even knew I had them, I managed to rear about twenty chickens.

One day I asked my father if he would enter me a pair at the Kirkby Lonsdale Agricultural Show, at which he always exhibited horses, cattle, sheep, roots, butter, or something of that sort. "Oh," he said, "I know nothing about showing cocks and hens;" but eventually by a great deal of coaxing, I prevailed.

I had no poultry baskets, and the birds had to be on the show ground at 10 o'clock in the morning, but to show how anxious I was, I went and selected what I considered the most forward and best pair I had got, and carried them one under each arm to the show ground at 8 o'clock in the morning, and there I had to wait with a bird under each arm until the pens were got ready.

Mr. Williams, the headmaster, came along with his team in smart poultry baskets, and the usual supply of sponges, oil, etc. About this I knew nothing at this time, so my two poor birds had to go without either washed faces or legs even, but fortunately they had been kept on a very nice run in open grass field, and were as clean and bright as a new pin.

How I remember Mr. Williams coming down the row of pens, scanning each one with a sharp eye as he passed along, and getting opposite my pen, taking a full stop and examining them critically. I then knew for the first time my birds were not the worst in the class by the expression on his face, then he asked me if I knew to whom they belonged. I told him they were mine and that I had bred them from the paid of birds he had given me; he seemed astonished.

On going to school the following morning, Mr. Williams asked me a lot about the birds, and arranged we should go and see the others at the dinner hour, and when he saw them he immediately said: "You haven't shown your best, my boy, for you have far better birds here than the pair you exhibited yesterday morning."

He then arranged for me to exhibit at Bingley, Altrincham and Birkenhead.

The first show was Bingley, the "hot-bed" of Hamburgs, and we put £3 on the pen.

While I was at school on the show day away comes a telegram, which gave both father and mother a shock. As telegrams were of very rare occurrence for them to receive and expensive to send, they both thought someone was dead. However, when I got home from school, father said: "Here's a telegram, something about cocks and hens." What it said was: "Wire lowest price pair Hamburgs, Bingley."

After consulting Mr. Williams, the reply sent was: "Catalogue price lowest." They won second prize and never came home.

I repeated the performance at Altrincham and Birkenhead, and all were sold, so I was getting rich fast now, putting £17 into the savings bank, where it is to this day, and with accumulated interest is quite a nice little sum.

POULTRY QUERIES.

Good Returns.

We note that big egg and poultry stories are in order. Cultivator readers seem to have been inspired and we have the following:

We have six white Pekin ducks, owned by our daughter, Ethel, that were hatched April 21, 1910, and up to April 21, 1911, they had laid 575 eggs. Can anyone beat that?—George McNeil, Buena Park.

We have a turkey that began to lay June 1, 1910, and laid till Jan. 15, 1911. In that time she laid 175 eggs, and now she has eleven turkeys a week old which she hatched from her own eggs.—W. W. Johnson, Buena Park.

MEAT FOR INCUBATOR CHICKS.

I desire to call attention to one mistake that I made relative to raising incubator chicks. My first experience was indeed unpleasant. I had exceedingly good luck in the hatch, but raising them was the trouble. The first hatch I lost nearly the entire hatch, at the same time taking the best care of them that I could; they seemed to get weak and died, and it seemed impossible for me to get any remedy. Finally, through experience, and kindness of a lady that had 15 years' experience in raising incubator chickens—the lady explained to me by saying that she was of the opinion that I made the same mistake that she did when I commenced to raise incubator chickens—"I fed and watered them with all care that I could, yet I lost nearly all first hatching. It was suggested to me that it was for want of proper food, observing laws of nature, and the manner that the old mother hen cares for her young chicks. By rustle and scratch in wood yard, lot and any place where bugs and worms are found, having a small number of young ones, she can obtain what you might term meat supply for the young birds. The incubator chicks have no one to supply them with this kind so the lady made arrangements with her butcher to get a supply of beef scraps, that she fed at least three times a week to young chickens or a small amount daily. The result was that the young birds did fine. I resorted to same plan, and after that experienced no trouble in raising young chickens and at times had 500 in my yard.—Southern Cultivator.

Above all things do not crowd your fowls. Give them plenty of room. Cut the flock in two if necessary, or else add larger quarters. We know a farmer who crowded 100 hens into a house only large enough for perhaps 60 fowls. He got only four or five eggs a day and wondered what was the matter. When he cut his flock down to fifty of the best and most promising layers, he gathered three or four times the number of eggs that he got from his flock of 100 hens and the cost of feeding the fifty fowls was only one-half as much. Furthermore, the chicks hatched from his 50 fowls were much stronger than he ever had before.

To break a dog from sucking eggs, make a hole in the small end of the eggs and pour out part of the contents. Put in tartar emetic, size of a common bean. Stir with a hatpin to mix with the egg. Paste the hole shut with a bit of gummed paper off an envelope, if the mucilage isn't handy, and leave it in a nest where the dog goes to get eggs.

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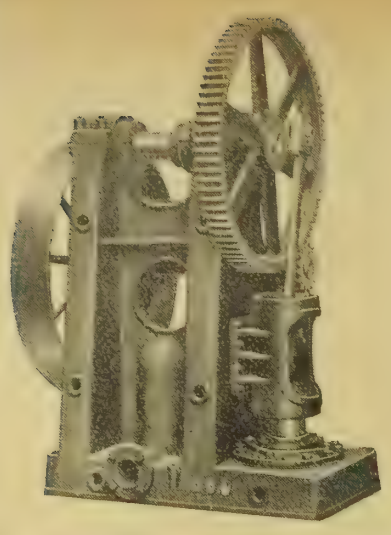

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TREE TROUBLES—THEIR CAUSE.

(Continued from Page 365.)

weather the normal green color appears and the leaves soon put on their natural appearance.

A more serious condition of mottled leaf may result from any one of a variety of causes. It does not necessarily indicate any specific disease. There has been, however, in Southern California, particularly during the last year, quite a widespread condition of this sort which appears to be of the same general nature. This condition has been attributed to a variety of causes, most of which probably had nothing whatever to do with the disease. One theory which has been given prominence is that mottled leaf is due to the presence in the soil of an excess of magnesium over lime. Not long previously the opposite theory was held in a similar case in the San Joaquin Valley namely, that mottled leaf is due to an excess of lime in the soil.

An examination of typical cases of mottled leaf all over the affected districts, made in company with Professor J. H. Norton, shows the following facts to be true: The trouble is less generally abundant near the coast and more abundant inland. Oranges are more affected than lemons, and Valencia oranges more than Washington Navels. Oranges top-worked on other citrus trees are worse affected than those which were budded in the nursery. Oranges top-worked on lemon trees are rather worse than those top-worked on orange trees. The worst combination in this respect is, therefore, Valencia top-worked on lemon.) Trees are worse affected on the south than on the north side. The most heavily fertilized groves are as badly and possibly worse affected than those which have received less fertilization. (This is particularly the case in connection with the application of stable manure.) Young buds top-worked on large trees often show mottled leaf for several years, but gradually come out of it and attain a normal condition as the new tops become larger. Trees standing close to corrals or manure piles, where they receive a considerable supply of liquid manure, are likely to be badly affected with mottled leaf.

Subsoil examinations were made in numerous affected groves or parts of groves, together with similar examinations of the soil about the nearest unaffected trees of the same kind. The following facts were observed: Affected groves were underlaid with coarse or sandy subsoil, plowsole, or shallow hardpan. Neighboring unaffected groves of the same combination as to variety and stock, sometimes only a few yards away, were underlaid with a heavier, better water retaining subsoil or were free from plowsole or hardpan. In groves where a certain area or streak of mottled leaf ran through the grove, this corresponded to an area where the subsoil was different, and usually where it was coarser.

All these observations taken together point to one conclusion: namely, that the most prevalent and typical form of citrus mottled leaf is due to an irregular supply of moisture and plant food, and is to be likened in a very general way to a sort of indigestion or irregular nutrition. Here we see the effect of the dry year of 1910. Irrigation was practiced more or less thoroughly during this unusually dry spring and fall, as well as during the summer, but all observation goes to show that in most of the citrus groves the subsoil became much dryer than usual during that season. Orchards underlaid either with a porous subsoil or a hard, impenetrable subsoil were most subject to this condition, as already discussed. The result was that in irrigating only the surface layers of soil were saturated, while between irrigations the soil dried out much more than commonly. This would have the effect of giving the tree an irregular nutrition, soil food materials being taken up at the time of irrigation but being unavailable during periods of dryness.

We are led to the conclusion that this is the nature of the trouble from the facts cited in regard to the soils upon which mottled leaf is most prevalent, the fact that the best fertilized groves were aparently worse affected, other things being equal, and the fact that trees getting an excess of nutriment, like those top-budded and those standing close to manure piles, were worse affected. The fact that interior districts suffered more than those near the coast, and that trees showed more effect on the south than on the north side, indicates that where the sun was hottest, drawing most upon the moisture, the trouble became more pronounced.

We do not wish to be understood that the whole question of mottled leaf may be settled in this manner, but simply wish to state these suggestive facts.

About Withertip.

In addition to the typical mottled leaf, there is now occurring in citrus groves, mostly on the lighter, gravelly or sandy soils, a great deal of dieback, chlorosis, poor growth, lack of fruit and similar trouble. Much of this trouble, however, with many other things with which it has nothing to do, is now being laid to the so-called "withertip" fungus, and some growers are seriously considering spraying their groves with Bordeaux mixture or some other fungicide to suppress this largely imaginary parasite. Most careful and numerous experiments made at this laboratory have shown that it is absolutely impossible, even under conditions much more favorable than ever occur in the orchard, to infect a healthy citrus tree with this fungus. On the other hand, we find that it is a most common inhabitant of trees injured or diseased from any cause whatever. The cases of dieback and similar troubles alluded to above are the direct result of subsoil drouth during 1910, and are to be overcome only by maintaining and improving the moisture content and water retaining capacity of the soil by more abundant or more frequent irrigation if necessary, cultivation, and the addition of water retaining material to the soil.

Little Leaf of the Peach.

The scene changes to the San Joaquin Valley, where much anxiety is felt on account of this compartively new trouble. A recent trip through the affected regions with Mr. Thomas F. Hunt of this department disclosed the following facts: The disease is characterized by the development of spindling, yellow, sickly looking shoots on the new growth, with small, narrow, yellow leaves. The leaves along the shoots drop off during the summer, leaving tufts at the ends. Fruit fails to develop, shrivels and drops. Worst on trees from three to seven years old. This trouble also attacks other stone fruits, walnuts, pecans, and other trees.

Here again subsoil examinations showed that the disease was practically confined to trees on light, sandy soils or subsoils, where the effects of the dry year of 1910 had been more pronounced. Trees on a fairly heavy subsoil, or those which had received abundant irrigation throughout the preceding season were decidedly free from the trouble, even in the worst affected localities. From these facts it appeared most probable, if not certain, that here again serious trouble and a very specific disease had been caused by the preceding, abnormally dry season.

A very significant fact was observed in the San Joaquin, namely, that orange trees growing near peach trees affected with little leaf, and in the same kind of soil, showed typical cases of mottled leaf, while near healthy peach trees the orange trees were likewise healthy. This indicates at least that the same conditions may produce both diseases.

Walnut Dieback and Yellows.

An unusual situation has developed this spring in many walnut growing sections, where large numbers of young trees, from two to ten years of age, have shown a sudden dieback in the tops, some or all of the limbs dying back to the forks of the tree, or, in some cases, whole trees dying to the ground. Much of the wood thus affected is not entirely dead, but sends out belated, weak-growing, yellow shoots and leaves. The lower part of the limbs or trunk sends out strong, thrifty suckers, showing that the root is still active.

Here again we find the trouble most pronounced on soils which for any reason became unusually dry in the fall of 1910, while on heavier soils and where the trees had plenty of moisture late in the season the trees have come out normally this spring. The trouble is in some cases to be connected with coarse subsoil, and again is pronounced in some young orchards on fairly heavy soil where alfalfa is growing between the trees and where continual irrigation and cropping of the latter plant has compacted the soil so that an ordinary irrigation does not reach the subsoil. The effects of frost are associated with the trouble to a considerable extent, the trees being much more easily injured in this way when in a dry condition.

Trees affected in this way should be pruned back to good live wood, if not too far gone, and it is to be expected that a new top will soon be produced. By proper attention to irrigation late in the season, especially in dry years, it is not to be expected that the trouble will occur again save in soils most unsuitable for walnuts on account of coarse subsoil near the surface. We may say here that in choosing crops for interplanting walnuts it is not desirable to let the ground remain in alfalfa too long unless an abundant water supply is available and one can be sure by actual examination that the soil is sufficiently moist at all times, both for the alfalfa and for the trees. In any event, it is ordinarily best to leave a cultivated strip at least eight feet wide on each side of the tree row, and as the trees grow older it is better to plow out the alfalfa and grow some annual crop which will receive regular cultivation as well as irrigation.

These troubles are the most specific ones which have developed as a result of the abnormally dry spring and fall of 1910. Many other similar effects in various plants are being constantly met with. It all goes to show the necessity of actual knowledge at all times of the moisture condition of our subsoils, rather than a blind, automatic adherence to established irrigation customs or surface indications. The most noteworthy feature of Professor King's visit among us last fall was the dry subsoil condition which he disclosed in a majority of the orchards visited, some of them those of our best known growers. Even directly after or during irrigation he showed, by a very simple method of examination, that in many citrus groves the soil was entirely dry below the surface layers. Nothing so impresses and grows upon the writer, as he slowly gains a little experience and insight into the influences affecting plant growth in California, as the overwhelming importance of a uniformly abundant supply of soil moisture. The effects attributed to parasites, lack of fertilizers and all sorts of obscure conditions, which are really due to nothing more than a lack of or irregular supply of water, brought about either by actual deficiency or bad physical soil conditions, are too numerous to mention.

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Queries

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Fertilizer for Oranges.

What should I use for fertilizer for my orchard? It is oranges and lemons alternate rows. Trees are about 15 years old and loaded to the limit. Do not know when they were fertilized. Have plenty of water. Soil red, sandy mixed with a little adobe. Some alkali comes to the surface after irrigation. Manure is not available.—E. J. E., Spring Valley.

This is one of the questions impossible to give an intelligible answer. Orchardists must appreciate the fact that every individual orchard has its own problems and a general recipe or royal road to perfect fertilization is impossible to give. Perhaps the best suggestion we can make to this inquirer is to secure copy of "The Story of the Soil" by Cyril G. Hopkins, reviewed in last week's Cultivator. There are other valuable books which would aid also. This department is intended to be generally helpful, but there are some of the larger problems of agriculture which cannot be given justice in so limited a space. The question of fertilization is a great big one and its best solution is a general information which aids the grower in looking far below the surface of the soil. We may say in a general way that this inquirer should look after his supply of humus, for we note he says stable manure is unavailable; his only other source of humus is green manuring. Humus must be had and a supply of commercial fertilizer is of no value unless humus is in the soil in sufficient quantity. Then without analysis of the soil to give something of an indication of its needs, the only suggestion we could make would be to apply complete fertilizer, or at least one strong in phosphoric acid and potash. Of course, it goes without saying that deep culture and best soil tilth must be given. If a complete fertilizer is applied it might contain say 10 to 20 lbs. nitrogen, 30 to 60 lbs. phosphoric acid, and 45 to 90 lbs. potash.

Second Growth of Orange Trees.

My orange trees are one year old this month and they are not putting out a second growth. Will you tell me why? My soil is what they call dry bog. I have thought trees one year old would have a few blossoms, but mine have not. Do you think they have been irrigated enough?—Old Subscriber, Tulare.

If our subscriber means by second growth the growth which should have started in March or April, then plainly there has been need of moisture at the roots. The orange tree usually puts forth four growths during the warm season with a certain amount of dormancy between. At this time it is possible the trees are dormant and having put forth the regular first growth are resting for the second growth which will appear in a short time. The fact that year-old trees have not bloomed is not to their discredit; it is the province of trees of that age to produce wood growth. Next year will be abundance of time for testing of first fruit. Meantime be sure they have plenty of moisture with regularity.

Red Spider.

What proportion of hydrated lime and sulphur should one use for red spider on peach trees and why is hydrated lime added to the sulphur? Is it more effective in mixture than the sulphur used alone?—Subscriber, Sanger.

Three-fourths sulphur to one-fourth hydrated lime is the usual proportion. This has been found to work more satisfactorily than sulphur alone, possibly because of being retained on the leaf longer. Another formula now recommended by Commissioner Essig of Ventura County is 2½ per cent solution of the common commercial lime-

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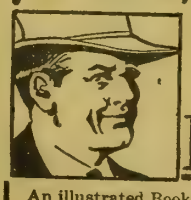

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Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seed bed stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For Sale—Very cheap, 2000 choice navel or lemon trees, early 1912 delivery; care guaranteed. Half cash deposit required. O. E. Van Slyke, Glendora, Cal.

For Sale—A few hundred W. Navels of fine, vigorous stock from ¾ to 1 inch and 4½ to 5 ft. high. Nursery near Cypress Station on Santa Ana line. John L. Preston, Anaheim, Cal. Phone 1472.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

MISCELLANEOUS

It requires but 2 to 4 cents worth of the darkest and cheapest honey to make a gallon of the richest and most delicious beverage drink. It is a perfect substitute for fruit where fruit is scarce, and a perfect substitute for water where water is poor. A tablespoonful of evaporated milk in a glassful makes buttermilk that is worth twice as much as the natural kind. Process and right to use it two years 25 cents. C. W. Dayton, Chatsworth, Cal.

Ranchers—If you grow anything that can be canned we will supply everything but the labor and product and will pay you the highest market price for it. Write or call Growers Home Canning Co., 222 Exchange Bldg., Los Angeles.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

MACHINERY

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, 20 sets harness taken in trade by us and must be sold. These are snaps. Disc, gang, walking, riding and side hill plows; slip, Fresno and wheel scrapers; 2 headers, 2 balers, seed sowers, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.

12 ft. steel aermotor, tower, 10,000 gal. tank, tank stand, pump complete, $150 f. o. b.; also many others at half new prices.

ENGINES.

5 H. P. White & Middleton engine, jack and head, pipe, 3 ft. Ames draw-valve cylinder, outfit complete and in fine shape, $200 on cars Los Angeles; also many others.

TANKS, TANKS, TANKS.

50 gallons to 50,000. Special price on 30,000 gallon. 20 tanks, 500 to 1000 gallons, $5 to $14; 38 tanks, 3000 gallons each, cost $48.50 new, at $29 while they last. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—Complete pumping plants, new and second-hand. Electric and gas engine driven. All sizes. Send us your details for our recommendations, irrigating appliances and pipe molds. We can save you money on your installations. H. U. Roeding & Co., Foxcroft Bldg., San Francisco, Cal.

Gas Engines—We have snaps in second-hand gas engines. Every machine guaranteed. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks —White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S FOWL HITE FARM, Moorpark, Cal

CARNEAUX IN CALIFORNIA

Carneaux and Plymouth Rock Homer Pigeons, guaranteed thoroughbred and mated. The largest breeding plant on the Coast. Satisfaction guaranteed. Postoffice Box 355, San Pedro, Cal.

PAPER BERRY BASKETS.

As an economical and serviceable berry basket, nothing can surpass heavy paper, paraffined against moisture and riveted against breakage. Having been on the market for more than two years, and having been found practical for all kinds of berries in any quantity, the paper basket has become a factor in berry handling. It is much less expensive than wood, lighter in weight and equally strong.

The boxes made by Mr. E. F. Adams, of Petaluma, have met every requirement. Last year's users are renewing their orders in larger quantities. You can have a sample by writing the manufacturer. Prices may be found in Mr. Adams' advertisement, on page 642 of this issue.

QUERIES.

(Continued from Page 649.)

sulphur. This is said to work to perfection and be rather simpler to apply than the dust.

Bee Paralysis.

What remedy is there for bee paralysis?—Subscriber.

There is no satisfactory cure for this trouble. Spraying the combs with salt water or weak solution of carbolic acid has been recommended. The best treatment is possibly removing of diseased stock from the stand and putting in its place a strong, healthy colony. We will ask our bee keeper friends to tell of their experience.

Preserving Flowers.

How may I pack roses and other flowers so that they may be sent East?—T. B. F., Chula Vista.

Orange blossoms are preserved by dipping in warm paraffine, directions for which have been given in previous Cultivators. We do not think, however, this would work with roses, at least we never heard of it being tried. We believe the best method is to pack stems in wet moss which will hold moisture and preserve flowers for some days. Sticking the stems in a potato has been recommended. In packing the flowers arrange to have some holes in package to admit air, otherwise they may reach their destination blackened. We will pass this question on to our subscribers and ask for their experience.

Curing Fur Skins.

Please give method for tanning coyote skin, one which will leave the hair on.—Subscriber, Santee.

We take the following from an old recipe book; it is said to be good for all fur skins, but we cannot vouch for it. As this question comes to the Cultivator repeatedly we will ask experience of those who have succeeded with such a process:

Cut off useless parts and remove fatty matter from inside. Soak skin in warm water for one hour. Spread over inside of skin paste made of borax ½ ounce, Glauber salts ½ ounce, water sufficient to make thin paste. Mix. Next double the skin flesh side inward and put in cool place. After 24 hours wash the skin clean and repeat as before with the following mixture: sal soda 1 ounce, borax ½ ounce, hard white soap 2 ounces. Melt slowly and put in warm place for 24 hours. Afterward apply the following: alum 4 ounces, common salt 8 ounces, saleratus 2 ounces, hot rain water sufficient. When cool place skin in it for 12 hours then hang it to dry. Lastly smooth inside with sandpaper and pumice stone.

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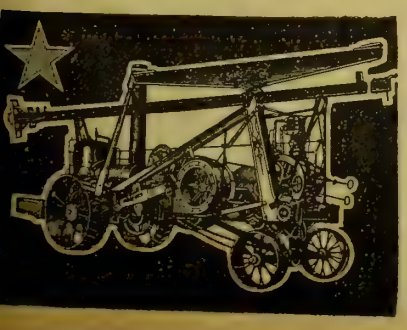

Reducing Living Expenses

More to Eat, Wear and Use for Less Money.

One of the most widely discussed problems of the age is the cost of high living and the reason therefor. When you commence to study this problem its answer will soon be found when you trace from the manufacturer or producer to your own possession the merchandise which you buy and find the many hands through which it passes, each of which must realize some profit on the transaction.

A little over two years ago the McStay Supply Company, a large wholesale and manufacturing concern of Los Angeles, put into operation a plan to overcome some of the unnecessary expenses incidental to the handling of supplies used in every day life, which would mean a direct reduction of prices to the consumer. The results of their efforts were much greater and more satisfactory than they had dared to hope and the latter part of last year they discontinued their business with the retail merchants entirely, which, up to that time, had been by far the largest part of their business, preferring to go direct to the consumer, thereby eliminating the profits which the retailer must necessarily have in order to support his business.

With their very large volume of business they necessarily have an enormous purchasing capacity which enables them to sell direct to the consumer at prices practically the same as those paid by the retailer, and in some instances even lower. Conducting their business strictly on a cash basis they do not have to assess those who pay their bills for the losses ordinarily sustained by concerns doing a credit business.

When the farmer realizes that the freight rate paid by him for his supplies is exactly the same as that which the retailer has to pay, it disposes of the question of freight entering into his consideration. The railroad companies are not permitted under existing laws to give a carload rate on assorted or mixed cars of different commodities, neither are they permitted to make a lower rate on 10,000 lbs. of one article than they quote on 100 lbs. of the same merchandise. Therefore the small consumer can ship 100 lbs. of goods at identically the same rates at which either the large buyer or the dealer could ship a greater quantity unless it be a straight carload of one item only.

They also purchase dried fruits, beans, eggs, and many other commodities direct from the grower or producer and in turn distribute them direct to the consumer, thus eliminating the middle man's profits. This necessarily results in the farmer getting a better price for his products and the consumer getting more for his money.

They ship goods throughout Southern and Central California, Arizona, Nevada and Western Mexico, keeping closely in touch with market conditions in these various districts and the great growth of their business, which comes to them largely through the efforts or recommendation of those who are already customers, indicates that there is a very substantial saving effected by purchasing direct from them.

They publish a catalogue of sixty-four pages on practically all classes of staple merchandise, including groceries, dry goods, shoes, clothing, poultry supplies, bee supplies, hardware, farm implements, building materials, drugs, etc., which they send upon request, postage prepaid. For the benefit of comparison, they quote the prices on a number of items handled by them herewith, and a careful comparison of these prices with the San Francisco and Los Angeles market quotations on next to the last page of this issue will show that they are actually quoting as low and in many instances lower than the wholesale quotations referred to.

By communicating direct with the McStay Supply Co., Los Angeles, Cal., you can save from 15c to 30c on every dollar's worth of supplies which you purchase, which means $15.00 to $30.00 on every hundred dollars which you spend, an item worth serious consideration.

Macaroni, per lb.	.05½
Chocolates, hand-made, 5-lb. box	1.15
Stick Candy, 5-lb. boxes	.65
Flour, Queen Anne, highest patent, blue stem wheat, per bbl.	5.30
Quaker Oats, regular 15c size, per doz.	1.28
Dr. Price's Food, regular 10c size, per doz.	.93
Barracuda, 10-lb. pails	.95
Cottolene, 10-lb. pails	1.42
Gas Engine Cylinder Oil, 5 gals.	2.00
Axle Grease, 25-lb. galv. pails	1.05
Rolled Barley, per ton, $28; sack	1.15
Stayco Chick Feed, per 100 lbs.	2.60
Coffee	22½c to 32½c per lb.
Teas	28c per lb. and up
Spices	24c per lb. and up
Baking Powder, pure cream of tartar, guaranteed equal to Royal, 5-lb. can	1.00
Navy Beans, 10-lb. sacks	.53
Corn Starch, 2-lb. packages	.12
Cheese, fancy Wisconsin, per lb.	.19
Citron, imported, per lb.	.19
Asparagus, 2-lb. cans, 2.00 doz; case	3.90
Apricots, canned, standard, per doz., $1.45; extra standard, per doz.	1.65
Peaches, canned, standard, per doz., $1.50; extra standard, per doz.	1.80
Pears, canned, standard, per doz., $1.75; extra standard, per doz.	2.00
Pie Peaches, gallons, per doz.	3.00
Pie Apples, gallons, per doz.	3.10
Pie Blackberries, gallons, per doz.	4.25
Tomatoes, canned, standards, per doz. .85; cases	1.60
Corn, extra quality Holland, per doz.	.95
Corn, fancy Maine, per doz.	1.35
Peas, sifted Early June, doz.	1.20
Pork and Beans, 1-lb. cans, doz.	.90
Jams, pure fruit, 5-lb. crocks	.75
Orange Marmalade, 5-lb. crocks	.59
Royal Cocoa, 1-lb. tins	.31
Zar Ground Chocolate, 1-lb. tins	.19
Honeysuckle Milk, regular 10c size, per case, 4 doz.	3.40
Matches, anti-trust parlor matches packages contain 1500	.08
Pickles, medium size, sour, in 3-gal. kegs, each	.75
Rice, fancy head, 10-lb. sacks	.68
Rice, fancy Japan, 10-lb. sacks	.53
Hay Salt, per ton	8.00
Maple Flavor Syrup, gal, cans	.75
Rock Candy Drips, gal. cans	.85
New Orleans Molasses, genuine, gals.	.45
Laundry Soap, 100 8-oz. bars	2.25
Sal Soda, 100-lb. sack	1.15
Gloss Starch, Argo brand, the famous 5c seller, per doz.	.46
Gold Dust, regular 25c size	.19
Clairette Soap, 20 bars	.67
Smoking Tobacco, plug cut, in 1-lb. dinner pails, each	.44
Chewing Tobacco, a fine chew, lb.	.35
Baker's Pastry Flour, 100-lb. sacks	2.45
Raisins, London Layers, 5-lb. boxes, extra fancy, each	.30
Sardines, American Mustard Sardines, ¼s, per case 100, $3.50; per doz	.45
Clams, Eastern best grade, 2-lb. cans, per doz.	1.85
Currants, genuine imported, 5-lb. packages, each	.55
Mincemeat, highest grade Eastern condensed, regular 10c size, doz., 90c; 30-lb. pails, per lb.	.09¼
Syrup, Delmonico Brand, fancy table syrup, 2-lb. cans, doz.	.95
Mason Jars, quarts, per gross, $6.30; per doz., 60c. Half gallons, per gross $9; per doz.	.85
Jelly Tumblers, regular size with caps, per gross, $2.40; per doz.	.21
Mops, the Daisy, 16-oz. cotton mop with handle attached, each	.20
Mop Handles, per doz., $1.15; each	.12
Toilet Paper, best grade, 1000-sheet rolls, per doz.	.90
Lamp Chimneys, crimp top, No. 2,	.90
Washboards, Glass King, each, 39c; Brass King, each	.34
Lanterns, No. O tubular cold blast each	.40
Horse Brushes, dandy rice root, sells everywhere for 25c; each	.17
Clothes Baskets, regular $1.25 size	.75
Mail Boxes, R. D. 2, best make	.90
Hay Forks, best make, 3 tines	.80
Header Forks, best make, 4 tines	.90
Gasoline Stoves, 3 burners, best model	4.75
Paint, barn, fence or roof, in barrels, per gal.	.95
Poultry Netting, 2-inch mesh, 20-gauge wire, 48 inches high; 150 feet long	2.60
Horse Shoes, best grade, per cwt.	6.00
Harness, two-horse, California orchard harness, set	16.48
Tents—10x12 wall tents, 8-oz. duck, complete with poles, etc.	10.45
Orchard truck, capacity 3000 lbs.	31.20
Shoes, for men; "So-Easy"; everlasting, guaranteed for one year, regular $4.50 seller, pair	3.48
Shoes, for women; Everyday; nice-looking and good wearers, pair	1.55
Blankets, size 78x84, double, large brown Vicuna, weight 6 lbs.	2.80
Shirts—Heavy weight blue chambray, double stitched throughout	.45
Underwear, men's genuine Porosknit, per suit	.92
Underwear, women's genuine Stratford union suits, each	1.05
Suspenders, President, 50c seller	.43
Waist Overalls, made of best 9-oz. Amoskeag indigo dyed denim, reinforced throughout, pair	.77
Hosiery, men's Hardwear brand, 25c quality, half dozen pair	1.10
Hosiery, women's pure silk, six pairs for	3.15
Stockings, for children, heavy ribbed, dozen	1.50
Linen Crash, per yard	.09
Unbleached Muslin, per yard	.06
White Sheeting, bleached Pequot, 72 inches, per yard	.33
Unbleached Pequot, 72 inches per yard	.30
Lawns, per yard	5c to .21
Apron Gingham, per yard	.07½
Dress Gingham, per yard	.09
Percales, per yard	.12
Cotton Foulards, per yard	.15
Voiles, 29-inch, per yard	.27½
Poplins, 27-inch, epr yard	.29
Changeable Silk Jacquard, per yd.	.39

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Written by Paul F. Schryer

who has taken apart every Gasoline Engine on the market, down to the last little bolt, nut and screw. He has seen them all run. Tested them, knows where they are strong, where they are weak.

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Washington Navels and Valencia Late Orange trees.

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There are multitudes of young people who are not in the public schools, but who look to the business college for the special educational training and finishing needed preparatory to lucrative business employment. Of such the major portion of a thousand enroll every year at the ISAACS-WOODBURY—the recognized leader since 1884.

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4% **Interest on Savings Accounts**
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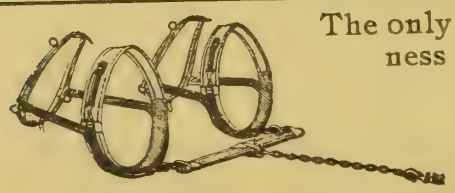

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Three days to St. Louis and Chicago. The train for the busy man and the man of leisure.

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A fast train over the same route for both first-class and tourist travel. Through tourist cars to St. Louis and Chicago.

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Southern Pacific Rock Island

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When writing advertisers, mention Cultivator.

Household Department

THE BATTLE CRY OF FREEDOM.

Yes, we'll rally 'round the flag, boys;
We'll rally from the plain,
Shouting the battle-cry of freedom;
We will rally from the hillside,
We'll rally 'round the plain,
Shouting the battle-cry of freedom;

The Union forever! Hurrah, boys, hurrah!
Down with the traitors, up with the Stars;
While we rally 'round the flag, boys,
Rally once again,
Shouting the battle-cry of freedom.

We are springing to the call of
Our brothers gone before.
Shouting the battle-cry of freedom;
And we'll fill the vacant ranks with
A million freemen more,
Shouting the battle-cry of freedom.

We will welcome to our number
The loyal, true and brave,
Shouting the battle-cry of freedom;
And although he may be poor he
Shall never be a slave.
Shouting the battle-cry of freedom.

We are springing to the call from
The East and from the West,
Shouting the battle-cry of freedom;
And we'll hurl the enemy from
The land we love the best,
Shouting the battle-cry of freedom.

We are marching to the field, boys,
Going to the fight,
Shouting the battle-cry of freedom;
And we'll bear the glorious stars of
The Union and the Right,
Shouting the battle-cry of freedom.

We'll meet the enemy, boys,
With fearless hearts and true,
Shouting the battle-cry of freedom;
And we'll show what Uncle Sam has
For the loyal men to do.
Shouting the battle-cry of freedom.

If we fall amid the fray, boys,
We'll face them to the last,
Shouting the battle-cry of freedom;
And our comrades brave shall hear us,
As we are rushing past,
Shouting the battle-cry of freedom.

Yes, for Liberty and Union
We are springing to the fight,
Shouting the battle-cry of freedom;
And the victory shall be ours,
Forever rising in our might.
Shouting the battle-cry of freedom.

"The Battle-Cry of Freedom" is one of the many songs contributed to the Union Army of the Civil War by George F. Root, one of the most productive composers of that period. The music, more than the words, tended to its popularity. Its chorus was especially inspiring and while the song is rarely heard today, bands continue to play the music, for it is inspiring march music, particularly the chorus.

When President Lincoln issued his second call for troops, in the summer of 1861, Mr. Root received the inspiration for this song. While a number of the "rallying" cries had already been interjected into the turbulent condition of the North, Root felt that not one exactly met the requirements. He was living in Chicago at the time and was deeply impressed with the mighty significance of the proclamation.

Mr. Root was a member of the music publishing house of Root & Cady at the time. The day following the issue of the proclamation, late in the afternoon, he returned to his home. He seated himself in the parlor with the paper in his hand and was pondering over the conditions of the country. He read and reread the president's call for troops and, laying the paper aside, began evolving in his mind the sentiment of a rallying cry. In an outburst of fervor he received his inspiration.

He took up some paper and began the composition of the words. It was not long until he had written the first verse, for Mr. Root was particularly gifted as a writer of lyrics of this character. Then followed the chorus. After he had finished the chorus, he was particularly impressed with its adaptability to inspiring music. He read it over two or three times, and then went to the piano and composed the music. After playing it over several times he went to work on the composition of the remaining verses.

The following evening the famous Lumbard Brothers—Jules and Frank—the great singers of the war, were to sing at a meeting to be held in the Chicago Courthouse Square. Mr. Root went to see them early on the morning of the day following his writing of the song, and presented them with two manuscript copies. Together the three went to his publishing house and he made them familiar with the music to his piano accompaniment.

After the first speaker had finished at the evening meeting, the Lumbard brothers prepared to sing their first song. It was Root's "Battle-Cry of Freedom." They held written copies of the words in their hands, and when they came to the chorus:

"The Union forever! Hurrah, boys, hurrah!" the effect was electrifying. The audience cheered wildly at its conclusion, and when the chorus to the second verse was started a number of people in the audience joined in, and by the time the last chorus was reached almost the entire multitude joined in its singing. The song had struck fire and leaped into widespread popularity at once.

Only a few days after its writing a monster war meeting was held in Union Square, New York. Excitement was running high and the emotion was intense. In the interim the Hutchinson family, among the most famous of the war singers, had secured a copy of the song through Mr. Root, and they introduced it at this meeting. The immense throng of listeners were aroused to the highest pitch of exaltation at its singing. It was repeated again and again and the great audience caught up the refrain, as did the audience in Chicago, and it proved a resistless force in swelling the ranks of the army.

No other war song was sung with bolder patriotism or with more triumphant passion of the soul. It seemed to mount up as if on wings of magic and was carried all over the North, and into all camps where the Northern Army assembled. It was often ordered to be sung as the men marched into action and more than once its strains rose on the battlefield to stimulate courage.

There is an interesting story related of how this song saved a battle.

During the terrible battle of the Wilderness on the 6th of May, 1864, a brigade of the North Army Corps, having broken the Confederate line by an assault, became exposed to a flank attack, and with heavy loss were driven back in disorder.

They retreated but a few hundred yards, however, when they reformed and again confronted the enemy. Just then a soldier—an unknown hero—in the Forty-fifth Pennsylvania, with a heart full of courage and song, began to sing:

"We'll rally 'round the flag, boys,
Rally once again,
Shouting the battle-cry of freedom."

The refrain was caught up by the entire regiment and also by the regiments next in line. The air was filled with the crackle, and smoke of the burning underbrush; the pitiful cries of the wounded, the rattle of musketry, and the wild shouts of command, gave intense excitement to the scene; but above all, answering the exalted yell of the enemy, rose supreme the inspiring chorus:

"The Union forever! Hurrah, boys, hurrah!"

Among many incidents connected with Mr. Root's war songs, the one which touched him most deeply is related in his delightful "Story of a Musical Life."

"An Iowa regiment went into one of the charges during the siege of Vicksburg 800 strong, and came out with

a terrible loss of more than half of their number. But the remnant of the regiment left the battlefield waving their torn and powder-stained flag, singing:

"'Yes, we'll rally 'round the flag, boys.'"

On the afternoon of July 4, 1896, a vast multitude of 10,000 assembled at the Coliseum in Chicago, the occasion being a war song festival for the benefit of the George F. Root monument fund.

It was a great day for "The Battle-Cry of Freedom." Chicago's greatest singers took the solos and 1000 choir singers sang in the choruses. Jules Lumbard, the white-haired veteran who was first to sing that famous war song, thirty-five years before, sang it at the Coliseum and every soul was thrilled by its new-born power.

Luther Laflin Mills, that superb orator, delivered the oration and among other things said:

"The songs of George F. Root, abide and will remain in the memories and voices of our people, not only as reminders of the Nation's heroic struggle for self-preservation, but as a constant, inspiring and educating force in maintaining and strengthening the lofty sentiment of American patriotism."

George F. Root was born at Sheffield, Mass., in 1820. He was the son of a farmer and the eldest of eight children. He had little early opportunity to cultivate his musical talent, but studied later under George Webb in Boston, and in 1839 became assistant teacher in the music school of A. N. Johnson, an organist in that city, later his partner, and also assistant organist and director of the Winter Street and Park Street churches.

In 1844 Mr. Root removed to New York, where he taught singing in various institutions and played the organ in prominent churches. About this time he married Mary Oliver Woodman, a church and concert singer. In 1856 he went to Paris for a year's study, and upon his return attempted composition. His earlier works and some of his later were published under the pseudonym "Wurzel," the German word for Root.

His first song, "Hazel Dell," was successful, and his cantata, "The Flower Queen," produced in New York in 1881, was unusually so.

About 1860 Mr. Root removed to Chicago and engaged in the publishing business, which realized quick financial results from the publication of his popular songs. He sustained, however, heavy losses in the great fire of 1871, and soon afterward the partnership was dissolved. He continued to live in Chicago, where he composed, edited various works and conducted conventions as before. In 1881 he received the degree of Doctor of Music from the University of Chicago, and in 1886 visited Europe a second time. He died at his home on Bailey island, near the Maine coast, in 1895.

RECIPES.

Eggless Pumpkin Pie.

Prepare the pumpkin as ordinarily, quart pumpkin, 2 quarts milk, season to taste with cinnamon and ginger, and a pint or more of sugar, put the whole in an oatmeal cooker, or packing that in a 10-pound lard pail, set in a kettle of boiling water, let boil and stir five minutes. Then stir in 5 tablespoons cornstarch, more, if wanted thicker. Let stand till cool and put in ready baked shells. Serve, and you will not miss the eggs.

Egg Salad.

Separate the whites and yolks of five hard boiled eggs. Chop the whites finely or run them through a patent fruit press, mix with a French dressing, and arrange on small crisp lettuce leaves, then force the yolks through a potato ricer, and pile on center of the whites. Serve with a French dressing.

"THE FUZZY SQUAB."

The little bride was enthusiastically describing her new housekeeping to her mother. "And once," she said, I cooked squabs for John! He loves them. But I won't do it often—they're so hard to dress. There's so much dirt on them!"—Woman's Home Companion.

Get Oversize Tires

Avoid Blow-Outs—Save Overloading

Goodyear No-Rim-Cut tires—10% oversize—cost no more than tires that rim-cut, or tires not oversize.

The sale of Goodyear No-Rim-Cut tires has multiplied six times over in the past two years. Over 600,000 have already been sold.

Sixty-four leading motor car makers have contracted with us for these tires. The demand from users is now so great that our mammoth factories run night and day.

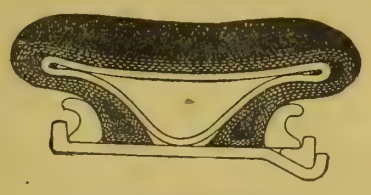
This patented tire has become the sensation. It is saving millions of dollars to motor car owners. It is a tire that you should know.

No Hooks—No Bolts

The No-Rim-Cut tire has no hooks on the base. No tire bolts are needed to hold it on.

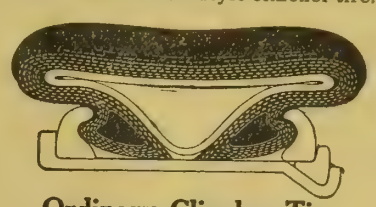
Into the tire base we vulcanize flat tapes made of 126 braided wires. These make the tire base unstretchable. The tire can't come off because nothing can stretch it over the rim flange. But when you remove one flange, the tire slips off like any quick-detachable tire.

This braided wire, flat tape feature is controlled by our patents. It is the only way known to make a safe hookless tire. That is why other tire makers still recommend the old-style clincher tire.



The No-Rim-Cut Tire

This tire fits any standard rim. Simply reverse the removable rim flanges—that is, slip them to the opposite sides. They will then curve outward, as shown in the picture above. The tire comes against a rounded edge, and rim-cutting is made impossible.



Ordinary Clincher Tire

In the ordinary tire—the clincher tire—the removable rim flanges must be set to curve inward. They must grasp hold of the hooks in the tire base, to hold the tire on. Note how those thin flanges dig into the tire when deflated. That is the cause of rim-cutting, which may wreck a flat tire in a moment.

10% Oversize

The No-Rim-Cut tire, where the rim flanges flare outward, can be made 10% over the rated size and still fit the rim. And we give you that oversize without extra cost.

That means 10% more air—10% greater carrying capacity. And that, with the average car, adds 25% to the tire mileage.

This oversize takes care of your extras—top, glass front, etc. It avoids the overloading which causes blow-outs on nine cars in ten which have skimpy tires.

These two features together—No-Rim-Cut and oversize—will under average conditions, cut tire bills in two. Yet these tires cost you nothing more than other standard tires. Do you wonder that men who know these tires insist on getting them?

GOODYEAR
No-Rim-Cut Tires

Our latest Tire Book, based on 12 years spent in tire making, tells many facts which motorists should know. Ask us to mail it to you.

THE GOODYEAR TIRE & RUBBER COMPANY, 90th Street, Akron, Ohio

Branches and Agencies in 103 Principal Cities *We Make All Sorts of Rubber Tires*

(324)

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You draw out more than you put in when you become a savings depositor at this Home Bank. Your profit is definite, sure, constant. Every year is a prosperous one. Begin now. Keep your surplus funds at work.

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SACRAMENTO, CALIFORNIA.

Sievert Distillate Oil Burners

the most efficient all round Heating appliances for Stoves, Ranges, Boilers, Water-Heaters, and especially Hot Air Furnaces of all kinds. Brooder House and Heating Stoves. Send for Free Circulars.

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All Kinds of Oil Storage Tanks.

Economy's good in its place—
It's good to have breeches of blue—
It's better to patch up your old pantaloons
Than pay out your money for new.

Fanned by the Cool Ocean Breezes the Summer Through

Coronado Tent City

A pleasure resort of a thousand attractions, appealing to those who seek either rest and quiet or a season of social activity.

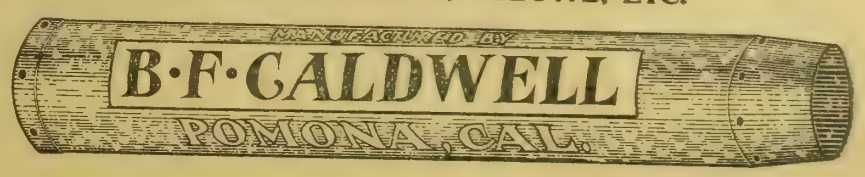
Bay and Surf Bathing, Fishing, Boating, Motoring, Tennis, Golf, Etc.

Palm Cottages and Tent Houses with or without cooking facilities may now be had at reduced rates until June 10.

Join the crowds. Over 300,000 visitors last season. Beautiful illustrated booklet giving full particulars, sent free.

JOSHUA S. HAMMOND, Manager Coronado Tent City, Coronado Beach, Cal.

IRRIGATION PIPES, ELBOWS, ETC.



San Francisco-Los Angeles Produce Markets

Los Angeles Market

Butter.

LOS ANGELES, May 24, 1911.

No change in the butter market, with generally easy condition.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	23½
Firsts	22
Ladies	18
Country	14

Cheese.

Oregon Daisy	16½@17
Northern	15
Domestic Swiss	18
Imported Swiss	32

Eggs and Poultry.

Egg market is steady, with a half-cent lower price than last week.

Paying price f. o. b. Los Angeles is:

Local Ranch candled	23
Case count buying price	19
Northern	17½@21
Eastern	21

Dealers pay for live poultry f. o. b.:

Hens, per lb	10@14
Roosters	10@12
Broilers	17@20
Fryers	22
Roasters	22
Turkeys	23@25
Ducks	15
Geese	12
Guinea hens, doz	4.00
Squabs, doz	1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7
Prime steers	6
Heifers	6
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.25@2.40
Oregon	2.90@3.00
Sweets, yellow, cental	8.00
New potatoes, lugs	85@1.00

Onions.

Wholesale quotations:

Imperial, crates	2.00
Silverskins, box	1.00@1.10
Texas Bermudas	2.00
White Wax, crate	2.25
Garlic	10@12

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	50@80
Asparagus, lb	3@5
Beets, doz. bunches	35
Bell peppers, lb.	35
Beans, lb.	8@10
Beans, wax	8@10
Green chilis	25
Cucumbers, Texas, box	1.75@2.00
Cabbage, sack	90@1.00
Celery, crate	4.00@5.00
Carrots, sack	90@1.00
Corn, doz.	25
Horseradish, lb	12½
Onions, green, doz bunches	20@25
Leeks, doz	40
Lettuce, crate	1.25@1.75
Oyster plant, doz	40
Okra	20
Peas, lb	4@6
Parsley, doz bunches	35@40
Parsnips, doz bunches	50@60
Radishes, doz bunches	20@25
Rhubarb, Strawberry	1.50
Rhubarb, crimson winter	75@90
Spinach, doz	20@25
Squash, summer	70@90
Tomatoes, Mexican, crate	3.00@3.50
Turnips, sack	1.25@1.50

Citrus Fruits.

Navels	2.75
Grapefruit, seedless	1.75@3.00
Lemons	1.25@2.75
Tangerines	1.75@2.00

Fresh Fruits.

Imperial cantaloupes arrived this week and were picked up at long prices.

Wholesale prices on the market are:

Apricots, crate	2.75
Alligator pears	3.00@4.00
Pearmains	2.75@3.00
Newtown Pippins	2.50@3.00
Cantaloupes, ponies	15.00
Cherries, black, box	1.50@1.75
Cherries, bulk, lb	12½@15
Bananas	4½
Loquats, lb	3@5
Pineapples	10
Blackberries	8@9
Raspberries	12@15
Gooseberries, lb	15
Strawberries	6@7½

Dried Fruits.

Wholesale prices are:

Apricots	16
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.65@2.00
Peaches	9@10
Nectarines	10
Pears	13@14
Prunes	12@14½
Plums	10

Beans Dried.

Wholesale quotations:

Limas	6.75
Black eyes	7.50
Pinks	6.00
Lady Washington	4.25
Small white	3.75@4.00
Mexican reds	5.00@5.25
Garvanzas	4.50
Bayous	4.50@5.00
Lentils	6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	17@18
Chestnuts	10@12
Almonds, IXL, lb	17@18
Pecans, polished	15@17
Peanuts, Eastern	7@7½
Peanuts, California	6

Honey.

Wholesale quotations:

Extracted water white	10
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

No. 1 old barley hay	12.00@13.00
Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	15.00@16.00
Alfalfa	11.50@12.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.80
Corn	1.75
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.90
Seed barley	1.55
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.70
Cracked wheat	1.90
Shorts	1.90
Bran	1.65
Oil cake meal	2.50
Feed meal	1.75
Rolled barley	1.55

San Francisco Market

Butter.

SAN FRANCISCO, May 23, 1911.—Butter dropped a half cent for better grade on Monday, but the general condition of market is good.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	22½
Prime firsts	22
California firsts	21½
Seconds	21

Cheese.

California flats	10@12½
Cal. Y. America, fy, new	13@14½
Oregon, fancy	13½

Eggs and Poultry.

Eggs in plentiful supply, with firm market.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	21½
Prime firsts	20½
Seconds	18½
Select pullets	18½
Firsts	19½
Eastern seconds	17½
Hens, doz	4.50@10.00
Fryers, doz	6.50@7.00
Ducks	6.00@10.00
Broilers	2.00@4.00
Roosters, doz	4.50@10.00
Geese	2.00@2.50
Pigeons	1.75@2.50
Squabs	2.00@3.00
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	4½@5¼
Cows and heifers	4@5
Calves, lb	5½@6½
Hogs	5@7
Milk lambs	5½@5¾
Wethers, No. 1, unshorn	4¾@5
Ewes, No. 1, unshorn	4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

Salinas Burbanks, cwt	2.85@3.00
Oregon Burbanks, cwt	2.50@2.60
Lompoc	2.85@3.00
New potatoes, lb	2½@3
Texas Triumphs	3.00
Eastern	2.00@2.10

Onions.

New green, box	50@65
Red, new, sack	2.40@2.50
Australian brown	3.50@3.75
Bermuda, seed	2.00
Garlic, lb, old	10@12½
Garlic, lb, new	6@8

Vegetables.

Wholesale quotations:

Asparagus, box	1.00@1.65
Beans, string	10@12½
Carrots	60@75
Cucumbers, doz	50@75
Corn, doz	65@75
Celery, crate	1.50@2.50
Chili peppers, lb	30@40
Egg plant, lb	15@20
Lettuce, crate	75@2.00
Okra, lb	15@20
Peas, sack	1.25@1.50
Rhubarb	90@1.50
Summer squash	1.00
Tomatoes, Mexican, lug	1.75@2.00
Turnips	60@75

Citrus Fruits.

Navels, new	1.25@3.00
Valencias	2.00@2.75
Grapefruit	75@2.50
Lemons	1.75@4.00
Limes, Mexican	4.50@5.00
Tangerines, halves	1.75@2.00

Fresh Fruits.

Apricots, crate	2.25@2.50
Alligator pears, doz	75@1.00
Apples, box	1.75@2.00
Apples, Bellflowers	1.00@1.35
Newtowns	1.90@2.00
Spitzenberg	1.50@2.75
Cherries, Purple Guignes	1.35@1.75
Cherries, white and red, box	75@1.00
Cherries, bulk lb	12½@15
Cherries, Black Tartarians	2.00
Gooseberries, drawer	1.50
Bananas, Hawaiian	1.00@1.50
Blackberries, basket	10@12½
Raspberries, basket	12½@15
Strawberries, Southern, crate	75@1.00
Strawberries, Lgwths, ch	7.00@9.00
Malindas, chest	5.00@7.00
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b. carload lots, per lb.—Apples, 11¾@13c; Apricots, 12½@15½c; do, Moorparks, 14c; Peaches, 7¾@9c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 11½c; Prunes, 1911 contracts, 4¾@5c, with a premium of ½c and 1c on large sizes; Figs, 1911, 4½@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: Seeded, per pkg. —Fancy, No. 16, 7½c; Choice, No. 16, 7@7¼c. Loose Muscatels in 50-lb. boxes—Standard 4-crown, 6¼c; do, 3-crown, 5¾c; do, 2-crown, 5¼@5½c. Seedless—Muscatels, 5c; Sultanas, 5¾c; Thompsons, 6¼@6½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10 N P U	14½
Almonds, '10 Nonp	16½
Almonds, '10 I X L	15½
Almonds, Peerless	13
Pecans	14@17
Chestnuts, California	6@8

Beans Dried.

Limas	6.25@6.35
Pink	5.10@5.20
Black eyes	7.00
Small white	3.40@3.45
Large white	3.30@3.40
Kidneys	6.25
Garbanzos	2.75@3.00
Bayou	4.60@4.65
Horse beans	3.00@3.25
Red Mexicans	5.15@5.25
Cranberry	4.50@4.75

Hops.

Hops, coast, 1910	21@24
Hops, 1911 contracts	17@20
Hops, 1909	17@19
Hops, Oregon	14@17

Honey.

Water white, comb, '10	15
Dark comb	12½
Extracted white	8
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Receipts of hay for the past week were 2938 tons, practically the same as last week. Fancy wheat hay in light bales is very scarce, an occasional car of which sells above our quotations. Fancy red oat hay is almost unknown on this market at the present time, and no doubt would bring in excess of our quotations were any available.

The San Francisco Hay Association has just compiled statistics of the amount of hay on hand in districts sending their hay to the San Francisco market, which shows a total tonnage of 103,950 tons. This is somewhat larger than was anticipated, and will no doubt make up for a good part of the shortage of the present crop, if there be any.

The first car of new hay arrived on this market this morning consigned to ourselves; it consisted of volunteer oat and clover, and was sold at $8.50 per ton. This shows plainly that we may look for considerable hay on this market in the course of the next few weeks. Export demand still continues fair.

We quote the wholesale prices in round lots on today's market as follows, viz:

Fancy wheat hay	13.50@14.50
No. 1 wheat or wheat & oat	11.00@12.00
No. 2 wheat or wheat & oat	10.00@11.00
Choice tame oat	10.00@12.50
Other tame oat	8.50@10.50
Wild oat	9.00@10.00
Stock hay	6.00@8.00
Alfalfa	9.00@10.50
Straw, bale	40@50

Grain.

Barley, fancy	1.46¼
Barley, good to choice	1.43¾@1.45
Barley, poor to fair	1.40@1.45
Oats, white	1.50@1.60
Rye, new crop	1.40@1.50
Alfalfa seed	18@20
Mustard, brown	4½
Millet	2¾
Flaxseed	5@5½
Broom corn seed, ton	23.50

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	28.00@29.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	31.00@32.50
Rolled oats, ton	29.00@30.00
Middlings	33.00@35.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	29.50@30.00

Magistrate—Why did you strike this man?

Prisoner—What would you do if you kept a grocery store and a man came in and asked if he could take a moving picture of your cheese?

Eggs are delicious if scrambled with cheese. Scramble them as usual except that at the last, just before the eggs are done, some grated cheese is stirred in. For three eggs two tablespoons of cheese should be used.

Citrus Fruit Market

LOS ANGELES, May 24, 1911

The earliness of the season, which proved so great an advantage to growers of Navels with holiday and other early shipments, is a great disadvantage at this end of the season. Notwithstanding the exceptionally firm condition of the market up to a week ago, the quality of the fruit and the excess of large sizes has forced a lowering of quotations on Navels. In fact, the better trade has turned quite decidedly to Valencias, which are now going forward rapidly. Of these there will be probably in excess of 8,000 cars, but with the cleaning up of the Navels, Mikes, Seedlings and others, and a clear field, it is presumed that all Valencias will command excellent returns. Of the Navels and others than Valencias there are all told 700 to 900 cars to go.

The lemon market leaves nothing to be desired; in fact, prices are so good that some friends of the industry have feared it might cause a slowing up of consumption, but the entire Eastern market has been cleared of all surplus stock by the extreme heat of the last two weeks, and the number of foreigns afloat or in sight is not more than 50 per cent of one and two years ago at same date. The fruit is readily commanding $4.50 to $5.50 f. o. b. Eastern points.

Shipments.

Shipments of oranges to date since November 1st, 1910: 27,803 cars, lemons 3,551; total 31,354. To same date last season: Oranges 19,044, lemons 2,540; total 21,584.

LOS ANGELES—May 17.—One car Valencias, two cars sweets, one car seedlings, two cars navels, one car lemons sold.

	Avge.
Liberty Girl, fy Valencias, Orange	$2.00
Beach, sd, Valencias, Orange	1.75
Sweetest Yet, fy, sweets, Riverside, not shipped	1.67½
Sweetest Yet, ch, sweets, Riverside, not shipped	1.42½
Equator, fy, sweets, Orange	1.60
Blue Ball, sd, sweets, Orange	1.35
Heap Good, budded seedlings, shipped 16th, San Francisco	1.20
Rubidoux, sd, budded seedlings, shipped 16th, San Francisco	1.20
Rubidoux, sd, Valencias, shipped 16th, San Francisco	1.20
Queen, ch, navels, National City, shipped 16th, San Francisco	1.17½
Top, sr, navels, National City, shipped 16th, San Francisco	.92½
Queen, ch, navels, National City, not shipped	1.12½
Top, sr, navels, National City, not shipped	.87½
J. McInnes, lemons	2.00
Ex., ch, Stock Label, lemons	1.75

LOS ANGELES, Monday, May 22.—Two cars Valencias, one seedling, one sweet and one lemon sold.

	Avge.
Equator, fy or, Valencias, Orange, not shipped	$2.00
Blue Ball, sd, Valencias, Orange, not shipped	1.75
Equator, fy or, Valencias, Orange, not shipped	2.02½
Blue Ball, sd, Valencias, Orange, not shipped	1.77½
Heap Good, fy or, seedlings, Riverside, not shipped	1.40
Heap Good, fy or, sweets, Riverside, shipped May 20th, iced	1.47½
McInnes lemons, Stock Label, xc, lot Angeles, not shipped	2.30

NEW YORK, Monday, May 22.—Thirty-seven cars navels, nine seedlings, seven sweets, one Homossasas, six St. Michaels, two Valencias, one Jaffa and two lemons sold. Market strong on sound navels, easier on unsound stock. Market strong on lemons. Weather fair and warm.

NAVELS—	Avge.
Elcelsior, Earl F Co	$1.70
Mahala, L V W Brown	2.70
Swastika, L V W Brown	2.40
Knight, Ely Gilmore	2.85
Bishop, Ely Gilmore	2.40
King Upland, O G A	3.65
Green Banner, Sutherland F	2.40
Valle Vista, Sutherland F	1.95
Hemet Heights	1.65
Green Banner, Sutherland F	2.45
Native Son, King F Co	1.85
Hemet Heights	1.35
Corona, National O Co	3.10
Euclid, Or, Growers F Co	4.00
Uplander, Growers F Co	2.95
Twin Peaks, Or, Growers F Co	2.75
White Cross, Sd, Growers F Co	2.30
Euclid, Or, Growers F Co	3.50
Uplander, Growers F Co	2.35
Rialto, Growers F Co	1.95
Twin Peaks, Or, Growers F Co	3.60
White Cross, Sd, Growers F Co	2.50
Carnation, Green & Speich	2.15
Seal, Green & Speich	1.55
SEEDLINGS—	
Santa Anita	1.75
El Toro	1.45
Titus Ranch, Fy, San Marino, GPA	2.00
El Toreador, Sd, San Marino, GPA	1.80
Cal Beauty	1.80
Highlander, Xf, High, O G A	2.05
Reyalto, Growers F Co	1.90
Rialto Crest, Growers F Co	1.65
Rialto Crest, Growers F Co	1.55
Carnation, Green & Speich	1.70
Iris, DM Ex	2.65
Jasmine, DM Ex	1.90
SWEETS—	
Sunrise	1.70
Sky Blue	1.70
Cluster	1.60
Plain Ends	1.60
Highlander, Xf, High, F G A	2.10
Camellia, Xf, Red, M O Dis	2.25
Redlands Pride, Xc, Bryn MawrF Co	1.90
Old Mission, Chapman	2.60
Golden Eagle, Sd, Chapman	2.15
Ideal, High, Prot F A	2.40

ST. MICHAELS—
Highlander, Xf, High, F G A..... 2.75
Old Mission, Chapman 2.65
Green Crown, A C G Ex..... 2.30
Rossmoyne, S T Rossmoyne 2.15
Girl, S T Rossmoyne 2.05
Carnival, S T Anaheim 2.40
VALENCIAS—
Highlander, Xf, High, F G A..... 1.85
Vista Bonita, A F, Hemet..... 2.15
Blue Label 3.85
Pointer, A C G Ex..... 3.70
Aurora, Fy, E Peycke Co..... 2.90

GRAPEFRUIT—Old Mission, $2.75; Golden Eagle, $2.00. NAVELS, HALVES—Mahala, $1.25; Wistaria, $1.75; Heart of Gold, $1.35; La Mesa, $1.35. BLOODS, HALVES—Bear, $1.30; Heart of Gold, $1.25; Blue Globe, $1.45. ST. MICHAELS, HALVES—Blue Seal, $1.50; Blue Globe, $1.30; Red Globe, $1.20. TANGERINES, HALVES — Euclid, $2.50. LEMONS—Homer, $4.20; Camel, $3.65; Pet, $4.25; Arab, $4.05.

BOSTON, Monday, May 22.—24 cars sold. Hot. Market doing better.

NAVELS—	Avge.
Pointer, A C G, Glendora	$2.15
Billiken, Riverside Pach	2.10
Peasant, A H, Riverside	2.70
Hobo, A H, Pach	2.70
Majesty, O K Exchange	2.50
Monogram, O K Exchange	2.95
Rey, S T, Fernando	3.30
Athlete, S A Exchange	3.15
Twin Peaks, Growers F Co, Or	3.25
White Cross, sd, Growers F Co	2.90
VALENCIAS—	
Glendora Hgts, xf, A C G Ex	3.80
Evolution, A C G Ex	3.25
Luna, sd, E Peycke Co	2.45
Glendora Hgts, xc, A C G	3.50
Aurora, fy, E Peycke	2.70
A One, xc, E Peycke	2.10
SWEETS—	
Glendora Hgts, xc A C G Ex	2.75
Elk, R Henderson	2.40
Papoose, ch, Strachan F Co	1.75
Alpha, R Henderson	2.60
Old Oak, Tustin P Co	1.95
ST. MICHAELS—	
Glendora Hgts, xc	2.75
Rossmoyne	2.30
Carmencita	2.65
Colombo	2.40
GRAPEFRUIT—	
Rossmoyne	1.90
Girl	1.25
Carmencita	1.85
LEMONS—	
Topaz	2.10
El Toro	1.80

CINCINNATI, Monday, May 22.—Warm. Market firm on good oranges, advancing on lemons. 5 cars navels, 1 seedling and 3 lemons sold.

NAVELS—	Avge.
Cal Orange, Riv Ex, Riv	$2.10
Prairie Chicken, A H, Prenda	2.10
Hunter, A C G, Glendora	1.75
Hawk, S A Exchange	2.50
Squirrel, A H, Prenda	2.45
King, S A Exchange	2.00
Parrot, S A Exchange	2.90
LEMONS—	
Pet	5.25
Arab	5.15
Pup	4.75
Duck	4.75
Lighthouse	3.75
Blue Jay	3.80
SEEDLINGS—	
Alhambra	2.30
Don Quixote	2.05

CLEVELAND, Monday, May 22.—3 cars navels, 1 St. Michael, 1 lemon, 5 mixed cars sold. Market higher on St. Michaels and Bloods, seedlings; lower, low grade navels; easier, good stock navels; unchanged, sweets; very strong, lemons. Hot and muggy.

NAVELS—	Avge.
Colombo, S T, Fullerton	$2.20
Hunter, A C G, Lateen S	2.05
Parrot, S A Exchange	2.70
Moose, O K Exchange	3.40
Possum, A C G, Lateen S	1.70
Carlo, S A Exchange	2.50
Prong Horn, O K Exchange	3.25
ST. MICHAELS—	
Carmencita	3.25
Colombo	3.05
Playmates	3.10
Albion	2.30
Shamrock	2.20
Cambria	2.00
SWEETS—	
Playmates	3.05
SEEDLINGS—	
Pointer	2.60
Hunter	2.10
LEMONS—	
As-You-Like It, Lemon Grove F G A, Lemon Grove	6.60
Growers	6.05

PHILADELPHIA, Monday, May 22.—4 cars navels, 4 seedlings, 5 mixed, 2 sweets, 3 lemons sold. Also 5 cars Floridas. Florida oranges, $1.80 to $4.30; average, $3.40. Grapefruit, 40c to $2.85; average, $2.25. The market is unchanged.

NAVELS—	Avge.
Quail, O K Exchange	$1.90
Moose, O K Exchange	3.65
Red Ensign, O K Exchange	2.35
White Ensign, O K Exchange	1.70
Native Sons, King F Co	2.75
Golden Orchard, fy or, Ind F Co	2.20
Salt Lake, King F Co	1.85
Owl, O K Exchange	1.25
SEEDLINGS—	
Fiesta, Riverside, Pach	1.90
Orchard Run	1.35
Billiken	1.35
Mission Bells	2.70
Memories	2.30
Marguerite	2.35

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ST. MICHAELS—
Carmencita 2.70
Colombo 2.55
Camellia 3.65
Halves 1.55
VALENCIAS—
Camellia 3.70
SWEETS—
Salt Lake 3.00
Mutual 2.20
Camellia 2.30
LEMONS—
Euclid 4.35
Flower 4.05
Plain 3.75
Juicy 3.95
O K brand 4.20
Red Ensign 4.75
White Ensign 4.40

ST. LOUIS, Monday, May 22.—Warm, clear. Market advancing on lemons. Ten cars oranges, 3 lemons sold.

NAVELS—	Avge.
Hunter, A C G, Glendora	$1.55
Foothill, Riv Ex, Riv	2.15
Cougar, Covina Ex	1.05
Braeside, Riv Exx, Riv	2.10

SWEETS—Mother Colony, $2.70; Carnival, $2.50; Mayflower, $2.05; Pilgrim, $1.95. ST. MICHAELS—Sunny Heights, $2.65; Golden Circle, $2.00. VALENCIAS—Avain, $3.15; Shamrock, $3.10; Albion, $2.95; A One, $2.80. LEMONS—Club, $3.65; Red Mtn, $1.80.

PITTSBURG, Monday, May 22.—Thirteen cars sold. Market unchanged on oranges. Strong, higher on lemons. Hot.

NAVELS—	Avge.
Orchard, Or National O	$3.50
Naralimo, Or Sparr F	2.50
Hawk, S A Exchange	1.50
Hunter, A C G, Glendora	1.80
Red Globe, Riv Ex, Riv	3.05
Golden Rule, Riv Ex, Riv	3.20
Crystal, Riv Ex, Riv	2.40
Carlo, S A Exchange	1.85
Standard, sd, National O	3.00
Del Oro, ch, Sparr F	2.20
Morning Glory, S A Ex	1.80
Red Globe, small offs	2.50
Cal Orange, Riv Ex, Riv	2.55
Golden, Riv Ex, Riv	2.80
Parrot, S A Exchange	2.60
Carlo, S A Exchange	1.85

SWEETS—Naralimo, $2.75; Del Oro, $2.55. BUDDED—Red Globe, $2.70. SEEDLINGS—Jasmine, $2.40. JOPPAS—Jasmine, $2.60. BLOODS—Parrot, $2.80. HALVES—$1.40; Parrot, boxes, $2.50. LEMONS—Las Fuentes, $3.95; Montclair, $4.05; El Modena, $4.20; Circus, $4.95.

CHICAGO, Monday, May 22.—Lemons—There is a firm market. Late hot weather has been favorable and the trade has increased considerably. Boxes California fancy, $5; extra choice, $4.50.

Orange demand is very good. A steady feeling exists and values were unchanged. Boxes, California navels, extra fancy, depending on size, $3.25@3.50; extra choice, $3@3.25; choice, $2.75@3.

Deciduous Fruit Market

Manager McKevitt of the California Fruit Distributors, reports:

Sacramento, Cal., May 20, 1911.

The following number of cars of deciduous fruit shipped to all points by all members of this company for the week (7 days) ending Friday night, May 19th, 1911:

Cherries: 5 cars. Cherries have ripened very slowly during the last week, but are expected to come forward more rapidly during the next ten days as the weather, which has heretofore been cool, has changed, and it is now very pleasant. Owing to the cool weather the quality of the fruit should be fine, and it is expected that from now on it will average a better quality than in previous seasons.

Apricots: Since our last letter there has been no change in the apricot situation, except that the crop in the Winters section perhaps looks a little more promising than it did. The fruit is absolutely clean and promises to be of fine size.

Plums: The plum crop continues to look fine and some varieties are so heavily laden that they are now being thinned. This will not be necessary on several of our best varieties and it is expected that the crop will be as good as heretofore indicated.

Peaches: There is no particular change in the peach situation except that there are some indications of a heavier crop than usual in June. It is hoped that this will not occur, as the crop is already fairly light and we can use to good advantage all the fruit that is now promised.

Bartlett Pears: There has been a little change in the situation on this variety, especially in the river section. While some orchards have lost practically their whole crop, owing to the thrips, the orchards unaffected will produce a larger crop than usual, and it is now expected that the crop of this section will be fully equal to that of last year. The fruit is large and fine, and free from scab and other defects.

Grapes continue to look very promising.

Since our last letter there have been showers of rain in various localities in the state. These, however, were followed by drying winds and it is expected that little damage has resulted from same. The weather, which has been very cool so far this season, changed two or three days since and is now warm and pleasant. With a continuation of this weather the lateness of the season will be partially overcome on the later varieties, and it is expected that we will not be more than a week behind the average season.

HOW TO CHOOSE A GAS ENGINE.

The above is the title of a book which should be in the hands of every one interested in gas engines. It contains much valuable information and will be sent free by the California Hydraulic Engineering Company, 70 Fremont St., San Francisco.

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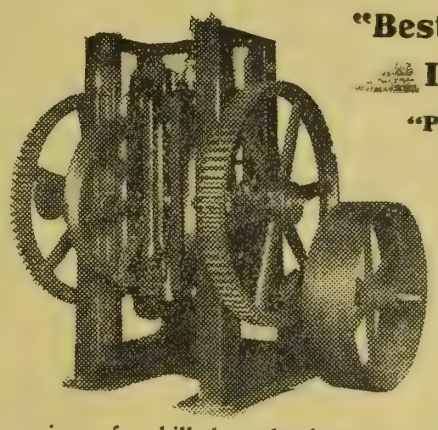

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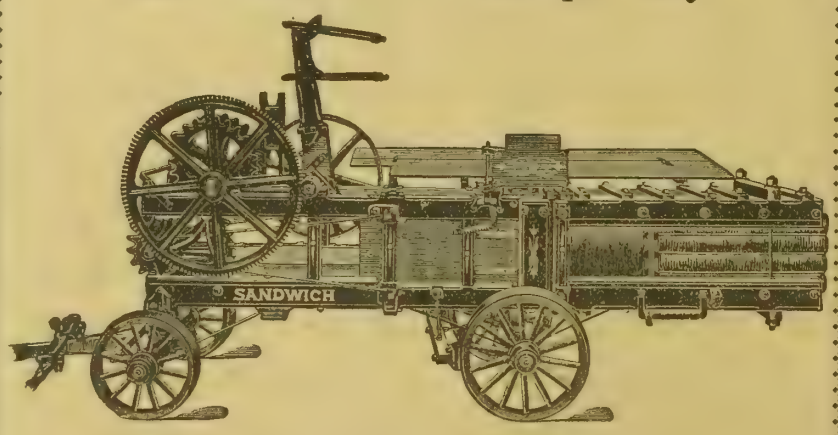

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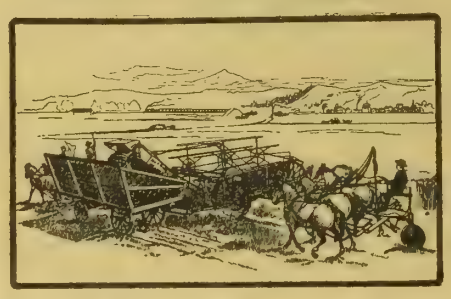

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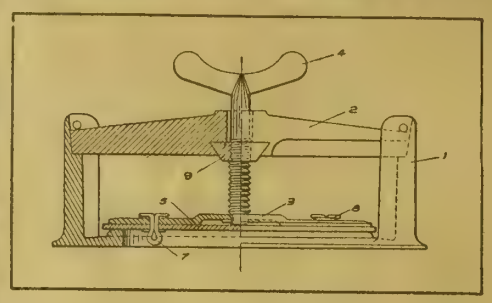
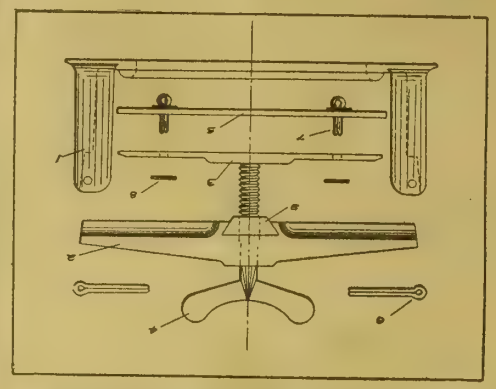
POMONA CIRCULAR VALVE





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The Pomona Valve is constructed with non-corrosive parts, thus insuring a workable valve regardless of infrequent use. All fastening held in place by cotter pins, thereby making a very cheaply constructed valve and yet a very substantial one.

Valve Parts

1 Frame
2 Cross Bar
3 Top or Lid
4 Brass Thumb Screw
5 Gasket
6 Cotter Pin
7 Cotter Pin
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9 Brass Nut

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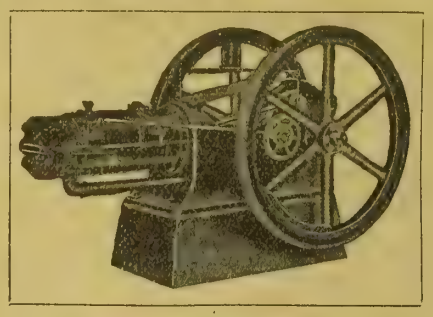

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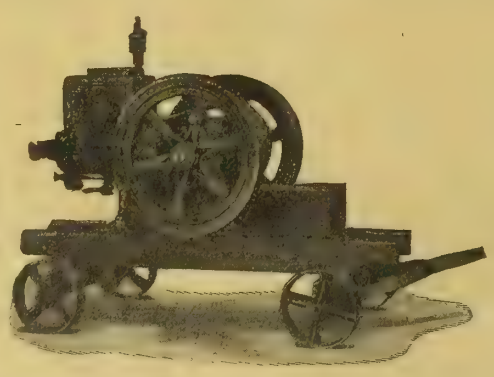

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Is no common, cheap thing. It is made like a watch, handsome enough to put in the parlor. A ten-year-old child can haul it around and set it in operation. Such a labor-saver! It will pump the water, churn the butter, run the washing machine, the cream separator, the corn sheller, the feed grinder, grind bones for the chickens, milk the cows, freeze the ice cream, rock the cradle, run the wood saw, spraying outfits, grinding mills, horse clippers, drill presses, printing presses and hundreds of other things. Only $65.00 for 1 H.P.; $75.00 for 2 H.P. Don't fail to call and see them, or send for circulars.

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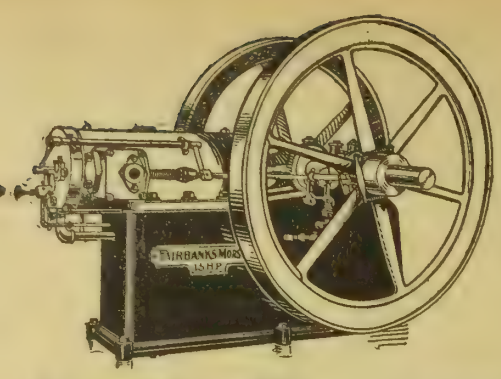

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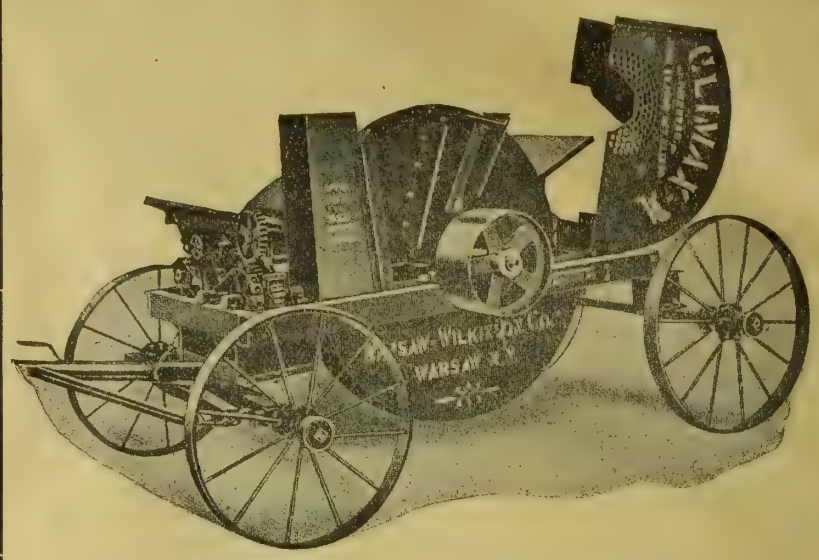

In the Climax Pneumatic Ensilage Cutter both the cutting and elevating are done by a large wheel which carries the knives on one side and the elevating fans on the other. Both the cutting and elevating, therefore, are done at one operation, in much simpler manner and with an expenditure of much less power than in those machines where the elevating device is a fan attachment added to the cutter.

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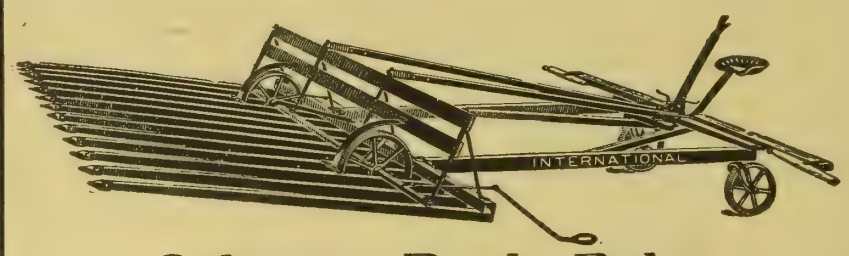

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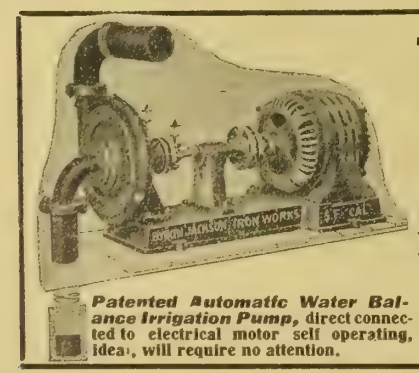

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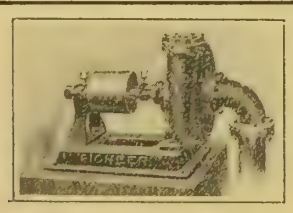

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California Cultivator

Vol. XXXVI. No. 22. LOS ANGELES: THURSDAY, JUNE 1, 1911 One Dollar the Year

Physical Condition of Soil and Tree Important

Recent Discussion as to Causes of Chlorosis Revived and Suggestions Made by C. B. Lipman, of the University of California

The recent discussion which has been going on in Southern California and especially in the Covina district, with reference to chlorosis, has been instrumental in circulating certain opinions from professional chemists and growers which careful experiments of the present and past will not support, and moreover, opinions which are likely to bring about a good deal of mischief through the schemes which they will be instrumental in inaugurating in the practical management of orange and lemon groves. I deem it of great importance, therefore, to make a statement with reference to the above mentioned discussion and especially to show that the above mentioned opinions are not tenable and not supported by the facts. I should be pleased, therefore, to have you publish in the California Cultivator the following statement:

The abnormal condition of citrus trees which manifests itself in the yellowing of the leaves and the later dropping of the same and also of the fruit, to which the name "Chlorosis" has been given, would seem to be caused, from the evidence which we have at hand now, by various factors which may in one way or another enter into the malnutrition of the tree or influence the water supply or, through the mechanical condition of the soil, the air supply. Instead of recognizing this condition with reference to chlorosis, for which we have innumerable instances as proof, Dr. R. R. Snowden has tried to show that in the case of the Covina orchards, where an unusual number of trees have recently shown chlorosis, this condition is due to an abnormal ratio between the lime and magnesia in the soil. He has based his contention on the work of Oscar Loew, to whom we are indebted for a great deal of our knowledge with reference to the functions of lime and magnesia in plants and soils. Doctor Loew and others who have recently worked on this problem, seem to be of the opinion that lime and magnesia are not only both necessary for plant growth, but that some ratio between the two seems to be required for a good growth of every class of plants under otherwise proper soil conditions, but further, that it cannot be made by any manner of means a hard and fast rule which any one can follow for any plant, and besides that, the ratio may vary within wide limits. However, it seems that Doctor Snowden has built his theory with reference to the chlorosis in the Covina orchards on the earlier work of Loew in which the latter tried to state in a general way that a ratio of about two or three of lime to one of magnesia was necessary for proper plant development. With this as a basis Doctor Snowden has examined chemically many samples of soil (I believe that they were 6 in number) from the groves of the Covina district where chlorosis existed and where it did not, and found by his method of chemical examination of the soil that the magnesia was present in too large a quantity as compared with the amount of lime in the same soil and concluded, therefore, that it was the excess of magnesia which was acting as a toxic agent and manifesting itself in the condition known as chlorosis.

On inquiring of Doctor Snowden what his method of analysis was, I was informed that he digests his soil for one-half minute in hot dilute hydrochloric acid of the strength of one to five and then carries out the method of analysis very much in the same manner as other soil chemists. When we compare this method with that of the method used by the official agricultural chemists, or with the method used at this experiment station, we find that the length of digestion differs from Doctor Snowden's in the two cases just named very markedly; that is to say, in the official method, the length of digestion is ten hours on the steam bath, in our method the length of digestion is five days on the steam bath and in both of these cases, the acid used is concentrated hydrochloric acid, which is five times as strong as the acid used in Doctor Snowden's work. It struck me that this radical difference in the length of digestion and the strength of acid ought to have markedly different effects in the extraction of the mineral constituents of the soil and, I therefore, inaugurated some experiments of the extraction of soils by the three methods above mentioned in order to obtain a fair comparison and, to keep as close as possible to the conditions which Doctor Snowden had, I employed two Covina soils, which I had received from some growers there, and on which they had complained there were trees showing chlorosis more or less markedly. In the small table below given there are shown the amounts of lime and magnesia found in the two soils above mentioned by the official method, our method marked "Hilgard" method and by the Snowden method.

	Soil	Official	Hilgard	Snowden
Lime	No. 1	1.19	1.82	.51
Lime	No. 2	.....	1.82	.64
Magnesia	No. 1	.93	1.23	.42
Magnesia	No. 2	.....	1.68	1.02

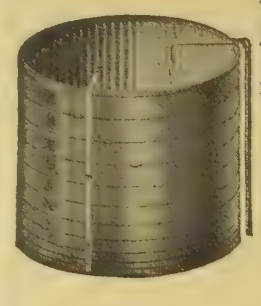
It is evident from the above table that the length of digestion employed for the extraction of a soil's constituents has a great deal to do with the amount of lime and magnesia extracted so far as the ratio between the two materials is concerned, or, in other words, there is as large an amount of magnesia or a larger amount, obtained by the Snowden method than there is of the lime, whereas, the opposite is true in the case of either of the other two methods. This is undoubtedly due to the fact that the magnesia compounds go into solution in the acid first and in a very short period of digestion, such as that used by Doctor Snowden, the amount of magnesia shows up larger and therefore would seem to indicate when Loew's work is taken as a standard, that there is an abnormal ratio between the lime and magnesia. When the results of the other methods are examined, we find that the lime is not only not smaller than the magnesia in amount, but is actually larger and exhibits a ratio to the magnesia, which is very much like that first recommended by Loew, as the approximate ratio necessary between the two, for plants in general. It would, therefore, seem, from the table and the remarks above made, that there is no justification for believing that the excess of magnesia in the soils of the Covina groves is responsible for any abnormal condition in the tree whether it be chlorosis or any other. On the other hand, it is very important to point out here that not the total amount of lime, but the form of the lime in the soil has an important bearing on the productive power of a soil. For example, if lime is present in a soil in considerable amount as a total and yet only in very small amounts as the carbonate, the decomposition processes due to the decay of organic material may be instrumental in bringing about an acid condition in the soil, especially where green manuring is followed or where large amounts of barnyard manure are applied. In both cases to be sure, that is whether the lime-magnesia ratio is not normal, or whether the lime carbonate is too small in amount to allow of an alkaline condition in the soil, the remedy would be the application of lime, but I think that it is exceedingly important to point out for what reason the lime should be applied and not to base such lime applications on an erroneous notion.

The latter idea with reference to the form of the lime in the soil is also borne out by tests which I have made on several soils sent me from Covina by some of the growers who are troubled with chlorosis in their groves, for I have found on testing these soils that they are either slightly or strongly acid in reaction when tested by our qualitative test with the litmus paper. It should also be stated here that in addition to the fact of the erroneous basis on which lime applications are recommended from the results obtained by the Snowden method of digestion, the form of lime recommended for application is one which cannot neutralize the acidity in a soil if it exists. We have had inquiries from several growers asking whether it is advisable to apply large amounts of gypsum to the soil in order to establish a proper ratio between the lime and magnesia in the soil. One grower, it has been reported, has gone to the extent of applying 50 tons of gypsum to the acre where he was told an abnormal ratio existed between the lime and the magnesia. Now, while it is obvious that if the latter was the trouble the gypsum would probably remedy it, it can also be plainly seen that if it is merely a matter of acidity caused by the lack of lime carbonate and not by an abnormal lime and magnesia ratio then only an application of alkaline lime, such as slaked lime, or lime carbonate could improve the condition of the soil, since gypsum is a neutral salt, like common table salt, and cannot neutralize the acid of the soil. Moreover, grave dangers lie in the aplication of gypsum, to such an enormous extent as that just mentioned, for the reserve potash supply in the soil will thus be made available all at once, and in a short time will be instrumental in impoverishing the potash content of the soil.

The few facts which have come to light since we have begun to look into the chlorosis of citrus trees seem to point to the conclusion with which I started out in this letter, namely, that a large variety of conditions, or, in fact anything that will make for an abnormal condition in the soil may produce chlorosis; for example, in the case of the heavy soils of the Porterville groves, the experiments of Doctors Hilgard and Loughridge would seem to indicate that poor drainage conditions are responsible for the yellowing of the leaves on the trees and the dropping of the fruit. In other cases it would seem that a lack of moisture is responsible for this abnormal condition and that will undoubtedly hold in the very light soils of the Covina district and in other sections of California where groves are planted on deep coarse-grained soils which do not adequately retain their moisture. I believe that this same fact was pointed out to the growers in some parts of Southern California some years ago by Doctor Hilgard when he was making an investigation into the moisture conditions of those soils. These and other manifestations, such as acidity, which we have had in the various groves in which chlorosis occurs, seem therefore to strengthen the idea that chlorosis is not a definite disease caused by any one factor and by no other, but rather may be a manifestation of anything which interferes with proper plant nutrition. I believe, therefore, first that if chemical analysis is to be brought in to help in the solution of this problem it should be done by either our method or the official method, or one that is sufficiently like them to give concordant results and results that more nearly approximate the actual conditions which exist in the soil. Secondly that the very rapid decomposition processes which take place in the soils of the arid region which are irrigated and the consequent solution of the lime carbonate from the surface layers and its washing downward to the lower layers of the soil, may be instrumental in producing acid soils which may bring about chlorosis. Therefore, means should be adopted, immediately, by the fruit grower to ascertain whether or not his soil is acid. This can be done very simply by the litmus paper test which we shall be glad to describe to any grower who wishes to make it, or, the samples can be sent to our laboratory to be tested for acidity. Thirdly, the physical condition of the soil should be looked after in order to determine whether or not the proper water conditions exist there. In other words, we shall have to make sure of good drainage in the case of the heavy soils in order that the roots and the bacteria may have good conditions for their development. In the light soils we shall have to resort more largely to green manuring and other means that may be in our power to improve the water-holding power of the soil. Among these may be mentioned the breaking up of plowpan, or irrigation hardpan, irrigation with smaller amounts of water at more frequent intervals so that the trees may have a larger supply throughout the whole season at their command, and, perhaps, by first packing the soil before arranging for the surface mulch through the summer which must be carefully looked after in order to prevent evaporation so far as may be possible.

I believe it absolutely necessary that these facts and suggestions be given as much publicity as possible in order that the growers of the state may be acquainted with the facts which exist. To be sure there is still a great deal of room for the investi

(Continued on Page 663.)



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NITRATE OF SODA EXPERIMENT.

By Kenneth MacRae.

Since Dr. King condemned the use of nitrate of soda in our groves, your valuable paper has had several instructive articles on this subject, giving the experiences, beliefs and theories of the several writers.

I have used nitrate of soda almost exclusively for four years on 100 acres of citrus groves, six separate, different pieces, in as many varieties of soil as we have in Rialto, and my experiment has been so far entirely satisfactory, and certainly economical, —cut two-thirds off my fertilizer bill.

I apply four or five pounds per tree, generally in one application, in early spring, right on the cover crop, and plow and disc when I get ready, three weeks or a month later. My trees are thrifty and average with the best here. The fruit is abundant, sound, smooth, good-size and a fine keeper; few drops.

I tried it first on St. Michaels; have five acres that would bear a large crop one year and short crop next, and almost drop the whole before they were ready to pick. For the past four years I have had good crops yearly, of large, sound fruit, and practically no drops.

Most of my groves have had an abundance of bone and potash before the soda era. This gave some of my friends the opportunity to say, "It's not the soda alone; the bone and potash already in the ground are still doing good work." To offset this: three years ago I bought two run-down groves; one twenty acres of Mediterranean Sweets and ten acres of old neglected seedlings. They were both as mean rundown failures as I have seen here or elsewhere, and neither had received a pound of commercial fertilizer before my purchase; I gave each about three pounds to the tree of soda, watered and cared for them, of course. The first year I harvested principally a heavy crop of gophers, but the trees showed a marked improvement within sixty days. They are today as dark green and thrifty as any grove, and bore increased crops of good sound fruit for the past two years.

The theory that you must use soda often; that "it is like a drink of whiskey, etc.," is nonsense. My experience of one application and never more than two, and both in early spring, refutes this. I have often compared it to giving a horse a teaspoonful of flax seed daily for a month in spring. It will enrich his blood, smooth his coat, seemingly give him a start that lasts the remaining eleven months.

Now, fellow growers, I am giving merely my experience. I am not advising you to follow. I am neither agent or broker for soda, but thought that my test of four years might be of interest to the general reader. I would, however, like to have a few enterprising growers who do their own thinking try a few rows of soda alone for say five years. Put, say five or six pounds of soda on a few rows and 25 or 40 pounds of commercial fertilizer on the balance. Do this for a series of years, keep books on returns, and give the readers of the Cultivator the benefit of your experiment.

Hunt up Dr. Schreiner's article along this line, published in the magazine part of the L. A. Times of March 19th. He contends that there is no worn out or poor soil, but that a continuous one crop poisons the soil, and that fertilization acts, not as a plant food, but as an antitoxine. If thirty cents of soda is as efficacious as an antitoxine as a dollar's worth of commercial, it is the stuff to use.

IMPORTATION OF BANANAS.

Four thousand million bananas were imported into the United States in the calendar year 1910. The banana habit is a growing one in the United States. In the early eighties the value of bananas imported, according to the figures of the Bureau of Statistics of the Department of Commerce and Labor, ranged between one and two million dollars per annum; by 1890 the value had increased to four and a half million dollars, in the fiscal year of 1900 to nearly six million dollars, and in the calendar year 1910 to practically twelve and a half million dollars. The rapid growth in this class of importations led the Bureau of Statistics a few years ago to call upon collectors of customs for the quantity as well as the value imported, and the figures of quantities, beginning with the year 1908, showed for that year 35,750,000 bunches; in 1909, 39,500,000; and in 1910 a little over 40,000,000 bunches were imported. Assuming that these average 100 bananas to the bunch, a figure which the importers state to be a conservative estimate, the total number imported in 1910 would aggregate approximately 4,000,000,000 bananas.

The value of the bananas imported in the last decade aggregates, in round terms, $100,000,000. In the calendar year 1901 the total value of bananas imported was $6,750,000; in 1905, $9,750,000; in 1907, $11,750,000; and in 1910, $12,500,000. These figures of the values of bananas imported are the valuation at wholesale prices in the countries from which exported to the United States, and the average price per bunch was 31 cents, as will be readily seen by dividing the 40,192,958 bunches imported in 1910 into the stated value of $12,433,334. How much money is paid by consumers in the United States for bananas cannot be estimated with accuracy, though the cost of freight and the profits of importers, wholesalers and retailers must add very materially to the $12,500,000 paid for them in the countries of production.

Central America and the West Indies are the chief sources of supply of the bananas imported into the United States. Of the 40,000,000 bunches imported in the calendar year 1910, 21,000,000 were from Central America, 13,500,000 from British West Indies, 2,500,000 from South America, principally Colombia and Dutch Guiana, 2,000,000 from Cuba, and about 1,000,000 from other countries. Costa Rica is the largest source of supply in Central America, Honduras second, and Panama third; and Jamaica is the largest source of supply in the West Indian Islands. The United States is the world's largest importer of bananas. The United Kingdom is the next largest importer, her imports of this article in the calendar year 1909 being 6,250,000 bunches, as against 39,500,000 bunches imported into the United States in the same year.

Practically the entire banana supply of the United States comes from abroad. Efforts have been made from time to time to develop the banana industry in the extreme South and in California, but the domestic production is inconsiderable when compared with the importation. The banana, while probably a native of India, is now grown in practically all tropical countries, and among a considerable part of the human race ranks as high as do cereal grains among the people of the temperate zones, and it is said to produce more food upon a given area than wheat. The consumption of bananas in temperate zone countries has increased enormously in recent years. They are used chiefly in the natural state, but in smaller quantities, in the form of banana flour made from ripe fruit. Small quantities of this flour are imported into the United States, but in such inconsiderable amounts that the Bureau of Statistics has not up to this time found it advisable to separately enumerate it among articles imported.

PAPAYA IN HAWAII.

Former articles on the growth of the papaya have created so much interest that we recently wrote to Mr. W. B. Thomas of Wahiawa, near Honolulu, Hawaiian Islands, and asked as to growing and marketing of this fruit and from him we have the statement given below. But first, we call attention to comment by Mr. Thomas on an article appearing in the Cultivator May 4th: "In referring to the statement that the young fruits are cooked before eating, Mr. Thomas

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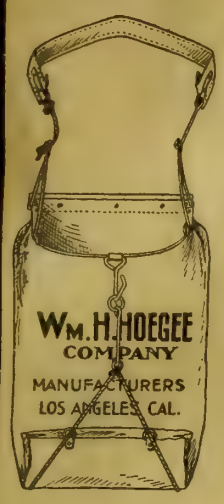

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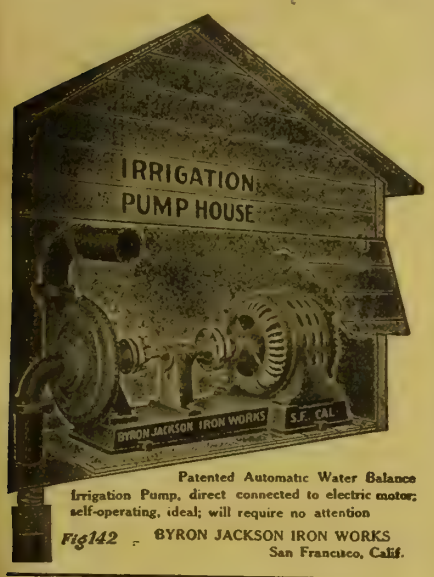

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GOVERNMENT PHOSPHATE LANDS

states that this is rarely done, though they are often combined with other fruits and made into preserves. Another point he questions is that sometimes small branches are cut off and readily rooted. Small plants grown from seeds are very difficult to transplant, but seed are often started in beds from which they may be taken to the open ground without shock to the young plant. The use of the fruit as a cosmetic is unknown in the islands.

"The papaya might justly be called the national fruit of Hawaii as there is undoubtedly more of this fruit eaten in the islands than any other. It is particularly popular as the beginning of the breakfast and is an excellent substitute for muskmelon. Many prefer it with a little lime or lemon juice squeezd over it; others with just a sprinkling of salt. At first trial some do not like them, but a taste is soon acquired and after that one never tires of them, and they are to be had every day in the year at any fruit stand at from five to ten cents each. When ripe the papaya is a deep yellow clear through, the flesh just soft enough to be eaten with a spoon. The usual way of planting the seed here is to put a dozen or so where you want the tree to grow and after the plants are three or four inches high, pull out all but the most vigorous one. The tree will attain a height of eight or ten feet and bear fruit in one year from planting of seed, if in good soil and given good cultivation. Male trees can be distinguished from fruit bearing trees by the blossoms which grow on stems three or four inches long, while the blossoms of the fruit bearing tree grow directly from the trunk. One male tree should always be left.

"There are only two varieties grown in Hawaii, and they only differ in shape. One is almost round and the other oblong. Specimens are sometimes seen that weigh 15 or 20 pounds, but the average size is from four to six pounds. A thrifty young tree will produce several hundred pounds of fruit a year. After the trees are four or five years old the fruit begins to get smaller and it is best to make new plantings. The papaya is not used for preserves except in combination with pineapples or lemon guavas. These make a delicious marmalade or jam.

"A few years ago there were some papaya trees growing in Eastlake park in Los Angeles, and they could no doubt be grown in many protected places in Southern California, but it is doubtful if they would bear fruit, as it is strictly a tropical tree."

GOVERNMENT PHOSPHATE LANDS

Two years ago last December the government awoke to the fact that American phosphate lands were being largely exploited for the benefit of foreign users of this precious mineral fertilizer, over half of the American production being exported; also that the public phosphate lands were rapidly passing into the hands of private owners. Large areas of lands underlain by phosphate rock in the recently discovered fields in the public-land states were immediately withdrawn with a view to securing legislation which would prevent exportation of the phosphate. Since then important geologic investigations have been prosecuted and new deposits of phosphate discovered by the United States geological survey. The area now standing withdrawn is over two and a half million acres, containing an aggregate of many hundred million tons of phosphate rock and having a very great potential value to the farming industry.

To make this phosphate rock readily available as a plant food it is necessary to treat it with sulphuric acid, thus converting it into acid phosphate, or "superphosphate," and it is an interesting fact that at least one of the areas withdrawn is in close proximity to the western copper smelters where large volumes of sulphuric acid fumes are now a daily unutilized by-product.

The following table shows the acreage and location of the government's phosphate areas standing withdrawn from public entry on April 1: Montana, 33,950 acres; Florida, 37,439 acres; Idaho, 1,101,517 acres; Utah, 107,745 acres; Wyoming, 1,267,494 acres; or a total of 2,548,145 acres.

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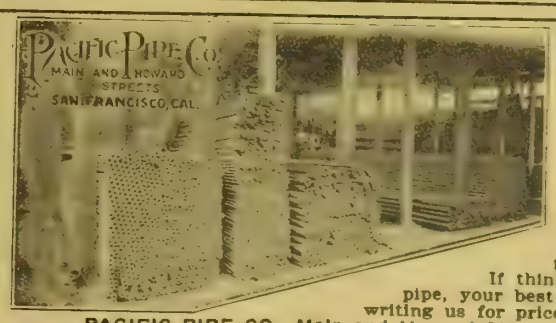

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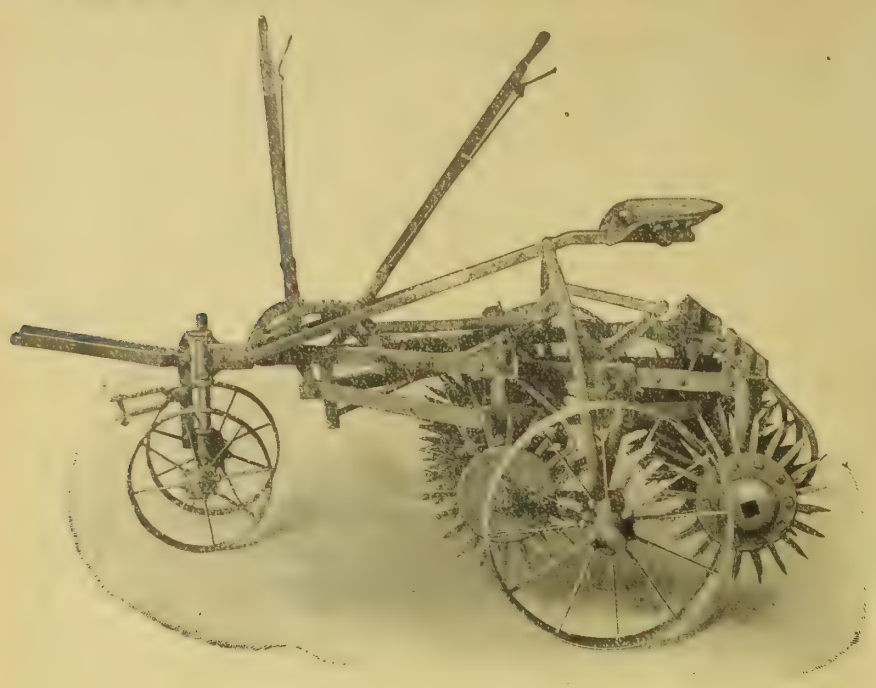

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THE BLACK PEACH APHIS.

By Prof. C. W. Woodworth, of University of California.

A very cursory examination of the infested orchard at Lankershim is sufficient to show that the insect is very completely under control at the present time. This is the result of a three years campaign aimed at the eradication of the insect. Whether there has been any real progress toward eradication it is difficult to say. It is possible that a continuation of the present vigorous policy may ultimately accomplish the total destruction, but there is no reason to expect this to occur for some years to come, and perhaps not without the final destruction of the orchards now infested.

No one questions the desirability of ridding the peach orchards of this county of the aphis, even at considerable expense, but it is desirable that the cost and conditions under which the work must be done be well understood. Thus far the county has been operating under the state law, which requires the eradication of any such pest by the owner of the orchard, and if he refuses or neglects to accomplish the work, it directs the county horticultural commissioner to do it at the expense of the grower. This law was first enacted many years ago at a time when it was supposed that the eradication of insects was a comparatively simple matter, but it has proven otherwise, and there is no case on record in the whole history of the horticulture of California, or of the world, where a well established injurious insect has been eradicated. On the other hand, there are many cases in which small colonies of many different kinds of insects have been annihilated, and most people believe that though the provisions of the law have never been carried out in the case of larger infestations, the work may be possible, and the officers entrusted with the duty should perform it.

There is no insect now in Los Angeles County against which there is more justification for these officers attempting to carry out the provisions of the law. The state law provides that the orchardist first be given the opportunity to do the work himself, and only upon his refusal or neglect, that is, his failure to accomplish it, can the county official take up the work. If the county commissioner does the work, he files a lien on the property, but he has no basis for such lien. The fact that such liens have been filed and collected in the past where eradication was not accomplished does in no manner establish their validity. Of course there is the possibility of a difference of interpretation of the meaning of the term "eradication." A very common usage when applying the term to scale insects has been to consider a treatment to be an eradication if the insect is temporarily reduced to non-injurious numbers. Such an interpretation cannot be made to apply to the work against the black peach aphis, since most of the trees treated have never had the insect present in injurious numbers. The mere control of insects, the simple reduction of the numbers to a point where the injury becomes negligible, was in no manner contemplated by the law, and the attempt to apply the law in such cases has no legal basis. The law was intended to furnish the means of handling just such situations as is presented in this case of the black peach aphis.

In reference to the more important and fully established insect pests like the black scale and the codling moth, all admit that with our present lack of knowledge of the means of eradicating insects, the law makes a requirement impossible to fulfill, and is therefore inoperative, and in the present case, if the black peach aphis finally proves uncontrollable, it cannot be considered as coming under the provisions of the law, according to the legal axiom that no law can require the impossible.

A fatal defect of the existing law is that it does not provide adequate means of handling actual conditions. Take the present, every case in fact is mainly in the nature of an experiment. If such a colony of the black peach aphis had been exterminated anywhere else, and the methods tested out so that the officer in charge of the work could confidently depend on the results of the treatments, he could go ahead and perhaps have a legal right to assess the costs against the property, but if he fails it is certain that such experiments could not either in law or in equity be chargeable against the person who was unfortunate enough to have his orchard become infested through the failure of these same officers to protect him by an effective inspection of nursery stock. Particularly is this true when these officers are compelled, in the absence of anything better, to use methods such as treating the ground with carbon bisulphid, or spraying and fumigation of the tops, which, however effective as control measures, have uniformly failed in every case where they have been applied for eradication of an established insect, except when so applied as to destroy the infested plants.

This difficulty could be largely avoided if the county assumed the financial responsibility of the work. It is probable, also, that it would be better to provide for its continuance under a county ordinance avoiding a fundamental unconstitutionality of the state law which has never been adjudicated but which many have known to exist. The horticultural law has been drawn upon the analogy of the quarantine laws governing health officers. These laws stand in striking contrast with the whole body of constitutional laws, finding their only parallel in the acts permitted during actual war, and are constitutional only on the theory that human life transcends property interests. Even these quarantine laws are applicable only to contagious diseases liable to become epidemics, dangerous diseases such as tuberculosis. The attempt to condemn tubercular cattle in several states has finally been given up, except where the owners receive an indemnity. Where property alone, and not life, is at stake, any attempt to create laws permitting the destruction of private property without due process of law, and without suitable indemnity, would certainly not be held to be constitutional if the question came before the courts. With the proper county ordinances this whole question of constitutionalities could be eliminated.

The black peach aphis occurs in at least a score of localities in this state, and in most other states where peaches are grown, and nowhere outside of Los Angeles County is any serious attempt being made to eradicate the pest. It is by no means to be classed among the list of the insects of first importance. Among insects affecting the peach it stands about fourth, the peach tree borer, the San Jose scale and the peach worm being more injurious. The chief reason for attempting to eradicate it is the fact that as yet it is found in very few localities. If it were not eradicated within the next few years, eradication would become entirely hopeless, and the insect will be one of the factors to be considered in peach growing in this district. Nowhere else has the insect proven fatal to the industry, nor even unusually difficult to control, nevertheless the damage it is capable of doing is sufficient to justify considerable experimentation in the endeavor to eradicate it.

BLACK PEACH APHIS AGAIN.

By B. R. Jones.

Referring to the article by Mr. Essig in the last Cultivator in which he gives black peach aphis remedies used in the East and in California, I wish to commend it in this, that it may be of great assistance in localities where this much dreaded pest is threatening the orchard. Having had no little experience with this insect, I would like to call attention of Cultivator readers to some points in the

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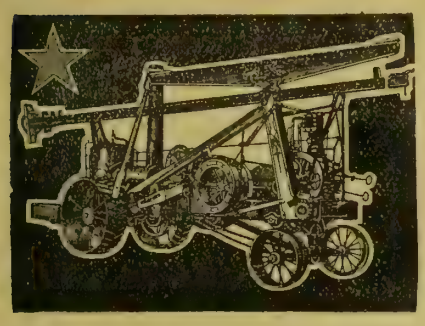

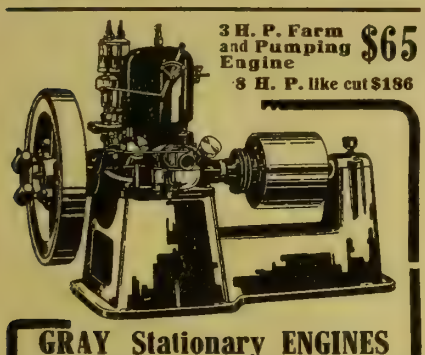

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At a convention of delegates to a good roads convention held at Fresno recently the San Joaquin State Highway Association was formed.

article, as they might be misleading and cause some damage. Mr. Essig's methods of treatment are all directed towards control. He mentions no means by which it may be eradicated, and his last word is "It is never necessary to dig out trees in a generally infested district."

As to conditions in Los Angeles County, we have this pest owing to our lack of knowledge in the past regarding the insect. The shipment of nursery trees, the roots of which are infested, is one of the causes of its spread.

Mr. Essig mentions kerosene emulsion, whale-oil soap, tobacco decoctions and most of the other means of control, and I wish to say that the Los Angeles County Commission has used them "and then some." Trees were deluged until three-fourths the leaves were gone. We fumigated with hydrocyanic acid gas, single dose, double dose and triple dose, all in one season, yet within a week after treatment the few remaining leaves would again be covered with aphis. In conjunction with the above we filled the ground near the trees with tobacco juice, cyanide of potassium, distillate and carbon bisulphide. Still they came up the next spring on such trees as sur vived; or if they did, stone fruit trees set in the same places became infested.

I believe we used these remedies intelligently and we used them with persistence. Please observe, we were trying to eradicate, not to control. In this county there is no problem confronting us so serious, excepting possibly that of controlling the purple scale on citrus trees.

Some specimens of the aphis may be found on the tree tops at almost any time the winter through. In fact the only season when we were unable to find them was during the greatest heat of the summer. At that time they seek the cooler earth. If a whole neighborhood is infested, making eradication impracticable, they may be controlled as described by Mr. Essig, and crops of fruit raised. This presumes, of course, that the crop will be valuable enough to pay for this expensive treatment.

One orchard in which there was but one infested tree last year, this year had 52 trees infested, and I am doubtful if we found all at that. Next year it is probable the rest of the orchard will show infestation. We have a means of stamping out these plague spots, and we are applying it as fast as possible with regard to the interest of owners, who are, however, co-operating to a surprising degree. Our experience is that the only means of eradication is to inject carbon bisulphide about the roots of trees and spray with distillate, making both applications strong enough to kill trees as well as insects, and even then we advise planting no stone fruit trees on same ground for several years. Nurseries from all parts of the state are liable to stock new orchard ground by sending infested trees. We are making efforts to fumigate every deciduous tree shipped into the county. I believe every fruit growing community having stone fruit trees should organize an association for protection against aphis. This pest is a public nuisance and can only be handled by a thoroughly aroused people, and I hope that all in treating of the subject will appreciate the fact that in order to destroy the aphis it is necessary to destroy the tree as well. When it first appeared in Los Angeles County it was treated by the methods suggested by Mr. Essig which were advocated by Eastern authorities. If we had known what we know now, our county could have been free from it by destroying perhaps about fifty trees. Eradication will now require the destruction of probably fifty times that many, and the problem is becoming more serious daily. A carload of infested nursery trees was burned by the purchaser this spring on the discovery of the peach aphis on them. If any purchaser of infested nursery stock will notify the Los Angeles Horticultural Commission the trees will be cleaned or destroyed if necessary, and the Commissioner will see that he is not required to pay for such trees. — Horticultural Inspector for Los Angeles County.

THE WOOLY APHIS.

By Prof. A. J. Cook.

The wooly aphis of the apple, Schizoneura lanigera, is the most formidable apple insect pest of our region, if we except the codling moth. It is called wooly plant louse because of a dense white growth that makes it look like wool and covers the trees often as with snow. It not only has the usual forms of aphids, but there is also a root form that affects the roots as does the grape phylloxera the roots of the grape. This root form does the most harm, as it works the year around. Like the grape louse, it causes knots on the roots. It is easily found on the roots, as its white wool is very easily seen. About this season of the year, a little earlier, it comes forth, and covers the twigs often with a mass of white. Some of these on the twigs grow wings, and so can spread to other trees. Of course, the root forms may be carried as we plant affected stock from the nursery.

It is not necessary to destroy affected trees, as we have a good specific for these aphids. Those on the twigs may be killed by use of a strong solution of whale-oil or fish-oil soap. One pound of soap will make six or eight gallons of the solution. It should be sprayed on with force so as to reach all the insects. Tobacco decoction is the remedy for the root form of these lice. Tobacco dust from the cigar factories is cheapest. An easy way to apply is to basin about the tree, put in a pound of the tobacco, and cover. Then wet down, and the decoction will follow down the roots and kill the lice. Thorough work of this kind will prove effective, and never injures the trees.

It is well to dip young stock from the nurseries, in case the enemy is suspected, in the tobacco decoction.

CAUSES OF CHLOROSIS.

(Continued from Page 659.)

gation of this problem. We have only begun to get a few glimpses into the real nature of the factors which cause this undesirable and very harmful condition in our trees. It is hoped that present and future research will bring to light many more facts which will allow us to go to the eradication of the evil more systematically. However, I believe strongly that we should make use, in the most systematic manner, of the facts which we have at hand and not start out on an erroneous basis to fight an evil by erroneous methods built thereon.

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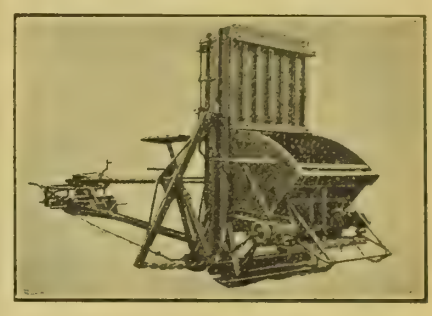

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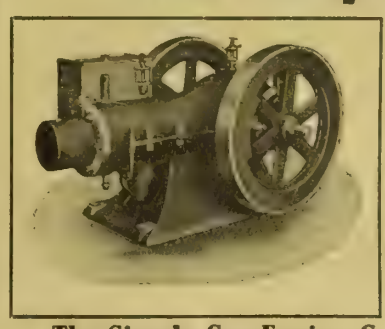

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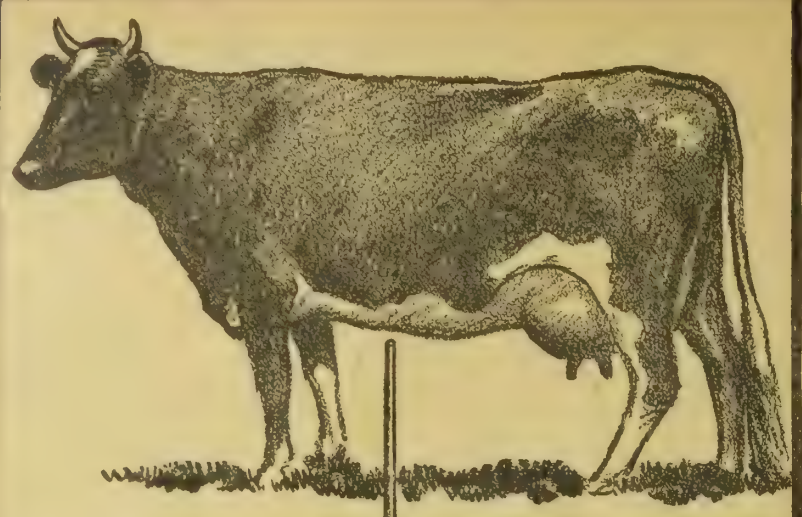

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I have farmed in Utah and am familiar with farming conditions throughout the West and know that dairy products can be produced cheaper here and a higher price secured for them than any place I have ever been.

I can keep dairy cows here for from three and a half dollars to four dollars a month the year around. It might cost a little more in the winter, but would run as low as $1.50 per month per head in the summer. A good dairyman can easily make $100 a head clear each year with grade cows. Yours sincerely

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You will have no trouble to sell the products of your dairy.

There is plenty of competition for all of the cream produced in the Sacramento Valley. There is a creamery at Jacinto, a creamery and cold storage at Willows, a creamery at Colusa and at Meridian, several at Woodland and at Sacramento, and all are bidders for cream at any point of the valley.

The skim milk and the manure from the dairy are products that are seldom rated at their full value. For raising poultry, hogs and calves, and for the maintaining and increasing the fertility of the land, and thus adding to the value of the investment, dairy by-products have a higher value every year.

Another strong argument in favor of dairying is that it forms a most satisfactory basis for diversified farming. With the monthly cream check as a foundation, and the chickens and hogs to consume the by-products, everything is turned to the best account.

Being able to harvest from six to nine crops of alfalfa a year you will realize that

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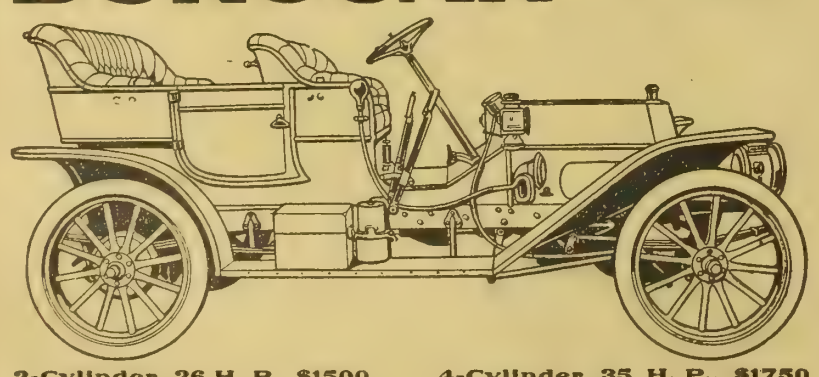

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MILK—40 PER CENT FOR RETAILING.

The milk trade was investigated last summer in 78 representative cities throughout the country, and Payne says: "Taking the averages, it appears that the consumer paid eight cents a quart for his milk. The dairyman who produced the milk, with a large investment of capital in cows, land, buildings, and so on, got four cents a quart. The railroad got very little over half a cent a quart for hauling the milk to the city. The other three and a half cents were absorbed in distributing the milk from the city depot to the consumer."

A quotation from the government report of that invesitgation, in 78 cities: "The milk wagon of the retailer has a long route. It stops at a house or two in a city block, perhaps passes several blocks without stopping, and proceeds to serve customers thinly distributed along a route of miles. At the same time other retailers are covering various portions of the same route; and so there is a great waste of effort and of expense in the distribution."

Again, Payne writes: "Though the producer, on an average for the country, received half the price paid by the consumer, there were many instances in which he received considerably less than half. In all the cities of the north-central group of states, for example, the producer, on an average, received only forty-four per cent of the retail price—that is about three and a half cents a quart; the consumer paying eight cents and the freight being about half a cent. Evidently this was not a temporary condition either. Ten years ago the Industrial Commission took a great deal of testimony concerning the retail cost of distributing farm products. At that time the retail price of milk was generally six cents a quart instead of eight as at present. In Cleveland, to mention one strictly typical case, the producer received two and seventy-three one-hundredths cents for the milk and the freight was two cents a gallon. Thus the ratio between the consumer's price and the producer's price—the ratio, in other words, of the retail cost—worked out almost exactly the same as at present. In New York City at that time for bottled milk that cost the consumer eight cents a quart, the producer received two and a half cents and the railroad one cent, leaving four and a half cents as the cost of retail distribution.

It is very clear that no material change in the ratio of retail cost can be expected so long as the present system obtains. The producer, with much capital invested in animals, land and such things, will get about half the retail price. For hauling the milk to town, the railroad will get a fraction of a cent a quart. About half the total price will be absorbed in merely distributing the milk, the same day it arrives, from the city depot to the consumer's door."—Delivery.

GOVERNMENT PUBLICATIONS.

One of the great wastes of our government is the enormous free distribution of printed matter, mainly by the Department of Agriculture. Publications of other departments are distributed free, but, as a rule, only on application. Congressmen have been in the habit of distributing agriculture publications broadcast for no other purpose except to advertise themselves. The Congressional seed distribution is, of course, a national scandal. No other country does such things. Elsewhere all official publications are issued at a fixed price. Whoever wants them can get them by paying the price, and without the price nobody can get them unless it be public libraries and learned societies. This abuse is being restricted under the present administration, and the secretary of agriculture says that, in order to avoid wasteful distribution of printed matter, it has been necessary to limit more strictly the gratuitous distribution and to depend more largely on the sale of publications by the superintendent of documents at prices sufficient to cover the cost of printing. That official reports for the last year a greater sale of this department's publications than ever before. The total number of copies sold during the year was 117,218, and the amount received for these was $16,293, an average of about 14 cents per copy. The sales of a single publication, that popularly known as "The Horse Book," netted more than $1100. The sale of agricultural publications has trebled within three years. The most commendable feature of this system is the use of the money resulting from sales in reprinting publications to supply the demand. By this means a large number of valuable publications are made continually available. The superintendent of documents during the fiscal year reprinted fifty-five publications of this department, issuing a total of 44,354 copies."

THE GOVERNMENT'S MORGAN HORSE FARM.

The Bureau of Animal Industry of the United States Department of Agriculture has purchased practically all the Morgan horses owned by the Willowmoor Farms, Redmond, Wash., the proprietor, Mr. J. W. Clise, of Seattle, having concluded to discontinue the horse breeding feature of his farm. These animals are intended for the Department's Morgan Horse Farm at Middlebury, Vt., where breeding work is being carried on with the object of preserving and improving the Morgan breed.

It is believed that the department has made a very fortunate purchase in acquiring these horses. The mares carry the old-fashioned Morgan strains, and mares so bred have proved exceedingly valuable producers at the Morgan Horse Farm when bred to the stallion General Gates.

Some of the western Morgan strains have already been added to the Middlebury stud by the service of a number of mares to Meteor Morgan and Roy Morgan. This purchase increases the amount of "old-fashioned" Morgan blood and adds that of Indian Chief through his famous daughter, Lady de Jarnette.

This will give the Morgan Horse Farm about as many mares as can be conveniently handled, and further purchases are unlikely except as especially attractive opportunities may be offered to add unusually good animals which combine individual excellence with meritorious breeding.

NATIONAL DAIRY SHOW.

The sixth annual National Dairy Show will be held in Chicago Oct. 26-Nov. 4, 1911. The association has expended more than $200,000 in promoting the dairy industry of the United States and has more than met the expectations of the dairymen and manufacturers of dairy machinery and appliances in making higher and better standards in all that enters into the production and sale of dairy products.

The management believes the show this year in attendance will be second only to the International Live Stock Exposition. The plans are to make it one of the greatest and most beneficial to the industry it represents—an industry representing an output in the United States of almost a billion dollars.

It is evident that in Germany as in America the people have not yet been punished sufficiently hard, for their lack of good sense, to make any impression on them. The wise, shrewd dairy farmer, unless he has a silly woman for a wife, will stay on his farm and take advantage of the high prices for food these gregarious consumers must pay.

Before you buy a Cream Separator
See and try a DE LAVAL

PROGRESS WITH MILCH GOATS.

By B. A. R. Stocker.

Referring to the fine article on Goat Dairying quoted in the Cultivator of May 4th, I find a record of the Toggenburg doe Fanette which appeared to be the best to date: in one day 9 lbs. 10 oz. of milk.

There is a mild, pathetic-looking little animal here in the back yard that has no idea she is anywhere near the top of the tree. Let me introduce Tassie, my half Toggenburg three-year-old doe bred by Mr. Forsyth of Pasadena. She brought twin kids March 3rd. Record began March 5th.

Tossie, a Five-Quart Doe, Three Years Old, Half Toggenburg.

I milk three times a day week days, and four times on Sunday, weighing the milk and recording it immediately. In two months she had given 540 lbs. 5 oz.; top notch for one day, April 16th, 5 quarts and 7 ounces. Now, ten weeks after kidding she gives up to nine and a half pints some days. She has the coloring and appearance of a pure Toggenburg and brings great thrifty kids.

This goat is not fed on barbed wire and takes no interest in tomato cans unless filled with good yellow corn. A favorite order of hers for lunch is "California pumpkins on the half shell." These are esteemed as an appetizer.

Tassie's yard-mate is a yearling, Nasula, a grand-daughter of Prince Bismarck, and my first four-quart Red Alpine doe Luta. Nasula already is bigger than Tassie, will be fresh in five weeks, and has a bag like a full-sized cocoanut at this early date. I fancy Tassie will have to put her best foot foremost to keep ahead of Nasula when she gets to going.

I have had two does that milked in their first period eleven and a half months, but only when they had been in my own care for all the months beforehand. I well believe that the limit is set both for time and quantity before ever the doe freshens, determined by the care and nourishment she receives in all that time. She may fall below this limit but cannot pass it that year. Experience seems to bear out the conviction that better records are going to be made in California than any that come to us from Europe.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles.

DAIRYING THE NEW WAY.

In considering present conditions in dairying, both on a large and small scale, it seems like a transition from the dingy past to a brighter clime, and sunnier, happier and more profitable methods, that bring more comfort and happiness in the rural home. Labor, in some ways, is present, but not the drudgery that marked the lives of the women in the olden time. A new era has dawned and dairying is carried on by the strictest business methods.

In the place of the old brindles, line back, mottled and red cows, are the black and white Holsteins, the yellow and white Guernseys, or the brown or fawn colored Jerseys. They are cared for with the kindest consideration. An abundance of feed is furnished in the form of pasture, supplemented with soiling crops during the summer, and the choicest clover hay, grain and silage in winter. The feed is not given in a haphazard way, hit or miss, but is balanced to meet the requirements of the system and bring a maximum yield of milk.

The barns are large and convenient, well lighted and ventilated so that the temperature can be controlled at all times. Perfect cleanliness is practiced in the stable, and no rank odors are allowed to remain. The clothing of the milkers is kept scrupulously clean, and only worn during the process of milking. The water is heated to an agreeable temperature for the cows; no chilling of the cows at watering time to retard the digesting process of the feed consumed.

On the smaller farms remote from shipping stations the milk is separated with the hand separator, the sweet milk fed to the calves and pigs, and the cream retained at the proper temperature until a "churning" has accumulated, then ripened, churned, worked, salted and packed in small jars and sold at a fancy price to private customers who are willing to pay a good price for a good article.

Those near the creameries, cheese factories and condenseries, deliver the milk each day to those plants, where it is worked up by skilled workmen in the fine arts of dairy products manufacture, the product sold by competent salesmen, a commission retained for the manufacture and sale of the goods, and the returns turned over to the dairymen by monthly checks.

The up-to-date dairyman does not work by guess. He has a record sheet in his stable, weighs his milk regularly, keeps a record of it and knows just what each and every cow is doing for him. By having his milk tested from each cow for butter fat, he knows the value of the milk given by each cow during the year. This plan enables him to weed out the unprofitable cows, and breed and keep only those that are paying a handsome profit. It is doing business in a business way.

* * * *

One of the difficulties that have confronted the dairymen has been the dislike of the boys for the business. It is too confining. The milking operation is distasteful for several reasons. They often remark they will be willing to follow in almost any other line of farming if they can be excused from the milking part of the work.

Some of the better class of dairymen, who are fathers of boys, are solving the problem. Instead of keeping the boys ignorant of the business they are encouraged to read books and papers that discuss dairy matters. The father talks over the different phases of the business with them. They are told of the profits that accrue, and of the stability of the business; the steady and constant income that makes farm life more agreeable than when the family have to wait for four or six months for a crop to mature, be gathered and sold.

Another thing that interests the boys is allowing them to attend the dairy meetings and hear able men dis-

(Continued on Page 674.)

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.

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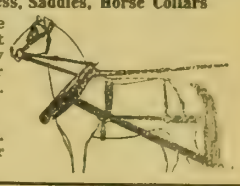

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The United States Separator employs a skimming device which by reason of its non-aligned channels, subjects the whole milk to a higher degree of centrifugal stress than any other skimming device. This, also, is our patent; it can be used on no other Cream Separator.

The United States Separator, by reason of its highly efficient skimming device, can be thoroughly washed and made sanitary (as the records show) in 10 seconds. Because the same principle is used in washing as in skimming.

The United States Separator is built to last a generation; and it does. Sixteen, seventeen and eighteen years of perfect work, is the record it has made.

The United States Separator, by reason of its modern and skillful construction, is now the easiest running Separator built.

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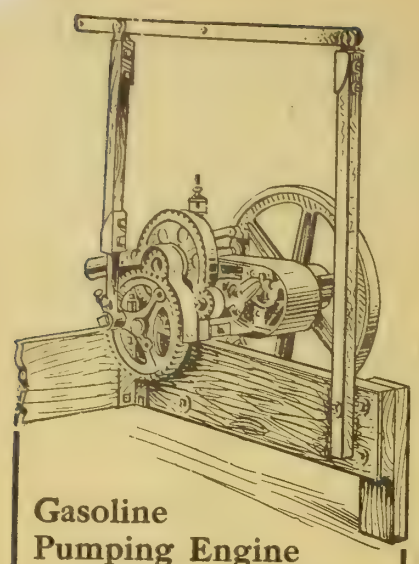

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An ice jam in the Tanana River above Fairbanks, Alaska, broke and 250 houses were swept away.

Small Fruits and Vegetables

THIS MONTH.

By O. M. Morris.

The spring planting season is now nearing the close, as our summer months of June, July and August are among the most trying, for the general garden stuff, of the whole year. During the three months following, we must depend largely on crops already planted, except in a few items such as corn, beans, melons, carrots, beets, tomatoes, potatoes, cucumbers and squash, which may still be planted for succession. Lettuce,—especially Iceberg, will do fairly well if planted now, but succession plantings should be made frequently, say every 30 days, as it is more apt to "bolt" to seed during the hot weather, and by frequent plantings, fresh heads can be had when it is the most scarce, radish and turnips should also be handled in the same way, small plantings at frequent intervals. Onions can be planted now to some extent for either bunching or late dry onions, but it is necessary to have very moist soil—or kept well watered. There is no reason for being short on this vegetable, as it can be grown in California every month of the year, especially the green or bunching onion. From seed it takes only two and one-half to three months from planting to have good green onions or five to six months for dry ones, according to variety. The White Queen is probably the earliest to mature during this part of the year—and Australian Brown the best keeper—for general crop. The latter part of July plant the Bermudas, and on through till September, for winter crop. The Mammoth White Silver Skin is the best for "bunching," as it has a thicker neck and makes a longer and heavier set.

If you have not had success with early planted tomatoes, egg plant and peppers, it is not too late to plant now, either plants or seed, for at this season they grow exceedingly fast, and will produce later and bear heavier for late crop.

Corn can be planted any time this month and is frequently planted to follow barley crop after it is removed. But it is necessary to have ground well worked up and thoroughly wet. Pumpkins are frequently planted in same way.

Casaba melons are now being planted for winter or late fall, but ground should be plowed very deeply and thoroughly irrigated before planting and in most cases no further water will be necessary.

Potatoes should be planted during June and July for main fall and winter crop. Those planted during early spring will not keep through the long summer season, so this planting is by far the most important for winter supply. Burbanks are the principal variety used. Secure old or last winter's seed as far as possible, as new seed starts slowly, and not at all if not thoroughly cured and ripened. Also plant more seed of current season's crop than old or winter seed. Of current season we mean those planted early this winter and just coming off, which we might call new potatoes. Much disappointment has resulted from use of new potatoes as seed. But this can be largely overcome by thoroughly "ripening" seed by spreading out thinly in shade of trees or on barn floor for several weeks. Cutting two or three days before planting is also advisable. Treated in this way the potato is cured down and does not rot in the wet ground.

Right here we would also state all potatoes should be treated with formaldehyde to kill the scab disease, and we attach herewith a full description of the operation.

Potato Scab.

This wide spread disease affecting potatoes is due to the attack of a parasitic fungus, which causes the skin to become rough and scabby. This disease may be successfully combated by treating the planting stock with formaldehyde; 8 fluid ounces (1 pint) of this antiseptic is to be used in 15 gallons of water, which is sufficient to treat about 1000 pounds of potatoes. The potatoes should be cleaned from dirt, washed if necessary, then soak potatoes for 1½ hours in this diluted solution, after which they should be dried out and planted in the usual way, care being taken that treated potatoes do not again become infested by contaminated sacks or other receptacles. Formaldehyde, 50c pint.

Forage Plants.

Much inquiry is constantly coming in concerning crops to follow the hay crop for late feed. Probably millet is the heaviest hay crop that can be raised. By thoroughly filling the ground with water and sowing millet now one can get a good hay crop for late summer, or pasture for several months. Also for pasture sorghum or amber cane, kaffir or Egyptian corn, supply great quantities of green feed during the late summer and fall. But in most soils they require irrigation.

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They had a surplus of $809,237.50 for the fiscal year ending in 1909. The United States postoffice has a deficiency. Why? They charge such a high rate for carrying packages that the express companies get all the short distance parcels and the postoffice department the long distance and unprofitable business. Packages by parcel post would come to our door, instead of us going to an express office to see if our goods had arrived. A package going from here to England is delivered cheaper by parcels post than at home.

Don't you want parcels post?

We can get it and must do so.

The writer has a scheme he is trying out and that is to have printed or written on all the letters and postal cards he sends out "Wanted—Parcels Post," on the outside upper left hand corner. When we wrote to seed houses or others for catalogues or on business, they mentioned in return "Your scheme is O. K."

"We surely want parcels post."

"If every person wanting parcels post would follow your request every time they do any corresponding there would be millions of precise commands for it."

"We note your request and will use the same method to get it."

Help us to make this idea contagious.

We know that the agricultural journals will copy this article.

Now let every one of us use this method all the time.

"Let me warn the inexperienced reader against running on flat tires," writes Lloyd Osborne in "Hints to the Motor Tourist" in Sunset Magazine for May. "No matter where a puncture overtakes you, move not an inch until you have installed a new tube or lock on your Stepney. Don't be tempted by a shady nook a hundred feet beyond. A hundred feet can cut your inner tube to ribbons, and injure your casing beyond repair. Let the sun beat down on your defenseless head, let the ground burn your unfortunate feet, let the spot be the worst you could have chosen in the whole state of California—but stay where you are. If you don't, you are a tire-murderer and unworthy to own a car. Never mind your wife's pleadings, but hustle out the jack and get busy. You will be rewarded, not only in the bright hereafter—but now."

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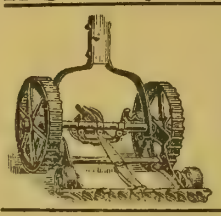

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The Ornamental Garden

THIS MONTH.

By O. M. Morris.

This is the month of least activity in planting in the flower garden. Most annuals are planted and many are in flower. Summer vacations are now nearing and many do not want the summer care of young seedlings. But we must remind you that this is just the season to plant most of the perennials and biennials, and by selecting a good place for seed beds one can plant now and young seedlings will not be ready to transplant till after summer vacations, and then at that time you will have all your plants ready for planting out. Any of these plants that require a long season to come into flower should be planted, such as coreopsis grandiflora, delphinium, pentstemons, digitalis, aquilegias rehmanias, anemones, gypsophilla, paniculata, hollyhocks, African daisy, hypericums, gazanias, salvias statice, verbenas, etc., also stocks and pansies are to be planted now for flowering in fall. The biennals should be planted now to get strong plants to bed out during fall, such as Canterbury bells, sweet Williams, francoas, etc. We would also advise early planting of cinerarias and primulas for winter flowering; these should be ready for transplanting in about two and one-half to three months if planted now.

One of the finest perennials of late introduction is the rehmania angulata from China; plants started last season are in full bloom now, and will last the better part of the year. It is a very decorative, large growing plant and flowers are produced in great abundance, and are valuable as a cut flower, large bignonia-like flowers in long spikes two to four feet high, and easily grown from seed.

Another wonderful and magnificent blooming plant is the new race of perennial hybrid delphinium (larkspur). In variety and beauty of its tints, which are as numerous as they are charming, no other plant can equal the delphinium. The brilliant flowers can be seen from a long distance and are strongly effective in beds or masses, in borders, shrubberies, or in combination with white lilies. Ordinarily the tall sorts are planted among the shrubbery as a background for dwarfs, which are favorite for bedding. Improvements are continually being made in the size of the flowers, as well as in the length and fullness of the spikes. Most of the species flower both early and late; the season for all can be prolonged by cutting away the withered flower-stems. They are sometimes increased by division but are more robust when grown from seed. All the varieties are very easily cultivated, and adaptable to many conditions, but in a soil deeply dug and well enriched with fine old manure their blooms are finest. They must have plenty of room to grow, one and one-half to two feet each way is not too much for the taller sorts.

The individual blossoms are of immense size, single, semi-double and perfectly double, dressing the graceful, towering spikes for two to five feet of their length. The colors and shades are wonderfully lovely and varied, ranging from pure white and most chaste lavender up through every conceivable shade of blue to deep indigo and purple, several shades being blended in some of the varieties. The plants are tall growers, from four to eight feet in height; there are but few plants that contribute so much to the beauty of garden or herbaceous border. By cutting off the spikes immediately after flowering these delphiniums may be had in bloom for several months.

BAUHINIA—MOUNTAIN EBONY.

By James Fullerton.

This is an extensive genus of plants, creepers and shrubs, widely diffused throughout the tropics, especially in South America and India. Many of them do well in the climate of Southern California. I have had experience with three varieties of these shrubs or small trees—the Bauhinia purpurea, galpinii and variegata. The purpurea is my favorite, with galpinii for second choice. The Florida nurseryman of whom I got my plants says of purpurea: "One of the finest flowering large shrubs we have ever seen. Flowers are borne in the greatest profusion, three to four inches across, varying in color from almost white to a rich purple and marked and shaded with many tones. We cannot adequately describe them; they are grand. The plant is robust and rather hardy, reaching a height of fifteen feet or more." This description does not do more than justice to the plant. With us it commences to bloom in April and continues to produce its orchid-like flowers throughout the summer. A plant in the plaza at Orange, just seven years old, is now in full bloom and is greatly admired.

The bauhinias would be a great acquisition to our parks and home places. The galpinii produces a wealth of beautiful orange-red flowers during the summer and autumn. The leaves of this plant are smaller and the shrub not so large as the purpurea. The leaves of nearly all of these plants are two-lobed and fold up at night. The plants are easily propagated from seeds, which are borne in beanlike pods, and if care if taken to prevent damping-off when small, will make rapid growth.

* * *

Through the courtesy of Mr. Eben Davis, Mr. Fullerton sent to this office branches showing flowers of the mountain ebony, which are exquisite in coloring and have a dainty perfume. Not only is the individual flower of great beauty, but the entire shrub is described as one mass of flowers. We appreciate Mr. Fullerton's calling attention to this desirable plant, and from our limited knowledge of it would say that it has promise of much pleasure for flower lovers of California. As this plant grows in a park of the city of Orange, it will no doubt flourish in a wide range of locations in California.

MEXICAN POPPY.

This plant, as its common name suggests, is a native of Mexico, and was given its generic name in honor of John Hunneman, an Englishman, a friend of botanists. It is in a class all by itself, its nearest relative is our true shrubby poppy, Dendromicon rigidum, which is also a monoty pic genus. To grow it successfully a perfectly drained bed must be provided for it. The soil if fertile will produce shrubby plants three to four feet high, which are coverd with its beautiful lemon colored flowers eight months of the year. They have the pleasing character of remaining open at night and during cloudy days, which a California poppy will not do. One reason why ninety per cent of the plantings of this desirable subject fail is the lack of thorough drainage. A bed four feet in diameter is large enough to accommodate a half dozen plants and they increase in size and beauty with age. If the subsoil of the garden is at all loamy or clayey, dig a hole at least four feet deep and fill it half full of broken bottles, bones or any other indestructible substance; over this place several inches of fine brush or straw, or weeds, solidly tramped down, to prevent the soil from immediately washing into the drainage. A ten-cent package of seed will furnish five times as many plants as are necessary to fill a bed four feet over. Like all the poppy family they are difficult to transplant, therefore it is wisdom on the part of the gardener to sow the seeds where the plants are to remain, thinning out to 12 or 15 inches apart. —Pacific Garden.

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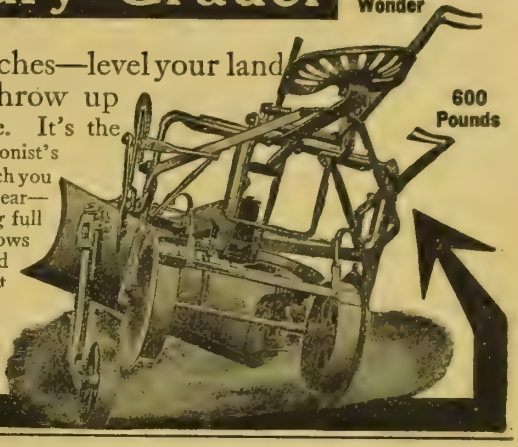

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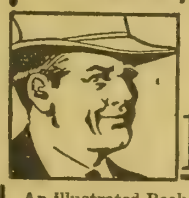

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Address all correspondence:

THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,269 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres. and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, June 1, 1911

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CONTROL THE PESTS.

Doubtless our readers interested in deciduous orchards read with interest Mr. Essig's article in last week's Cultivator giving method of handling black peach aphis which is more or less of a pest all over the state. Inspired by that article Mr. Jones of the Los Angeles County Horticultural Commission comes in this week with some criticism of Mr. Essig's attitude, also commendation for some things he has said regarding the control of the aphis. Mr. Jones' idea is that control of this pest is not what is sought in Los Angeles County. Eradication is considered of enough benefit to the industry that the commission is determined that so far as one county is concerned the pest shall be eradicated. However, we note running through Mr. Jones' article statements which give one the belief that once established as widely as is the black peach aphis, it never will be eradicated. Mr. Jones maintains that the only way of eradicating it is to so treat the tree as to kill it, together with all aphis upon it and within the ground, but apparently his faith in this killing of the pest, even with the killing of the tree, is not strong, for we note he says: "Other stone fruits should not be planted on this ground for five years." Of course, this does not mean the making of a desert to wipe out the peach aphis, though an orchardist who has his all in peaches in a peach growing section and is fitted to handle the peach business, cannot look with pleasure on the prospect held up by Mr. Jones. Then at the expiration of the five years, many nurseries will be selling trees which may be infested with the black aphis, and again the same process is to be gone through with. Therefore we believe that the effort of the commission which looks toward the destruction of profit bearing orchards is unwise.

Prof. Woodworth of the State University says that this pest is in many sections of the state and it is in practically all sections of the East—still peaches are grown. The orchardists who are so enthusiastic over the destruction of the pest that they are willing to sacrifice their trees may be doing the wise thing, but if the trees are young and profit bearing, as we believe they may be with spraying at a reasonable cost, we believe we would preserve them.

FUMIGATION.

Some of the results of the work of Mr. R. S. Woglum, Special Agent of the Bureau of Entomology, in field investigations with hydrocyanic acid gas fumigation in California are now shown in three publications, Bulletin No. 90 of the Bureau of Entomology, Parts One, Two and Three. Part One is a report of Investigations, or more properly, a continuation of Bulletin 79, issued some months ago, and discusses the various details of fumigation procedure, while Part Two is devoted entirely to the value of sodium cyanide for fumigation purposes. Another circular, which is really Part Three of Bulletin 90, is by Mr. C. C. McDonnell and has to do with the chemistry of fumigation with hydrocyanic acid gas.

The main part of the bulletin takes up the history of fumigation and the recent renewal of interest in it, together with statements of the extent to which it is practiced in this state. The various systems of work are reviewed, likewise very condensed descriptions are given of the enemies for which fumigation is proving effective. Apparatus, including tents in various forms, canvas, gas proofing, mildew proofing, together with poles, derricks, hoisting machines, supply carts, measuring vessels, etc., are fully treated.

ENCOURAGING AGRICULTURE.

The Texas Industrial Congress with headquarters at Dallas, proposes to increase agricultural productions of that state by offering certain prizes for best productions of corn and cotton. Prizes will be for largest yield on ten acres, the first being $2500 in gold. Iowa also comes in with a $4000 premium for best oats grown within its borders. A supplementary $2000 premium is offered for production of other grains.

It appears to us that the annual appropriation made to the state fair of California might well be used along lines similar to these prize competitions in Texas and Iowa. For years we appropriated money for a so-called state fair which was nothing more nor less than a gambling bout; more recently an honest effort has been made for a legitimate fair, still it has taken on more of the features of a carnival of sports to the benefit of the city of Sacramento, but of very little to the state of California. The management has been changed this year and already action has been taken to sever connection with the freak amusement features. If this means a change of general plan looking toward an honest agricultural fair, then all honor to the management and all support to the effort.

Nearly every town in the state has its blossom carnival, rose festival, cherry day, water carnival or other local affair which brings in the people from surrounding localities and to a certain extent from all parts of the state. This is to the advantage of the community in direct return, and especially as an advertising feature. For Sacramento to have this benefit through state appropriations while other towns pay for their own is unjust. The new management should bend its energies toward holding a more general agricultural fair than has ever been done in the past. It may also be wise to consider the example of Iowa and Texas.

TAKE PAINS.

The winner of the first prize for the best raisin bread explains the reason for her success, "My bread is good because I take pains." Commenting on this statement the Fresno Republican gives a fund of wisdom on the matter of taking pains: "Just try it, in anything. Fry eggs, and 'take pains,' and see how different they are from the same eggs, fried in the same way, without taking pains. Put your dishes on the table, 'taking pains' and see how appetizing that table looks, compared to the same table, with the same dishes in the same arrangement, set without taking pains. When you are wrapping goods in a store, really care whether they are wrapped right or not and see how soon you are promoted out of the wrapping job. The good bookkeeper is primarily the one who cares whether his books are right or wrong. The artisan who 'takes pains' is soon foreman, and perhaps afterwards superintendent or manager. In business, in professions, in art, in literature, and in the common routine of common life, success attends the one who 'takes pains,' and cares."

While this is here applied to housekeeping, or professional life, the general principle holds for milking the cow, taking care of the hens, cultivating the orchard, or any other duty that may be ours. It is good, wholesome stuff.

The right of the government to control grazing in national forests has been maintained by a decision handed down by the Supreme Court. The question was brought up by the claim of certain states that the government could not control even its own lands within their boundaries. Secretary Wilson is reported as having said: "I am very sure that the stockmen of the West, as well as the western people generally, will accept this decision of the Supreme Court at its full worth and that the controversy which has heretofore existed regarding the right to use the grazing lands within the various national forests without permit from the Department of Agriculture will be brought to an end."

Manager Dargitz of the California Almond Growers Exchange reports promise for prices of almonds this season as of the very best. He says that the buyers are finding it difficult to secure stock even at 15 cents. A few contracts have been closed at that price. This looks different to the almond growers than before the organization of this exchange. Co-operation has not always succeeded, but handled with integrity and good sense there is a reasonable show for success, as is proven by the thousands of dollars which have been turned over to the growers and which they would not have received had it not been for co-operation.

If there is one part of the year in which it is better to kill weeds than another, it is right now. In fact, we could use this sentence in every issue of the Cultivator for the next 52 weeks—always the best time to kill a weed is "right now," but if there should be any preference it is for the beginning of the warm weather. The draft upon the soil for its moisture is wonderful. Wind and sun are worst of thieves, and added to them the hungry weeds evaporate tons of moisture, and only the very wealthy can afford them. Never let a weed get much above the surface of the soil.

At one time San Jose made an effort to be considered the "Spotless Town" of the Pacific Coast. Doubtless the effort still obtains. We hope so and that she will make good. Still more we hope her effort will stimulate every other town in the state to emulation, and not only every other town, but every country community. It adds to the worth of every community to be beautiful and the best part of it is that it is within the possibilities to clean up roadsides and plant trees and shrubs so that even in the absence of many natural beauties the locality may be made attractive.

An Eastern Exchange says: "The men who live out in the open, who hold communion with the running brooks and the trees and the everlasting stars, lose a great deal, no doubt, of all that is to be heard and seen in cities; but they do not seem to miss it very much. Nature has shown them long ago that in her rich and secret treasuries she holds things more precious than the toys and baubles of Vanity Fair that are for sale in the cities. She has, in the first place, taught them that there are certain simple elemental things worth more than all the luxuries together."

A letter from Mr. Ernst A. Bessey of the Bureau of Plant Industry informs us that a bulletin of which he is the author on the subject of "Root-Knot and Its Control" is now in type and will be soon issued. This is one of the most perplexing troubles affecting fruit trees and while we question any royal road to its eradication, we trust Mr. Bessey's bulletin will be helpful.

Agricultural News Notes of the Pacific Coast

Northern California

Winters reports alfalfa cuttings as showing exceptionally heavy yield.

A reclamation district has been formed near Tudor, Sutter County.

The Corning Poultry Association is already planning for its November show.

Lutheran colonists have purchased 30,000 acres in Tehama County and will colonize.

Members of Antelope Grange, at Roseville, recently held a successful annual picnic.

Vegetable growing has become an important factor with farmers of Portola, Plumas County.

Sacramento capitalists have purchased 320 acres in Eldorado County, which will be planted to apples.

Large dredges are throwing up immense levees which will reclaim 11,000 acres in Yolo tule basin, west of Sacramento.

Haying began at Meridian, Shasta County, on May 20, crops turning out well, though not as heavy as anticipated earlier.

Less than two weeks ago portions of Lassen County were visited by sharp frosts; slight damage to fruit was reported.

Prospects in the San Joaquin Valley are excellent for both wheat and barley, though crops will not be so large as some years.

Thomas Armstrong, an expert landscape gardener, has been appointed gardener in charge at the capitol grounds at Sacramento.

A reservoir covering 1540 acres will be built near Millville, Mendocino County, and in connection with it will be a tunnel 6000 feet long.

The Pomona Grange of Sonoma County met on the 13th at the home of one of the members and an excellent picnic lunch was served.

Orland, Glenn County, is planning for a jubilee celebration to be held June 16 and 17 in honor of the completion of her reclamation project.

The highest price ever paid for California cherries is reported from New York, a ten-pound box having commanded $195. They were Purple Guignes.

A nurseryman at Dixon, Solano County, has booked an order for 2,500,000 trees to be delivered within the next five years. The deal calls for the payment of $125,000.

The annual migration of cattle to the mountain ranges in the northern part of the state has been delayed for about a month on account of the deep snow that still remains in the Sierra.

A contract filed in Sonoma County calls for the delivery of 40,000 pounds of 1911, 1912 and 1913 hops at 16 and 13 cents. Another contract calls for a 17 cent price on 35,000 pounds of 1911 crop.

The Maywood Packing Company, composed of fruit growers, has just closed a successful year and declared a 10 per cent dividend. Directors for the coming year are: John Cockcroft, R. McEwen, D. H. Adkins, B. H. Brubaker and Walter C. Smith. F. G. Beresford was re-elected as manager, and J. B. Merritt was made secretary.

Central California

Some contracts for new crop raisins have been signed at five cents.

Fresno County reports peaches showing considerable pit split.

The Valley will probably produce about two-thirds of normal peach crop.

San Jose cherry growers have received eight cents per pound for some early whites.

Centerville, near Sanger, Fresno County, is becoming quite a citrus nursery tree center.

Fresno has an 812-acre sewer farm which gives a net income to the city over all cost of maintenance.

A packers' circular to the eastern trade makes a quotation of 8¼ cents on extra fancy seeded raisins.

Fresno has 200 acres of its sewer farm sown to barley and 160 acres to alfalfa. The grain hay will aggregate this season 425 tons.

The latest estimate as to the grape output of Fresno County is that the frosts of early April have left at least 50 per cent of a crop.

The deciduous orchard owners, members of the San Jose Grange, are holding for bigger prices than have yet been offered for dried fruits for the coming season.

Experts representing eastern capitalists are looking over the San Joaquin Valley to determine as to the prospects for a vegetable pickling factory and cannery.

Orchardists of the valley are pleased at the results following the repeal of the fence law which permitted stock owners to graze over a man's land without payment of any damages unless the land was fenced.

The raisin day publicity committee recently met at Fresno and discussed plans for advertising raisins over the East for the coming summer. The plan will first be to advertise in grocers' publications.

Papers all over the state are asserting that San Jose Grange has fixed upon $90 per green ton for apricots. Either the papers are all copying the same typographical error or San Jose Grangers are stiff on prices.

Horticultural Commissioner Hickman of Monterey County recommends for the eradication of Johnson grass the plowing of land the latter part of May, again the latter part of June and again in August. This is promised to practically wipe out the pest.

The Merchants Carnival and Products Exposition at Merced last week called forth great crowds from Merced and surrounding counties. Most striking were the produce exhibits. The Merced Poultry Association and the live stock interests of the county made fine exhibits.

The Fresno Chamber of Commerce is agitating the question of an investigation of Zante currants and urging the Department to give justice to California raisin growers. The "currant" is nothing more nor less than a raisin and should not be imported under the name of currant. But the strongest fight against this stuff is based on the claim that it is prepared in a most unsanitary and unclean way; samples have been received in this country which are partly decomposed.

Southern California

Coachella Valley has finished the shipping of her Bermuda onion crop.

Pomona is to have a clean-up day and roadsides and parkways are to be beautified.

Ventura County bean growers still have on hand about 5000 sacks of last year's crop.

Orange County dried fruit growers are looking for at least a 15 cent price on apricots.

The first of the Imperial Valley's 2000 cars of cantaloupes are now going to market rapidly.

An expert of the Department of Agriculture is investigating the thrips situation at Riverside.

Prof. C. M. Haring of the State University is investigating live stock conditions in the Imperial.

The last meeting of the Covina Valley Farmers Club was under the wal nut trees in an informal picnic.

Apricot growers at Elsinore, Riverside County, contemplate the formation of a dried fruit association.

Brawley will celebrate the independence of the country by a Cantaloupe Day preceding the regular celebration.

The Anaheim Orange Growers Association has shipped 240 cars of Navels and will ship about 100 of Valencias.

The Oxnard Lima Bean Growers Association has issued a booklet of facts about lima beans which contains recipes.

Some sections of Southern California were visited by a shower last week, Pomona receiving over an inch and a third.

Santiago Orange Growers Association has leased the McPherson packing house at Orange which is one of the oldest in Orange County.

The bee keepers of Hemet, Riverside County, have formed an association for the marketing of their coming output; the crop will be large this season.

San Bernardino County apiarists estimate a shortage of the honey crop; the bees have been dying at a rapid rate; some apiarists report 75 per cent loss.

A demonstration of "farming with dynamite" was made by representatives of a powder concern at the state citrus experiment station at Riverside last week.

Riverside hay and grain crop will be shorter this year than last; the early sown grain is not as good as the late. The estimate is that the hay crop will not exceed 50 per cent of average.

State Commissioner of Horticulture Jeffrey following the instructions of the San Bernardino Convention, has appointed the following committee on the standardization of citrus fruits: E. J. Yoakam, Highland; J. M. Randall, Whittier; E. F. Van Luven, Colton; Fred J. Smith, Pomona; Kenneth McRae, Rialto; V. V. Leroy, Claremont; Fred M. Reed, Riverside; R. P. Cundiff, Riverside; S. A. Pease, San Bernardino; Francis Cuttle, Riverside; E. O. Kennard, Glendora; James Barnhill, Colton; Charles R. Paine, Redlands; William C. Fuller, Colton; Harry B. Chase, Riverside.

The Coast

Milton, Oregon, shipped its first strawberries May 15.

Arizona will produce 9,000,000 pounds of wool this year.

Buckeye, Salt River, Arizona, will plant largely to sugar beets.

Plans are perfecting for irrigating 2,000 acres near Salome, Arizona.

Denver proposes to make itself the best shaded city in the United States.

Hog raising is being extended in the Inland Empire of Eastern Washington.

The wool scouring mill at Echo, Oregon, has started on its season's run.

A co-operative fruit marketing association has been formed at Le Grand, Oregon.

Farmers of Lane County, Oregon, are forming an independent telephone company.

The Spokane County Farmers Union held its last meeting at Medical Lake last Saturday.

The Colorado state senate has approved the appropriation of $10,000,000 for good roads.

The Yakima Valley fruit growers are conferring with the California Fruit Exchange.

Salt River Valley stockmen recently sent out a twenty-eight-car train of splendid fat steers.

Nogales, Arizona, reports receipt of 12,000 to 15,000 head of cattle monthly from Mexico.

Eastern capitalists have purchased 32,000 acres adjacent to Prescott, Arizona, and will colonize.

Argentina, South America, promises to compete with California in supplying grapes and oranges.

Portions of the Philippine Islands are interested in a new method of extracting oil from Para rubber seed.

The Farmers Union of Wallowa, Baker and Umatilla Counties, Oregon, will hold a three-day picnic next week.

The wool market at Portland, Oregon, is not satisfactory to the growers, ten to fourteen cents being prevailing price.

Washington claims an output of $4,500,000 worth of apples last year, and this year the output will exceed $500,000,000.

At a recent sale at the Union Stock Yards, Portland, Oregon, 750 head of yearlings brought $5.10, and a bunch of fine lambs sold at $7.

The Alberta government has granted $10,000 to meet the expense of the dry farming congress if it is held at Lethbridge in 1912.

Watermelon growers of the Salt River Valley have secured a lower freight rate to Denver. Over 400 acres have been planted in the valley this season.

Crop conditions of Walla Walla Valley, Washington, were never better, and the one valley will turn out this year well up towards 10,000,000 bushels of wheat.

Many Wyoming sheep have died within the last few months from eating poisonous weeds growing on the ranges. The experiment station and Department of Agriculture are combining to investigate.

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White Plymouth Rock Eggs	**$1.00 per 15**
White Indian Runner Duck Eggs	**$3.00 per 13**

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Practical Poultry Culture

Practical poultry people who may have ideas from their experience as to methods of feeding and housing and general care of poultry will convey a favor upon the Cultivator and its circle of readers by sending in concise accounts. Mrs. Basley is always willing to answer queries which with the experience of others should make this a most valuable feature in poultry life on the Coast. Opinions or matters of a personal nature should be omitted, but a concise statement of facts is always valuable.

MORE ABOUT CANARIES.

By Mrs. A. Basley.

As a lover of canaries and a successful breeder of them all my life, I am always glad to learn more about them and encourage our readers who may have the same tastes. I have asked a canary expert breeder and judge to tell us more about the different breeds of canaries that are popular in England and in Europe.

The judge (John Burrows) was for a number of years secretary of the Leicestershire (England) Ornithological Society and of the celebrated Leicester Shows, and knows more about the English canaries and English wild and cage birds than any one I have met in California. His description of high-class canaries will interest many.

The largest canary is the Lancashire "Coppy." This we place first because it is the giant of the canary family, often measuring seven and a half to eight inches long. As their name implies they are bred for their crests, "coppy" being the old English for crest or cap. A good exhibition bird should have a drooping crest with a well defined center, the crest feathers entirely covering the eyes and beaks.

Yorkshires. These birds are sometimes called the "Aristocrats" of canarydom. They are very straight, long and slim, with an erect carriage and feathers like wax lying tightly to their slim bodies.

Lizards. A bantam variety of the canaries with beautiful spangled coats and a clear (not spangled) cap, the yellows are called the Gold Lizards and the Silver Spangled have the tips of the yellow feathers just slightly tipped with white. They are both most charming little, tiny birds.

Borders. These are another of the Wee Gems. They should be round in shape and as tight in feather for exhibition as though carved from box wood.

Cinnamons. A beautiful variety of the Norwich type is called Cinnamon. They should be of sound cinnamon color with dark penciling showing on their coats. This is a truly grand variety.

Scotch Fancy. The Scotch Fancy is a great favorite in Scotland. They should stand with the head over the perch and the tail under, forming a crescent like a new moon.

Belgium. This variety should stand on the perch with the tail in a perfectly straight line with the back, head bent down so that the shoulders are the highest point on view. They are trained to keep the head down and the shoulders up, so that they have almost the appearance of being hump-backed.

Dutch Frills. These are frilled on the chest which makes them appear rough, but they have many admirers.

London Fancy. This once popular bird with clear, bright yellow body and dark wings and tail seems to be getting quite scarce, now very few being bred, probably on account of the difficulty of breeding with the proper markings.

Rollers. These are common birds, but are bred and trained to sing. They can be taught the song of any bird but to be kept perfect they require to be retrained at least every two years, or their song reverts to the natural song of the canary tribe. They were first trained in the mountain districts of Central Europe, especially in the Hartz mountains, but are now extensively bred in England, the "Home" of the canary. The English "Roller" nearly always comes out first in the singing competitions. Though the Rollers have nothing to show in the way of beautiful plumage they make up for this by their wonderful singing. None of the best singers are put on the market; they are kept to train the next year's birds and are called "schoolmasters."

Norwich. Last but not least, we have the Norwich variety. This is without doubt the most popular and beautiful of the canary family not only on account of the lovely and wonderful coloring but also as singers they are second to none. In no other variety is there such depth of color, and so large a variety of markings.

The Norwich canary should have a full round head with thick short neck set on a chubby round body, broad chest, short wings and tail. He should stand well across the perch with a bold jaunty appearance. They vary in coloring and feather through all the various phases of marking from the green to the clear yellow, sometimes a specimen is seen with both eyes and wings marked alike, these are called "even marked" and are highly valued, while rarer still is the bird marked on eyes, wings and each side of the tail, this is called a "six-pointed" bird.

The Norwich is divided, as are the other varieties into "yellows" and "buffs." Good exhibition specimens of yellows are of the brightest orange, almost the color of red hot iron. The "buffs," although as deep and bright in color, have the end of each little feather just tipped with white very lightly. The deep bright yellow shining through gives the appearance of being frosted, or as if a thin white lace veil were over the bird with the yellow shining through. The effect is almost indescribably beautiful. Some of these birds are extremely valuable. They are good songsters, exquisite little birds, bright and intelligent.

There are many shows in the different cities and towns all over England, Scotland, Wales and Ireland in the fall and winter and when these shows are over the owners of the prize winners send the champions (those that have never been beaten) up to the biggest and best show of all in the month of February at the Crystal Palace. At the 52nd annual show last February there were in all 2600 cage birds competing for prizes. A prize there means a winning over about 26,000 birds from all over the country.

WHAT IS WRONG WITH THE BANTAM?

Why is it that more people do not raise bantams? Are they the little good-for-nothing, infernal nuisances that some people claim they are? In answer to this I will say no. The bantam fowl are today being sadly neglected, simply because some people are afraid to invest a few dollars in a pair of these little beauties and thereby convince themselves. Do not let your neighbor or friend do the deciding, but do so yourself. If you think that you would like to purchase a few bantams, do so; but do not go to your neighbor or friend and ask his or her opinion, and thereby lose heart when informed by him or her that bantams are only an expense, for in this assertion they are mistaken, as bantams not alone afford one much amusement, but in some cases produce as much profit as their larger brothers and sisters.

First of all, if you intend to buy a few bantams you may as well purchase well-bred ones, and these you can secure by buying from some reliable bantam breeder. A nice pair of bantams should cost you at least $5, although they can be bought much cheaper than this from some extensive raisers. There are many varieties of bantams, namely, Cochins, Games, Japanese, Sebrights and Polish. Pick out the kind you most admire, but if you are looking for a well-built fowl and one that is a great layer, do not overlook the Game. For beauty, the Polish and Cochins rank high. Now that you are going to buy some bantams, why not get to work during your spare minutes, or while you are awaiting their arrival, and build a nice coop for them? Many people secure a piano box, which they then tar-paper, but the best plan is to build a coop about six feet long, four feet wide and four feet high. In these dimensions you have a very nice coop for a pair or trio of bantams, and after your flock begins to grow, this same coop will easily accommodate from six to eight bantams. See that the coop has a good board floor, over which throw about one inch of dirt, and over this dirt about one inch of straw. Your roof should be tar-papered—in fact, it would be a good idea to tar-paper the entire outside of the coop, which will make same perfectly dry. Be sure and have your coop well ventilated, and see that your fowl have plenty of light, as these are two important essentials of any successful poultry fancier. Do not be afraid to give your coop a good whitewashing before placing your fowls in same, and after they have occupied the coop for a while give it one or two coats of whitewash regularly every month. It is always best to add a small quantity of carbolic acid to a bucket of whitewash, as this prevents mites from entering, and is also a good purifier. Have a good dropboard under your roost, and under this dropboard have your nests. Have a nice wire run at one end of your coop, and it is a wise thing to plant a few currant bushes here and there in the run, as they provide shade for your chickens during the warm summer. For a feed use a mixture of millet, corn, wheat, charcoal, grit, etc., which can be purchased at almost any feed store. Bantams thrive better on a dry feed, although it does not hurt to give them a mash of cornmeal or bran once a week, especially in the winter time. Always have a handful of crushed oyster shells around, as bantam hens need grit just the same as larger hens in order to produce eggs. Your bantam hens will soon be laying, and your eggs should be worth from five to ten cents each. What eggs you do not sell, set under one of your hens, as bantam hens make excellent mothers, and some Game bantam hens set three times in one year. The birds you raise can be sold at from $1 up, according to the way they mature. Some will be better shaped than others, and these are the ones which will bring the most. Many people who at one time despised the bantam, after having them one year would not part with the ones they raised during the year for any money, as they become so infatuated with their little pets that they hate to part with them, but I would advise you to sell a few pair, provided you have had good results, the first year. After having picked out the ones you intend to keep for breeding with next year, pick out a few or all of these birds that appear to be good in shape and color and enter them in a few poultry shows. All you can do is to lose, and this will not be so much, but if you have taken the proper care of your chickens during the year and have not been fooled in your stock, you will certainly get a few prizes and enough money to pay for the cost of entering them. After the show is over, add up your total expenditures for the year and then add up your total receipts, and if you have done as I advised you certainly will be a gainer. If you have suffered a loss, which cannot be very much, there is something wrong. Do not get discouraged, but go into it next year deeper than ever. You will know more about your chickens, and will have a system to work on which you have learned during the first year. If your stock is not what you think it should be, purchase a good cockerel from some reliable bantam dealer, as you did your eggs, and use him for breeding purposes during the second year, which will build up your stock. —American Poultry Journal.

POULTRY HOUSE VENTILATION.

A system of ventilation which admits pure air through the bottom of the poultry house is entirely wrong. Pure air should be admitted through the ceiling and the foul air should be drawn out near the floor. This will insure an even temperature with no drafts.

It has been demonstrated that the best way to ventilate a poultry house is through the doors and windows. If there are two windows in the pen, remove the sash from one window, or either the upper sash from each of the windows, and in its place make a frame to fit snugly. Over this frame stretch tightly burlap or any heavy cloth of light color which will admit the air and light but will prevent any drafts. On warm days have the door open during the middle of the day. Leave the burlap screen in the window both day and night. Have a warm roosting closet and provide a curtain over the front of it which can be let down on cold nights. The heat of the bodies from the fowls at night will keep them comfortably warm on the coldest nights.—Ex.

Did You Read the Article on Page 651 of last week's Cultivator on

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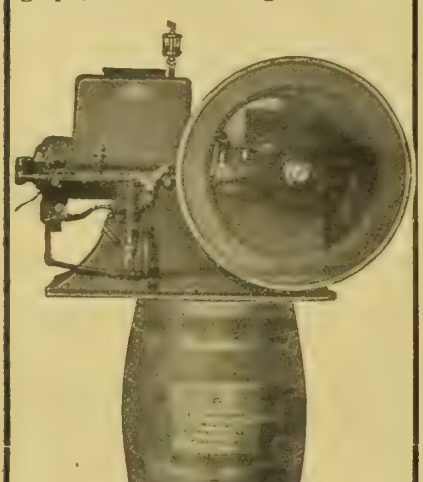

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Legal

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Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

European Inheritance Tax.

I am a native of a European country and have been a citizen of the United States for a good many years. Some 20 years ago I got some money out of my father's estate and after his death a year ago I got some more. Now I am informed from that country that I have to pay a kind of inheritance tax of the whole amount. Please let me know in California Cultivator if I am compelled to pay that.—Subscriber.

I do not see how it would be possible for the authorities in a European country to enforce such a claim in this country; if possible, it would hardly be practicable unless the deduction for the tax was made before the money was sent to the heir.—E. L. D.

Leasing Without Authority.

A has been in possession of a farm for six years. B rents part of it on shares in 1909. In the year 1910 B rents it for cash paid in advance; in 1911 B again rents it on the same terms. Now C writes to B and says he owns the land, that he never gave A authority to rent or lease the land, and asks B to vacate the land at once. Has B to vacate before his lease expires? Can a renter remove barbed wire fences he has built or a wind mill he has erected before his lease expires?—Subscriber.

If A had no authority to rent the land to B, and C did not ratify the lease to B, B has no rights that he can enforce against C, and can be dispossessed of the land in an ejectment suit by C.

A barb-wire fence, if it consists of poles sunk in the ground with wire strung thereon, would belong to the land, and should not be removed. The windmill would come under the same rule, if attached to the soil.—E. L. P.

The query is an example of not stating the case clearly enough. If "A has been in possession" means that A actually owned the land, then we doubt not Mr. Payne would agree that regularly executed lease would hold in spite of any subsequent purchaser from A. But apparently A was occupying the land by permission of another tenant. In that case B's only recourse is to secure justice from A.—Ed. C. C.

Renting from Agent.

A, a non-resident, owns a piece of land in alfalfa. He writes to B a real estate man, giving him full authority to lease the land and handle for him. C leases the land from B in 1910 for half the crop. In the winter B writes C to take land another year, that is this season, but no regular form of lease is made out. C cuts the first crop and irrigates. Then A through B sells the land to another party. B then notifies C that he cannot have the land anymore because the new owner desires it. Is the letter from B to C, telling C to take the land for the 1911 season as good as a lease? What rights has C and what course should he take in case the new owner has another party handle the alfalfa?—C. E. N., Crows Landing.

If the purchaser of the land had no notice of the lease, and purchased with a right to immediate possession, or possession before the lease expired, the lessee has no rights that he can enforce as against the purchaser, but has a cause of action for damages against the former owner, that is, provided the authority of B to lease to C can be established, either by previous agreement with A, or by subsequent ratification of the transaction by A. C's right of action is against A for damages for breach of the lease. E. L. P.

Patent Medicine.

Would a person having a patent on a medicine for specified ills have recourse on another who would discover that same medicine was beneficial for another widely different ailment, who would purchase said medicine on the market, rename, relabel and rebottle and sell for said different disease.—Subscriber.

Patent law is a specialty, and I never have had occasion to familiarize myself with it. I would suggest that you consult some good patent attorneys.—E. L. P.

The Cultivator likes to be generally helpful but trusts the queries sent in shall be of general interest to the farming or fruit-growing class. This query isn't in that class and is only given as an example of what we don't want. The Cultivator isn't in the patent medicine class.—Ed. C. C.

Public Road.

Four parties own land, all joining on a half section line, three of the parties are willing to give half of a road on said half section line, but one objects. What steps should we take to force a road through and to get the county to take charge of it.—Subscriber, Parlier, Fresno Co.

The proper procedure is to petition the board of supervisors of your county to open the road, getting upon your petition the names of all of the property owners through whose land the road would pass, except, of course, the one who objects, and you should also consult your county engineer, as you will be obliged to present a map with your petition showing proposed route of the road, its dimensions and terminal points, which map will have to be approved by your county engineer. In all probability, the clerk of your board of supervisors can furnish you blank forms of petition, and with information, to better advantage, concerning the project, than I can in the limited space here at my disposal.

Personal Property on Leased Land.

In renting a ranch we got a lease on it, but it does not state that we can move the improvements. Have building on runners. Can land owner claim them at end of lease? How would we proceed? Have a new lease made out?—Subscriber.

Buildings on runners which are not so large but what they can be easily drawn off the land, would probably be regarded as personal property, and not as fixtures, and would belong to the lessee. In your new lease it would be advisable to cover the matter by inserting a clause giving you permission to remove any and all buildings erected or placed on the property.

Division of Property.

I have an agreement to buy twenty acres of land for the sum of $1500. Part of this I have paid, and I have until 1914 to pay all. This agreement is not recorded, but is signed and (witnessed signed). Now I have parents, sisters, brothers and husband. In case of my death, without a will who of these would come heir to this property which is in California. In case I had a child how would it be divided and to whom?—Subscriber.

Where the decedent leaves no issue the estate goes one-half to the surviving husband or wife, and the other one-half to the decedents' father and mother, in equal shares, and if either is dead the whole of said half goes to the other. If the deceased leaves a surviving husband and only one child, the estate goes in equal shares to the husband and child. These are the provisions of the law applicable in case the party dies without a will.—E. L. P.

Statute of Limitations.

An osteopath guaranteed to cure or greatly benefit a deformed child five years ago in Oregon. The treatment did no good whatever. Can she now sue and collect the bill, or is the debt outlawed? If it is not outlawed can property be attached and held for payment? It is not a just debt.—C. T., San Fernando.

Such a claim outlaws in six years in Oregon, but the time that you have been out of the state of Oregon would be deducted and while you are out of the state of Oregon the statute of limitations does not run. Property can be attached on such a debt. You should set up your defense if an action is brought against you, and perhaps you would be successful in proving your side of the case.—E. L. P.

Line Between Properties.

The line between my forty acres of land and my neighbor has been established and recognized by both of us for nearly six years of my ownership and I am told, for many years previous by the former owners. A new owner of the adjoining land has the lines resurveyed changing the lines somewhat. Does the old survey or the new one hold?—L. J. P., Orloff.

The old line having been acquiesced in and recognized as the proper line for more than five years, has become the boundary.—E. L. P.

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Eye Disease (Enzootic Ophthalmia)

I would like to know what to do for cows which have the pink eye.—Subscriber, Calexico.

If the animals have fever, allow each cow two ounces of epsom salt and a half ounce of saltpeter in the drinking water or bran twice daily. Bathe the eyes with warm water and apply to the eyeballs twice daily, with a soft clean feather, a few drops of a solution containing the following ingredients: distilled water two ounces, camphor water two ounces, boric acid a half drachm, and morphine five grains.

Nasal Catarrh or Glanders?

My mare lost her colt in February but recovered completely. Recently a thick, yellow and foul smelling discharge has been running from the left nostril. Now this discharge has changed to a thin somewhat greenish matter with very little odor. Her appetite remained as usual until this morning and there has been no swelling about the head or mouth. Today she is worse, turns her head from side to side as if in pain, eats nothing and drinks but little water. The flanks are drawn in and she grunts when moved. She has been sick ten days, but has had no opportunity to contract distemper or glanders.—Subscriber, Valley Center.

In all probability pneumonia or lung fever has developed from the extension of the catarrhal condition of the head. The course of the disease, a discharge from one nostril only, without loss of appetite, followed in about ten days by general systemic disturbances, justifies the fear of glanders, though other symptoms—farcy buds, swollen limbs, ulcers on the limbs and in the nostrils, etc.—are not mentioned in confirmation of this diagnosis. However, in all similarly suspicious cases it is advisable to exercise precautions to prevent the spread of the disease and, since glanders is transmissible to man, do not forget your own protection. Employ a qualified veterinarian to diagnose this case and treat it if he thinks advisable.—F. G. M.

Cowpox (Variola).

Kindly define and describe cowpox and advise us if sheep dip will cure the disease.—Subscriber, Escondido.

Cowpox is a febrile disease of cattle and horses supposed to correspond to smallpox in man. After a period of incubation of two days' duration a preliminary fever, which may not be noticed, papular eruptions appear over the entire body surface, though often observed most distinctly on the teats, udder and other parts thinly covered by hair. The papules are small red nodules which increase to the size of a dime when the surface presents a depressed center surrounded by a firm elevated margin, bluish red and outside of this a softer pink zone. Later a yellowish lymph exudes and dries, forming crusts which are detached usually about three weeks after the onset of the disease, leaving when they fall off a permanent pit in the skin. There is no cure. The

(Continued on Page 674.)

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Cementing Reservoir.

I have been a pleased reader of your paper for over fourteen years, and now come to you for information regarding cementing of reservoir. It was dug in early winter in heavy sandy loam and is 25x35x5 feet. Would you use cobblestones on bottom or cement on the ground? Will reinforcing with wire prevent cracking? What proportions should be used? How thick should the walls be?—Subscriber, Whittier.

It is possible that if the ground is well settled and the reservoir is intended for temporary purposes cementing on well tamped soil may be all right. We have seen such reservoirs, but they almost invariably cracked. We do not think the coating would be thick enough to allow reinforcing and believe it would be more expensive than the use of concrete of sufficient thickness. If concrete is used so small a reservoir as this should not need reinforcing. The proportions for good, waterproof concrete are 1-2-4, that is, 1 part of first-class Portland cement, two parts sharp sand and four parts coarse gravel or crushed rock; if clean, sharp gravel is used, 1 part of cement to 4 parts of gravel. This presumes more or less sand as a part of the gravel. If the sides of your reservoir are not vertical, but follow the slope of the bank, you can use a medium wet mixture of the concrete of a jelly-like consistency. If sides are vertical, forms are necessary. Mixed to this consistency treading with the feet may be sufficient to do the proper packing, but something to "ram" with is perhaps surer to remove air and bring closer contact. On the bottom where there is no danger of running it may be used wetter. If in a hurry it must be borne in mind that the drier the concrete the quicker it sets. Mortar for the surface may be made in the proportions of one part cement to two parts sand. This will make a good, strong concrete, though it is barely possible that contraction may cause cracking. If walls are vertical they should be one foot or 16 inches thick at bottom and may taper slightly. Would advise strengthening by banking with dirt.

Walnut Root Rot.

The blackened root of a young walnut tree was recently sent for determination of cause of death of the tree to Prof. Ralph E. Smith of the Pathological Laboratory at Whittier, and he writes:

"The young walnut tree of which you send me a portion probably died of root rot, a disease which attacks seedlings occasionally. This is not a very serious matter and need not cause any anxiety."

Egg Sucking Dog.

I have a thoroughbred cocker spaniel who has learned the bad habit of sucking eggs. I have given him egg filled with red pepper, but it has not cured him. Can anyone make a suggestion that will work, as I am desirous of saving the puppy if possible.—W. C. S., Glenn.

On Page 647 of last issue is a remedy, and we will ask dog fanciers for a better one.

Raisin Seed.

Is there any food value in raisin seed?—Rancher, Parlier.

There is value but we have not analysis at hand. We question, however, whether they would be good for feed without grinding, but they are the basis of a certain stock food manufactured in the San Joaquin Valley.

Best Oranges.

What is best variety of oranges for home use to get juicy and very sweet fruit, without so much regard to size or shape? Why is it that russet oranges are not in more general cultivation?—Subscriber, El Cajon.

The Washington Navel is doubtless the finest orange grown. As you say that you wish to grow fruit for home use only, you may wish to extend the fruiting season by planting in addition varieties which will ripen or hold their fruit longer. The Navel will drop much of its fruit before June 1st while the Valencia will hold on all summer and into the fall. The St. Michael is a good little orange coming in between. Another nice orange for home use is the Tangerine, Mandarin or Satsuma; these three are much the same. Russet oranges are not in general cultivation because the russet appearance is caused by an insect which has never yet been introduced into California. It is hoped that it never will be.

Thinning Fruit.

Our pears are setting in clusters of six or more. Should they be thinned? If so how many should be left? These pears are now dark reddish brown all over. What variety might they be?—Newcomer, El Cajon.

We surely should thin the pears, not leaving more than one or two to the cluster. From the description we cannot give the name of the variety.

Alligator Pears.

Is there much demand in the markets for alligator pears, and are they difficult to raise?—Newcomer, El Cajon.

We refer the inquirer to editorial in last number. Alligator pears are not difficult to raise, requiring much the same care as oranges and will not stand any colder temperature. As suggested in the editorial, we would not plant extensively until market conditions have been proven.

Lady Birds.

Kindly inform me if lady birds benefit or harm fruit trees, olive, orange or lemon.—Subscriber, Jamacha.

The lady bird does not injure trees or any vegetable growth. It lives only

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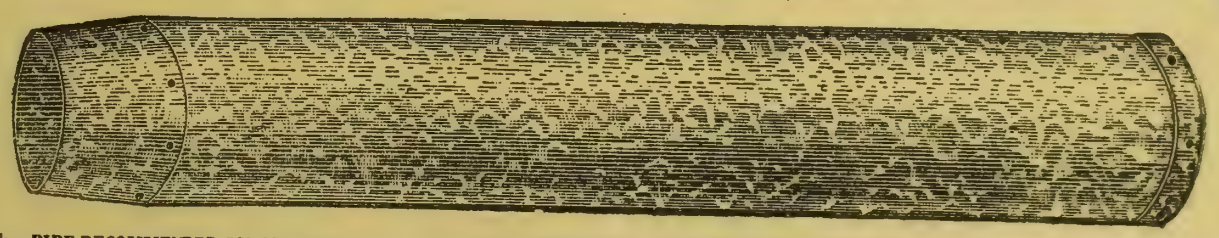

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We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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on other insects, and is universally considered a blessing to the fruit grower.

Cracking of Bark.

What is the cause and remedy for bark cracking and peeling off of orange trees?—Subscriber, Jamacha.

We imagine this is a case of gum disease and the best answer is to refer our subscriber to the leading article in the issue of the Cultivator of April 13th written by Mr. A. F. Call of Corona and considered the most satisfactory treatment of the subject ever published.

Lizards in Apiary.

How shall I rid my apiary of lizards; they hang around and catch the bees as they come in? My loss is very great.—Subscriber Hemet.

This is a new question in apiculture. We will ask apiarists who have had to do with this pest to give their experience. We fancy a boy with a good swift stick to go after them, would do the work.

Diarrhoea.

I have lost one hen and have another that has been sick for two weeks with diarrhoea. Have looked my copies of the Cultivator over but fail to find any article on that trouble. They begin with a watery discharge and then it becomes yellow with green. They refuse to eat, just stand around, grow weak and poor. The eyes are bright not droopish like cholera. Is there anything that I could do to prevent the others taking it.—L. B. W., Whittier.

The usual causes of diarrhoea here are wrong feeding; too much meat in the food; too little green food, at least one-third of the food should be green food in this climate; overdosing with pepper and condition powders, foul water, want of shade in hot weather, dampness, uncleanliness, crowding and vermin; these may one or all cause diarrhoea.

It is necessary to remove the cause and then nature with but little assistance will do the rest. A little charcoal in the food or granulated charcoal in a box like the grit box kept always before the fowls, will assist. Rice boiled in milk with a tablespoonful of ground cinnamon to each pint of the milk will often effect a cure, but it should be preceded by a small dose of castor oil to clear the bowels, or if there is any feverishness give ten or fifteen grains (a small half teaspoonful) of Epsom salts. Be sure to give plenty of clean water. Most of the diarrhoea near here comes from dirty drinking vessels and bad water, combined with lice.—A. B.

Congestion of the Liver.

Will you please tell me what is the matter with my chickens and what to do for them. They lie with their heads on their backs and die in a few minutes after I find them. They don't seem to be droopy and I cannot see anything wrong after they die, only a great deal of blood in the liver. They gather milo maize and that is all they eat. It seems that they have plenty of grit.—Mrs. W. J. R., El Centro.

Your chickens have evidently congestion of the liver, and I think that is brought on by their eating some putrid animal food, such as dead gophers or rats. It might be from anything mouldy or mildew of any kind, or from maggots off a dead animal or fowl. I used to find my hens like that in Oklahoma and I thought it was from the sting or bite of a poisonous insect. I gave mine one drop of aconite in a teaspoonful of milk and I almost always saved them. Occasionally when the sun is very hot and the chickens have not shade enough they get a sunstroke and I found that a pill of asafoetida followed by a little epsom salts in the water and supplying shade was the best thing. I would advise you to give a chick as soon as you see it ill a small dose of turpentine and castor oil, from 2 to 10 drops of turpentine oil in half or a teaspoonful of castor oil according to the age of the chicken. Then in half an hour give a teaspoonful of the following mixture: take a fresh raw egg, put in a bottle and add as much olive oil as there is egg, shake well and when well mixed give a teaspoonful every three hours. Shut up all the fowls until the dead animal is dried up or eaten up by the maggots or ants, or you have found it and buried it.—A. B.

Tape Worms.

Please answer in your paper what I shall do for my little turkeys. They are two weeks to two months old, look healthy but every day one or two begin to droop wings, look sleepy, do not eat and in 24 to 36 hours die. I lost about a dozen that way and it seems not only to trouble me but every one in here. I opened two of the dead ones. The crop was empty, the liver red, smooth and solid; in the stomach there was only grit; in the bowels I found some objects that were white, about 1 to 1½ inches long, and looked like small band worms composed of links. Do you think that killed the turkeys.—H. H., Brawley.

I think from your description of the little worms in your little dead turkeys that they have tapeworms which killed them. And I would advise you to keep the turkeys up for a day and at the supper time give them stewed garlic, chop the garlic up and stew it in very little water. You might add after you take it off the fire a little bran. Give that to the turkeys for the evening meal and I think that you will find that it will get rid of the tapeworms, but you must be sure to clean up all the droppings as the turkeys will eat the worms and the trouble will begin all over again. Each little joint of the worm lays eggs that are almost invisible. If the garlic does not get rid of them, but I think it will, you must give each turkey a dose of tincture of "Male Fern," from five to ten drops of it according to the size or age of the turkey. It should be given on a small lump of bread; given in the morning on an empty stomach and followed in an hour by a dose of castor oil (from a half teaspoonful to a full teaspoonful). Give plenty of onions chopped fine in the food. The onions keep away worms and are a good tonic to the liver and the kidneys.—A. B.

Care of Young Orange Trees.

What is the proper care to give the trees of a young orange grove the season after planting? (Washington and Thompson Navels). Should they be protected by some sort of wrapper or not during the summer months? Should the young sprouts be allowed to grow on the body below the top or not? If so, to what extent? When is the proper season for pruning if any is needed? How is the best way to straighten or tie up a tree where the body is crooked or is leaning?—Subscriber.

Full answer to this question would require several columns, but we assume the writer does not wish to know as to irrigation and cultivation. Both should be thorough, though the irrigation will depend upon the condition of the soil and subsoil. The wrapping of the trees is advisable, as it saves thumb pruning to keep down sucker growth and prevents sunburn. Old newspapers will answer, but we much prefer the ordinary yucca or other prepared wrap. These are advertised in the Cultivator and may be had so cheaply that it is hardly worth time to worry with newspapers or other makeshifts. If anything is used that requires tying with cord, care must be taken not to make the tie so tight that the bark will grow over it, and it must be watched to prevent cutting in the next season in any case. Some prefer to let the young sprouts grow until a few inches long, then pinch off ends to check growth. The following spring they may be removed smoothly next to the trunk. This growth shades the trunk and makes it stockier and lessens liability of tree bending over. The best season for pruning is early in the spring. If it has not been done on last year's setting, it should be at once, for the pruning of an orange tree is not a serious matter; it usually cares for itself excepting for occasional cross branches or two limbs branching out at the same place which may cause a split later on. On question of pruning the bearing trees would refer our inquirer to articles of Mr. Paine in former issues. The best way to stake young trees is to drive a stake 1¼ or 1½ by 2 some two or three inches from the tree and tie the tree firmly so that it will not sway in the breeze and chafe against the stake. These stakes may be allowed to stand for several years.

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth street, Los Angeles.

VETERINARY.

(Continued from Page 672.)

medicines indicated are epsom salts as a laxative and vaseline or bland oils applied to the teats.—F. G. M.

Inflamed Hock.

One month ago my horse was hurt in the left hock joint. He is very lame now, barely touching the toe to the ground when walking. The animal is becoming thinner every day and injured limb is perishing above the hock.—Subscriber, Moody.

An injury causing lameness so severe and persisting one month, will probably result in a permanently stiff joint. Blister the part with an ointment composed of cerate of cantharides two ounces, red mercuric iodide two drachms, and mixed thoroughly and softened by the addition of a little turpentine. Clip the hair from the hock; apply the ointment and rub briskly. Tie the horse so he cannot reach the blister with his mouth and remove with warm water and soap after 24 hours. Repeat after three weeks if necessary.—F. G. M.

Lymphangitis.

My mare is still very lame. I cannot find anything wrong with the foot but the inside of the ankle joint and the hock is very painful. The swelling is reducing and there seems to be some improvement in the lameness. —Subscriber, Kerman.

A reliable liniment may be made by mixing turpentine one part, ammonia one part, and sweet oil two parts. Shake and apply twice daily to the swollen limb and rub briskly.—F. G. M.

Breast Injured.

A saddle horse seven years old had a swelling appear on the breast in February. This opened just above the breast bone and has discharged blood and matter ever since. The horse is in fair condition. Is this lung fever?—Subscriber, Holtville.

No symptom mentioned indicates lung fever which is another name for pneumonia. Introduce a probe into the opening and ascertain the depth of the tract and also search for any foreign body, sliver of wood, thorn, etc., which may have lodged in the flesh. Mix zinc chloride 2 drachms and flour 3 drachms and add water to make a paste. Smear the paste on both sides of a strip or string of cloth and pack the tract with this strip, being careful to force part of it to the bottom of the cavity. Within a week the diseased flesh will separate and may be lifted out with tweezers. Then treat the larger opening with injections of hydrogen peroxide.—F. G. M.

Cough in Pigs.

Two pigs about ten weeks old have had a dry cough about four weeks. They seem healthy otherwise.—Subscriber, Napa.

Provide comfortable sleeping quarters free from dust or draft. Allow each pig two teaspoonfuls of oil of turpentine in molasses or honey, mixed with the feed, once daily, three days in succession. Cough in pigs may originate from various causes. The treatment advised is most suitable when worms are the causative agent.—F. G. M.

Bunch on the Leg.

A bunch the size of a table spoon remains on the leg of my horse following an injury from a kick. Can the bunch be removed?—Subscriber, Puente.

Rub briskly twice daily with a liniment composed of tincture of iodine half ounce, chloroform half ounce and spirits camphor three ounces.—F. G. M.

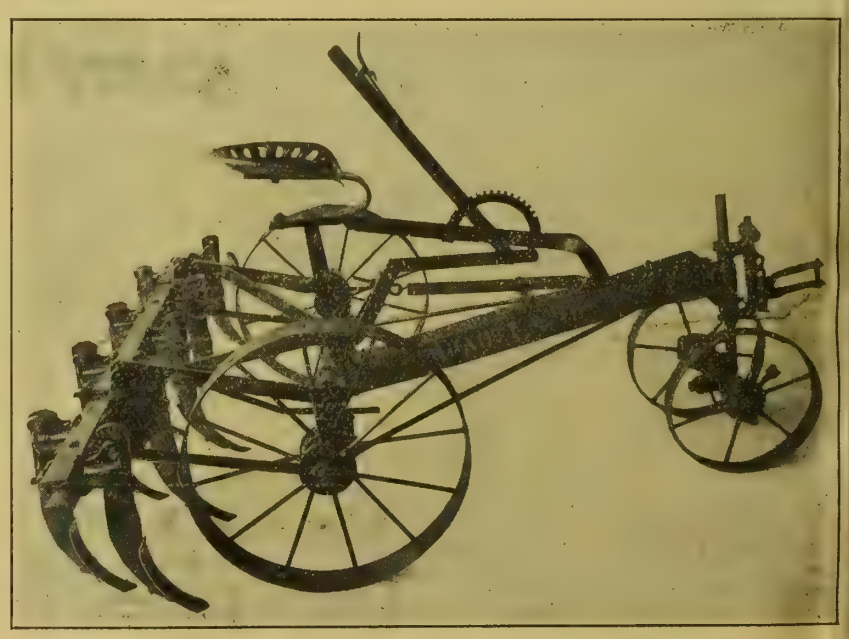
DAIRYING THE NEW WAY.

(Continued from Page 665.)

cuss matters pertaining to their business.

As the boys get a better insight into the business, it opens up a way for them, and they become more and more interested in learning it. They can see that profits are measured largely by their degree of capability in management. Their minds are awakened to greater effort as they see the advantages arising from using good blood. They can see the difference in good care and poor care and the results arising from the same.

Then to the dairyman's boys there will occur the necessity and possibility of improving the producing capabilities of the farm, making it possible to keep more cows; improving the equipment in the way of buildings which will enable them to give the cows better care. With the better equipment and more cows the business will be more interesting because it is more profitable.—The Gleaner.



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LIVE STOCK

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon, 66619, 2 years old. Dark gray. Dam weighs a ton. Liberty 74310. Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old. Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—Two Fine Registered Jersey Bulls. One is son of Brown Bessie's Twelfth Son and St. Lambert Dam. The other is Golden Fern, Sultanne, St. Lambert blood. Perfect forms. Price and pedigrees on application, Tribble Bros., Elk Grove, Cal.

Milch Goat Stud—Andreas Hofer, imported Saanen buck, service $10, care free. Bred does at a bargain ($20 up). High-class doe kids, cheap for quality. Fresh does now when the babies need them. Write to R. M. Cartwright, 1353 Palm St., San Luis Obispo, Cal.

For Sale or Exchange for good cow or heifers, brood sows and pigs of all ages. L. A. Thompson, El Monte, Cal. Home Phone Black 29.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Pure Bred New Zealand Rabbits, young does and bucks for breeders. Prices and stock right Write to Chas. W. Mixer, Banning, Cal.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

Three Holstein Friesian Bulls, splendid young animals for sale, well marked and subject to registry. Write at once to Geo. H. Roeding, Fresno, Cal.

WANTED

Local Representative Wanted—Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. L. Marden, Pres. The National Co-Operative Real Estate Company, L 448 Marden Building, Washington, D. C.

Wanted—Your work pays the expense to learn a trade that pays $5 a day, in a few months' time; electricity, automobiles, plumbing, bricklaying; actual contract jobs; 300 students last year. United Trade School Contracting Company, 647 Pacific Electric Bldg., Los Angeles, Cal.

Wanted—A chance to estimate on your cement pipe line. Edw. P. Burnham, Hemet, Cal.

DAIRY SUPPLIES

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. H. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

Milk Bottle Fillers, milk cans, cream separators, etc., at Guy F. Kelsey Co., supplies for the dairy, 108 E. 8th St., Los Angeles Phone Sunset Main 7496.

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Splendid values, lowest prices, liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 South Los Angeles St., Los Angeles.

TREES

For Sale—About 3000 each of Washington Navels and Valencias, 1 to 2 ft. high, at 2c each. Also several thousand each of Washington Navels and Valencias, 2 ft. high and upwards, branched, at 50c each. All the above are 1-yr.-old buds; guaranteed clean, healthy, vigorous trees. Carroll F. Smith, Box 9, Redlands, Cal.

One thousand one and two-two Eureka Lemons, two thousand two-year Valencias, sweet and sour orange seed bed trees, one hundred camphor trees. Southland Nurseries, F. H. Disbrow, Prop., R. D. 1, Pasadena.

For Sale—2500 Valencias; 1000 W. Navels; 1000 Eureka Lemons, one year and first-class stock, one-half to seven-eighths inch. Will make attractive price for immediate delivery. Phone Home 2062. C. W. Wilke, Glendora, Cal.

For Sale—1000 Washington Navel Orange trees; also Budded Loquats, Guavas and a full line of ornamental plants and roses. Orange County Ornamental Nursery, Fullerton, Cal.

Eucalyptus trees in any quantity from 6 inches up. Sweet orange seed and seedling stock. Write for prices. Small's Seed and Plant Co., San Gabriel, Cal.

For Sale—A few hundred W. Navels of fine, vigorous stock from ¾ to 1 inch and 4½ to 5 ft. high. Nursery near Cypress Station on Santa Ana line. John L. Preston, Anaheim, Cal. Phone 1472.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

The line of Navels—Valencias and Eureka Lemons for delivery spring of 1911. Contract now and get the first choice. The Orange Citrus Nurseries, Whittier, Cal.

FARM LANDS FOR SALE.

20 acres, near Dinuba, Tulare County, ¼ mile from Southern Pacific, within 3 miles of three towns; all dry. Accredited high school, telephone, rural delivery. First-class soil, level and under irrigation in best and cheapest irrigation district in this State. Water right with land. Produced 14 tons dried peaches and 11 tons raisins in 1910. Fully equipped for fruit drying with transfer car and steel track throughout. Everything in first-class shape. Price $7000. For terms address owner, Chas. F. Collins, Dinuba, Cal.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station. Climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Price $65 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

200 Acres Good Level Land—13 A. orchard; shade trees; 12-room house; 2 barns; windmill and tank house; fruit houses; cream separator; engine; etc. Price $21,000. 12 A. orchard home, good house, 4 rooms and bath, barn, fruit houses, windmill, equipment; complete place. $3600. Yolo & Solano Counties. Wyatt & Wilson, Winters, Cal.

Another Bargain—80 acres of fine level land, sandy loam, no hardpan or alkali. Altitude 2500 ft. Very healthy. Will grow anything; no irrigation required. See the crops growing here in Santa Barbara Co. Owner needs money, so $20 per acre takes it; ½ cash, balance 3 yrs., 10 per cent. No trades. Wm. Mantz, Maricopa, Cal.

For Rent—One of the finest stock and dairy ranches in Tulare County, consisting of about 4500 acres, about 600 acres in alfalfa. Abundance ditch water, also pumping plants. Fenced and cross-fenced. Barns, houses, milk houses, etc. Will rent as a whole or in part. Inquire of Peter Haack, 425 Bradbury Bldg., Los Angeles, Cal.

Pacific Coast Lands—Farm lands appraised for prospective investors. Reports on agricultural projects, soils, irrigation, drainage, etc. Paul Goodloe, 1049 Phelan Bldg., San Francisco, Cal.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

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For Sale—Sour Orange Seed Bed Stock. Clean and thrifty, having excellent fibrous roots. $3.00 per hundred, $25.00 per thousand. We ship safely to all parts of the country. Armstrong Nurseries, Ontario, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Barbara, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

RARE PLANTS

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nursery, Pasadena, Cal.

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White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Bronze Turkey eggs $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J Rhode Island Red and White Leghorn eggs and baby chicks.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

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Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 12 Palace Bldg., Minneapolis, Minn.

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Blue Andalusians—Beautiful and odd. Not too late to hatch if you have green feed. Eggs $2.00 per 14, $8.00 per 100. Two trios at $5.00 each. Have bred them 11 years. L. A. Wilson, Winters, Cal.

White Orpington and White Wyandotte eggs for hatching. Send for list of winnings. Arthur H. Huskins, 713 Waterloo St., Los Angeles, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

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1889-1911—Barred Plymouth Rocks, Ocean Blue Strain. Birds of our breeding made a phenomenal record in the hands of our customers this season. Won first place at five of the largest Coast shows, besides many shape and color specials. Fourteen silver loving cups were won by this strain. We won in every class at the big Los Angeles Show—something no other exhibitor of Barred Plymouth Rocks can claim. Every female in pullet pen for this season is a winner either in pens or singles. Every male heading cockerel mated pens this season is a winner either singly or in pens. We are ready now for your egg orders. Same old price—$3 and $5. Mr. and Mrs. D. T. Wieland, Moneta, Cal. Take Redondo car via Moneta avenue. Get off at Illinois street, right on ranch.

All We Know is Rhode Island Red Chickens. But we know them so well that our baby chix, $15 a 100, are the best on earth. There! Pure blood, good strains, well mated by expert breeders. I. X. L. Poultry Yards, 587 Mission St., Santa Cruz, Cal.

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Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza Sta., Los Angeles, Cal. Phone East 1631.

Eggs $1.00, 15; $5.00 per 100. Chicks $15.00 per 100, $12.50 for incubator lots. R. I. Reds, Barred Plymouth Rocks and B. Orpingtons. A few B. Orpington pullets for sale. Cash with order or stamped envelope for reply. L. W. Neilsen, R. R. 2, Box 1 A, Petaluma, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. Eggs for hatching $5.00 per 100. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

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WIN EVERY TIME
At Los Angeles Show, 1911, every first premium and three silver cups; 2 specials for best male and female. Eggs at $5 and $3 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles.

White Orpington Eggs from my Blue Ribbon pens, $3.50 for 13; others $2.50. Hen-hatched bay chicks for sale. Laying pullets for sale. L. F. Barber, 1116 Mariposa Ave., Los Angeles, Cal. Phone 71453.

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Baby Chicks from thoroughbred White Leghorns, "bred to lay," not simply chicks, but "Stock," the kind that breed true to color and fill the egg basket; May and June, $8.50 per 100; safe delivery insured. F. W. Dobbel, Buena Vista Poultry Yards, R. F. D. No. 1, Sonoma, Cal.

White Leghorns—Buff Orpingtons. Bred for beauty and great egg production. Grand lot of both old and young stock for sale. Prices reasonable. Write your wants. Model Poultry Farm, Box H, Irvington, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 924 E. 55 St., Los Angeles, Cal.

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Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Hicks Jubilee Hatchery, now booking orders. Write us your wants. We use eggs from first-class stock only. Try us. W. J. Hicks, Petaluma, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

Rose Comb Black Minorcas, nine years line bred. Stock and eggs in season. Eleanore Minorca Farm, R. D. 1, Los Angeles, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Mammoth White Holland Turkey eggs $3.50 per 13 eggs, after May 26th. A. H. Blakely, Ontario, Cal.

For Sale—150 Purebred Barred Plymouth Rock hens, 15 months old, and 15 roosters. S. Malnick, Gossage Ave., Petaluma, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately Allaway & Layton Co., 607 E. 3d St., Los Angeles, Cal.

Settings from splendid strains White and Buff Wyandottes. Prices reduced for months of May and June W. C. Parker, 113 Pacific Ave., Santa Cruz, Cal.

MISCELLANEOUS

It requires but 2 to 4 cents worth of the darkest and cheapest honey to make a gallon of the richest and most delicious beverage drink. It is a perfect substitute for fruit where fruit is scarce, and a perfect substitute for water where water is poor. A tablespoonful of evaporated milk in a glassful makes buttermilk that is worth twice as much as the natural kind. Process and right to use it two years 25 cents. C. W. Dayton, Chatsworth, Cal.

Ranchers—If you grow anything that can be canned we will supply everything but the labor and product and will pay you the highest market price for it. Write or call Growers Home Canning Co., 222 Exchange Bldg., Los Angeles.

H. Eckart, General Contractor, Bridges and Buildings, Reinforced Concrete Water and Oil Reservoirs, 256 Wilcox Bldg., Los Angeles. Phones A2443 or Alhambra 25812.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

MACHINERY

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, 20 sets harness taken in trade by us and must be sold. These are snaps. Disc, gang, walking, riding and side hill plows; slip, Fresno and wheel scrapers; 2 headers, 2 balers, seed sowers, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.

12 ft. steel aermotor, tower, 10,000 gal. tank, tank stand, pump complete, $150 f. o. b.; also many others at half new prices.

ENGINES.

5 H. P. White & Middleton engine, jack and head, pipe, 3 ft. Ames draw-valve cylinder, outfit complete and in fine shape, $200 on cars Los Angeles; also many others.

TANKS, TANKS, TANKS.

50 gallons to 50,000. Special price on 30,000 gallon. 20 tanks, 500 to 1000 gallons, $5 to $14; 38 tanks, 3000 gallons each, cost $48.50 new, at $29 while they last. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—The following engines, guaranteed to be in good running order:

60 H.P. Western, with friction clutch pulley.
Fairbanks-Morse engines, one 32 H.P. and one 25 H.P.
16 H.P. Union.
11 H.P. White & Middleton.

An investigation will convince you that these engines are well worth the prices set upon them.

Two snaps in motors this week:
50 H.P. Westinghouse.
10 H.P. Westinghouse.

We install pumping plants! The following pumps can be bought separately, or installed with engine:
No. 4 Vertical Eclipse.
No. 5 Vertical Byron-Jackson, 2 stage.

BAILIE & BRANDT COMPANY, 943 & 945 No. Main St., Los Angeles, Cal.

For Sale—Complete pumping plants, new and second-hand. Electric and gas engine driven. All sizes. Send us your details for our recommendations, irrigating appliances and pipe molds. We can save you money on your installations. H. U. Roeding & Co., Foxcroft Bldg., San Francisco, Cal.

Empire Cream Separator for sale at bargain. Cost $68.00, used six months. Will take $34.00, as I have no cows. Robert W. James, Fair Oaks, Sacramento Co., Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade, the live stock and poultry industries, are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

Fertile eggs for hatching. Choice varieties. White Rocks, White Wyandottes and White Orpingtons at $1.50 to $4.00 per setting; $6.50 to $10.00 a hundred. Ducks—White Muscovy, Dark Muscovy, White Indian Runner, White Pekin, Buff and White Orpington, $1.00 to $3.00 a setting; $5.00 to $12.00 per hundred. Send for Circular. Pheasants' eggs in season.

WICK'S FOWL WHITE FARM, Moorpark, Cal

REDUCING LIVING EXPENSES.

The McStay Supply Co. of Los Angeles is sending out catalogues and put up the claim that they will enable readers of The Cultivator who will send for them to eat more, wear more, and use more, and all for less money than they are now paying. It surely sounds good, and those who know say the McStay Co. will make good. A look over the prices which this firm offers in last week's Cultivator gives a slight inkling of the good things in store for low prices. There is no reason why the farmer should not take advantage of the lowest prices he can secure. He usually takes a low enough price for his own product and when a concern like the McStay Co. makes such a proposition as is now appearing in The Cultivator it should at least call for a post card request for a catalogue.

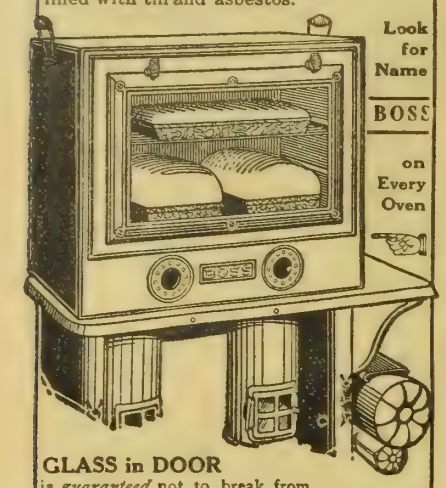
ENSILAGE CUTTERS.

The use of ensilage in dairies was slower of introduction in California than in the East. At one time it was claimed that with our perpetual summer the possibilities of green feed were with us the year around, but the advantages of ensilage, especially during the later summer, have forced themselves upon dairymen until nearly every dairy section uses one or more of the towering silos. The time will soon be here for filling these and the new ones which are being constructed. A great convenience in this work is a thoroughly reliable ensilage cutter. The O. J. Weber Co. of Los Angeles is handling one of the very best of these machines; it is called the Climax Ensilage Cutter, and while it is said that perfection is not attained on this earth, these machines are near enough to it for all practical purposes. Mr. Weber says "They are unequaled in simplicity, strength, durability, safety in operation, and the excellent quality and uniformity of silage produced." Write Weber; he will tell you all about it.

USE A PORTABLE
BOSS OVEN
With Patented **GLASS DOOR**

on *your* stove or range, either oil, gasoline, acetylene, alcohol or gas.

No more spoiled bakings or worry—No more wasted heat—No more jarring or chilling of oven. Housewives can see their baking without opening door. Economy and convenience both guaranteed in the BOSS—a polished blued steel oven lined with tin and asbestos.



GLASS in DOOR
is *guaranteed* not to break from heat because it is secured by our patented *yielding pressure* retaining strips, which permit expansion and contraction. Glass door fits snugly in one-piece beaded front, and is held tightly in place with two turnbuckles, preventing escape of heat.

Baking qualities and ventilation superior to any other oven or range. All heat goes right into the open bottom, and is perfectly distributed to all parts of the oven by means of our patented Heat Deflector. Flame always visible through small mica windows. With the BOSS a baking costs *less than a cent*. It will many times over *pay for itself* in saved bakings to say nothing of saved fuel.

Ask YOUR Dealer to show you the BOSS Glass Door Oven. INSIST upon seeing the name "BOSS" stamped in the front of Oven. Then you know that it is genuine and *guaranteed*.

FREE: Our valuable Recipe Book, containing many cookery helps and full description of BOSS Ovens sent FREE on receipt of postal, plainly written, giving your own and your dealer's names and addresses.

THE HUENEFELD CO. 2738 Spring Grove Ave. Cincinnati, O

Save for the Home at the Home Savings

Your Money Grows Here

You draw out more than you put in when you become a savings depositor at this Home Bank. Your profit is definite, sure, constant. Every year is a prosperous one. Begin now. Keep your surplus funds at work.

We Pay

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4% Interest Paid on Six Months Term Deposits of One Dollar or Over.

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the most efficient all round Heating appliances for Stoves, Ranges, Boilers, Water-Heaters, and especially Hot Air Furnaces of all kinds. Brooder House and Heating Stoves. Send for Free Circulars.

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710 N. Main St., Los Angeles, Cal.
All Kinds of Oil Storage Tanks.

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Perfectly Simple! Simply Perfect!
Only $1.00. *Why pay $5.00?*
Seven hollow ground edge guaranteed blades included. Handsome plushed lined case. Order today. Postage paid.
Lee Specialty Company
646 W. 41st Street Los Angeles Cal

When writing to CULTIVATOR advertisers **BE SURE** to say where you saw their advertisement. It will cost you nothing and *MAY* do you some good.

Seed of hardwood trees are being planted in the burned over forest section near Wallace, Idaho.

Household Department

THE SONG OF THE HUMBLE BEE.

It was only a little, humble bee,
But the way it worked was a sight to see,
As it gaily flew from flower to flower,
With its mind intent to improve each hour;
And it hummed a song that was good to hear,
With its lesson of hope and gladsome cheer,
And this is the song of the humble bee,
The song it is singing to you and me:
"Come, be jolly,
Melancholy
Is the sheerest kind of folly!
Don't be shirking,
Just keep working,
Somewhere joy for you is lurking!
Though the world seem full of care,
Clear your mind,
Search, you'll find
Honey's in it everywhere!"
Now do you not think that the bee sings true,
And to search for honey's the thing to do,
And it's better to work and to smile and hope
Than to sigh and cry and to whine and mope?
Be up and doing and cheery and bright,
Look not at the darkness, but for the light;
It is there just ahead, though you may not see,
But you will if you'll sing with the humble bee:
"Come, be jolly,
Melancholy
Is the sheerest kind of folly!
Don't be shirking,
Just keep working,
Though the world seem full of care,
Somewhere joy for you is lurking!
Clear your mind,
Search, you'll find
Honey's in it everywhere!"
—Woman's Home Companion.

"THIRTY PIECES OF SILVER."

The old man dashed his hand across his eyes as he turned from the gate and walked slowly toward the house. At the door he hesitated, took a step inside, then, catching sight of "Mother" sitting in the next room, her apron thrown over her face as if to shut out some dread sight, he moved slowly toward the barn; half way there, he drew himself up, slowly muttering: "Seems to me I can't go nowhere; Mother's in the house, and Pigeon ain't in the barn. Oh! I almost wish I hadn't done it, but seems like I had to; I reckon I better chop an armful of wood."

Mother, inside wiping her eyes, was not deceived by the unusually strong, rapid strokes of the ax. "Poor Pap! I reckon he thought it was the best thing to do—but dear old Pigeon! Oh, I can't bear it!"

The evening meal was a silent one save for a few desultory remarks about the milking; there was not much else to talk about now but Brindle. After the chores were done they sat down, but not together tonight; Father preferred the back step, Mother a chair by the front door; but memory was carrying both back over the same road. Both saw a comfortable eastern home, themselves full of life and ambition, elastic of step, dark of tress, bright of eye. They saw many other things, but just tonight the central figure was a handsome young horse, whose sleek gray coat felt like velvet; whose neck arched coquettishly; whose liquid eyes alternately flashed fire or melted in tenderness more than human. The old man straightened as he seemed once more to be astride her and felt the exhilaration of flying along the scented highway. There was no steed in all that country that could compare with Pigeon. Mettlesome, but true as steel, she endeared herself to every member of the family; was, in fact, one of the family.

Then the western fever struck her owner; he would get away from the small, worn-out farm; he would go west, where he could have all the land he wanted. Hundreds of miles Pigeon and her mate drew the heavy prairie schooner—how wearisome and footsore even her owner could not know. Timber crazy, he elected to carve his home out of the heart of the forest, a hard life for man and beast. Other horses might come and go, but Pigeon was ever faithful. Her intelligence was something remarkable, and the fact that she could not be lost in that trackless wilderness gave her a local reputation. Any trail or cow path she would follow unerringly.

Barns, commonly known as stables in those days, were mostly built of unhewn logs, with low doors and rafters. Pigeon held her head high, and, it was supposed from continual bumping, the disease termed poll evil set in. With drawn face the old man recalled the years of suffering, coupled with faithful service, that followed. Veterinary science was in its infancy, but everyone who came along had a remedy, and each tried without regard to the suffering it caused.

But—and the old man tried to resume the train of reasoning which had made the day's deed possible—he himself was broken in health, the children gone, he and Mother were poor, the farm was let on shares, and his share was so small, and Pigeon—well, her head was so bad, and she was so old and crippled, she really could not do the work and travel he had to do, so—God forgive him!—he had sold her—torn her from the farm which she had so largely helped to make, from the associations of almost a quarter of a century, from the dear, familiar voice of master and mistress, from the tender greetings of the children when they came home, from everything that her true heart held dear—sold her to a stranger for thirty dollars, with which he purposed to buy another, old it would need be, but without that terrible poll evil. But now that it was done, and the evening shadows drew around, it seemed shockingly lonesome without Pigeon—and where was she? Had she realized her fate, or why had she, for the first time in her life, shown fear of a stranger? Why had she neighed as long as her voice could be heard? Something hot splashed on Father's hand; that was the first he knew he was crying. Again he tried to brace up. "Everybody has to do the best he can for himself. Everybody sells old horses, and—." But still the look in Pigeon's eyes as she turned them on him at the last haunted him, and something about that thirty dollars reminded him of the "thirty pieces of silver." Only another of the sad tragedies that come as a reward at the end of countless faithful horses' lives had happened.

* * * * * *

It was the tenth sleepless night that Father, about midnight, started up suddenly, exclaiming: "Mother, d'ye hear anything? Mother!"

"Seemed like I dreamed I heard Pigeon neigh. Hark!"

There it was again, a distant but insistent call. Trembling with excitement, the old man hurried out into the moonlit night just as the gaunt form of a gray mare emerged from the shadowy wood. Mother, trailing barefoot through the dewy grass, heard a glad neigh from the one and an exclamation of pleasure from the other, and a moment later man and beast were, so to speak, locked in a fond embrace.

The next day her new owner, on the trail of the fugitive, was satisfied by the return of his "thirty pieces of silver," plus five more, but Father ate, slept, smiled and was happy, and Pigeon—well, she was happy, too.—Practical Farmer.

RESTORING STRAW MATTING.

Matting that begins to show wear so that little ends stick up may be rendered quite as good as new by a coat of thin white shellac. After taking up the matting and cleansing it as usual relay it on the same side and then go over it with the shellac, using about two quarts to a room of the ordinary size.

Coulson's
MADE IN PETALUMA

Special chick food

If nature hatches the egg, you should save the chick. And you can do it with Coulson's Special Chick Food—the greatest life-saver known in the chicken industry.

This food is the result of years of study to get just the right ingredients in a proper mixture to save the largest possible number out of every 100 chicks.

Coulson's Special Chick Food is an investment, not an expense. It pays big dividends by starting chicks on the road to profit for you. Costs about one cent a chick for four weeks' feeding.

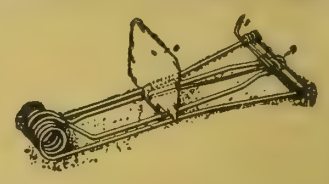
Coulson's Growing Chick Food must be used after the first six weeks, to keep up the steady growth of the chicks up to three months, at which time they are old enough to use Coulson's Egg Food—the standard feed for laying hens.

At your dealer's or from us. Write for the interesting book, "Poultry Feeding for Profit." It's free.

Coulson
Poultry & Stock Food Co.
PETALUMA, CALIFORNIA

Germain Seed & Plant Co. Distributing Agents for Southern California.

MACABEE GOPHER TRAP



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid at special rates. Manufactured by
Z. A. MACABEE, LOS GATOS, CAL.

Genasco
the Trinidad-Lake-Asphalt Roofing

There's a big difference between Trinidad Lake Asphalt Roofing and socalled asphalt roofings. Write for the Good Roof Guide Book and find out about them.

Ask your dealer for Genasco with **Kantleak Kleets** packed in the roll.

The Barber Asphalt Paving Company
Largest producers of asphalt, and largest manufacturers of ready roofing in the world.
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NEAR OAKLAND, CALIFORNIA
The only Woman's College on the Pacific Coast. Chartered 1885. Ideal climate. Entrance and graduation requirements equivalent to those of Standford and University of California. Well equipped laboratories. Grounds comprise one hundred and fifty acres. Special care for health, out door life. Pres. Luella Clay Carson, A. M., Litt. D., LL. D. For catalogue address Secretary, Mills College P. O., Calif

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Expert Live Stock AUCTIONEERS
Sales conducted in all parts of California and adjoining States. Write for dates and terms
Twenty-five Years' experience
830-32 South Main St. Los Angeles

A BOX OF CANDY.

Coffee Caramels.

Two cups of granulated sugar, half a cup of very strong coffee, one cup of cream. After the sugar and coffee have boiled five minutes add the cream and continue boiling until the candy strings when dropped from the spoon. Pour into a buttered pan and when cool cut into squares. This candy should boil over a moderate fire, or it will burn. To make the coffee, put two tablespoons of powdered coffee into the bag of a French coffee pot and pour through it one cup of boiling water. When the water has dripped through pour it back over the coffee. Repeat this process twice and the result will be strong enough to give the candy the true coffee flavor. Keep the coffee pot hot while coffee is being made.

Plain Vanilla Candy.

Six pounds of best white sugar, three teaspoons of vanilla extract, one teaspoon of soda, three cups of clear water. Pour the water over the sugar, and, when nearly dissolved, set it over the fire and bring to a boil. Stew steadily until it hardens in cold water, stir in the vanilla, boil one minute, add the dry soda, stirring in well, and instantly turn out upon broad, shallow dishes. Pull as soon as you can handle it, into long white ropes, and cut into lengths when brittle.

Cream Peppermints.

Put a pound of white sugar and one and one-half teaspoons of cream of tartar in a teacup of cold water. Stir until dissolved, then boil until a little of it, cooled in water, can be rolled into a ball with the fingers. Remove from the fire, allow it to cool a little and heat with a spoon until it turns white. Add three drops of oil of peppermint and mix well. If it hardens too quickly while beaten set the bowl in a tin of boiling water. Make it into balls with the hands.

Turkish Delight.

Break an ounce of sheet gelatine into pieces and soak it for two hours in a half cup of cold water. Dissolve two cups of granulated sugar in a half cup of cold water. As soon as it boils, add the gelatine and cook steadily for 20 minutes. Flavor with the rind and juice of an orange, with orange flower water or rose water. Turn into tins wet with cold water, and when it is set cut it into squares. Roll in a mixture of confectioner's sugar and cornstarch. A few chopped nuts may be added to the syrup when it is taken from the fire.

Glaces.

To "glace" nuts and certain kinds of fruit, nothing is needed but sugar and water and a little patience. Boil a pound of sugar with a gill of water until it threads. Drop nuts, figs or grapes into the syrup, one at a time, dipping them out with a buttered fork and dropping them on a buttered tin to dry. Care must be taken not to shake the syrup more than necessary, and it is necessary to work rapidly, as the syrup should be removed from the fire before the nuts or fruits are dipped, and it soon hardens. A teaspoon of vinegar added to it makes a crisper glaze. A second dipping after the first coat hardens greatly improves the appearance of the candy. It should be eaten fresh, as it soon becomes sticky with changes in the atmosphere.

Peanut Brittle.

One pound of granulated sugar, melted in a skillet but not scorched. When melted add a lump of butter size of a walnut and one quart of finely chopped peanuts. Stir well and pour a little on a buttered board; roll thin with a buttered rolling pin as it hardens quickly; continue until all is formed into sheets.

Peanut Creams.

Break into a bowl the white of one egg, add one tablespoon of orange juice and into this gradually stir sufficient sugar to make a thick paste. Mix with it one teacup of finely chopped peanuts. Form into balls, roll in pulverized sugar and lay on buttered dishes to dry. When dry each can be dipped into melted chocolate if preferred.

Maple Caramels.

Two cups of brown sugar, one and one-half cups of maple syrup, one-half cup of cream and one tablespoon of butter. Test the cooking as for chocolate caramels. Pour on buttered shallow pans. Cut in squares when cool. Nuts can be sprinkled on the greased pan before pouring, or stirred into the caramel just before moving from the fire.

Chocolate Fudge.

One-pound cake of chocolate, two pounds of granulated sugar, one cup of cream or rich milk, one teaspoon of vanilla, a large-sized piece of butter, about an eighth of a pound, a good-sized pinch of salt. Dissolve the chocolate over the tea kettle, then mix with it the sugar and cream and return to the stove. After it comes to a boil, stir in the butter and salt. Boil until the mixture forms a very soft ball when dropped in ice water. It should have just consistency enough not to go to pieces when picked up. Beat vigorously, stirring in the vanilla when the candy has cooled slightly. Pour into buttered pans, and when almost set mark in squares with a knife. This is also an excellent icing for chocolate cake.—Rural New Yorker.

A HOUSEWORK APRON.

An apron invaluable to the woman who does her own work is the housework apron made of white rubber sheeting and bound with wash-ribbon. This apron is just the thing to slip over one's dress when cooking or when washing dishes. It is cut circular, and made slightly full at the waist. Then there is a plain bib with straps, which fasten to the narrow belt at the back.—Woman's Home Companion.

IN FOR IT!

First Small Boy—"We'd better be good."

Second Small Boy—"Why?"

First Small Boy—"I heard doctor tell mother to take plenty of exercise."—Woman's Home Companion.

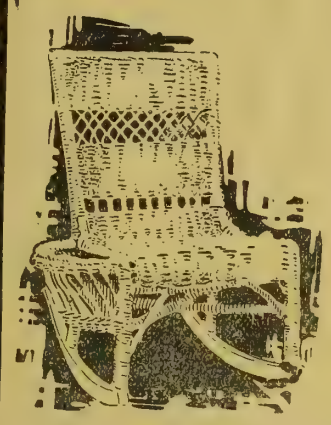
Lyon-McKinney-Smith Co.

Broadway at Seventh - LOS ANGELES

AMERICA'S FOREMOST HOME FURNISHERS

Six floors crowded with Furniture–Carpets–Rugs–Draperies–Gas Ranges–Pianos of every quality and price. When you come to Los Angeles make our store your headquarters. If you want anything for your home and cannot come to the city, write us for cuts and prices.

Satisfaction Is Always Absolutely Guaranteed



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and get this genuine willow rocker. Just what every woman needs—large pocket on the side for work basket.

Samples of Linoleum—Curtains etc. sent gladly upon request.

See what you need and write us to day for SPECIAL PRICES

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"Beats 'Em All for Making Money"

"I have run..... and many other machines, but the Wolverine beats them all for making money. I have put 216 pounds of dry straw in a bale and 175 pounds of hay." (Abstract from letter received. Name and address of party furnished on request.)

From "stem to stern" the Wolverine Hay Press is RIGHT. There isn't a dishonest or careless spot in its whole make-up. We have the biggest plant in the country devoted exclusively to making Hay Presses. The Wolverine has made an enviable reputation—and it is maintaining that reputation and increasing its facilities every year to take care of the growing demand.

A smooth, even, heavy bale comes from the Wolverine Hay Press. It is a fact that dealers will often pay more for hay put up in nice bales. It eats hay as fast as it can be handled by four men in a mow. It can be depended upon to work every hour in the day without a repair man constantly "tinkering" around. It is built for hard, long service.

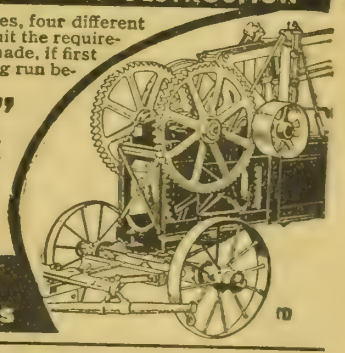
Wolverine Hay Press

WOLVERINE CONSTRUCTION DEFIES DESTRUCTION

The Wolverine is built both with steel and wood frames, four different sizes, all with double gears, with various equipments to suit the requirements of purchasers. It isn't the cheapest Hay Press made, if first cost is considered, but it is the cheapest baler in the long run because there is an absence of repair bills.

Write FOR THE "Wolverine Book"

Every farmer will find many interesting and instructive things in the "Wolverine Book." A postal will bring this book to you. It's worth asking for.



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AGENTS WANTED

Exclusive Territory — Liberal Terms

Five Thousand Eureka Lemon Trees

For Sale

To be delivered in May, 1912, balled f. o. b. on cars Whittier, 55 cents each. Also one thousand 2 year old Navel trees for immediate delivery.

Address 209 So. Greenleaf Ave.
Whittier, California.

The Whiting Jersey Stock Farm Co.

Is making the very best strains of blood from the island of Jersey a specialty Whiting Jersey Stock Farm Co. Heber, Cal.

JOHN LYNCH

Breeder of Registered Shorthorns

MILK STRAIN

Petaluma Cal

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, May 31, 1911.

Butter.

Butter is practically as last week, the only change noted being a half cent dropped from extra quotations. Market firm.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	.23
Firsts	.22
Ladies	.18
Country	.14

Cheese.

Oregon Daisy	.16½@17
Northern	.15
Domestic Swiss	.18
Imported Swiss	.32

Eggs and Poultry.

Eggs show a material advance, with conditions most favorable at this writing.

Paying price f. o. b. Los Angeles is:

Local Ranch, candled	.25
Case count buying price	.21
Northern	.19@23
Eastern	.21

Dealers pay for live poultry f. o. b.:

Hens, per lb	.10@14
Roosters	.10@12
Broilers	.17@20
Fryers	.22
Roasters	.22
Turkeys	.23@25
Ducks	.15
Geese	.12
Guinea hens, doz	.4.00
Squabs, doz	.1.80

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	.7
Prime steers	.6
Heifers	.6
Calves, per lb	.6½
Sheep, ewes, per head, shorn	.4.75
Lambs, per head	.3.75@4.25
Wethers, shorn	.5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	.2.75@2.85
Oregon	.2.75
Sweets, yellow, cental	.8.00
New potatoes lugs	.1.00

Onions.

Wholesale quotations:

Imperial, crates	.2.00
Silverskins, box	.1.00@1.10
Texas Bermudas	.2.00
White Wax, crate	.2.25
Garlic	.10@12

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	.50@80
Asparagus, lb	.4@7
Beets, doz. bunches	.35
Bell peppers, lb.	.35
Beans, lb	.6@8
Beans, wax	.6@8
Green chilis	.25
Cucumbers, Texas, box	.1.75@2.00
Cabbage, sack	.1.25
Celery, crate	.4.00@5.00
Carrots, sack	.90@1.00
Corn, doz.	.40@50
Horseradish, lb	.12½
Onions, green, doz bunches	.20@25
Leeks, doz	.40
Lettuce, crate	.1.25@1.75
Oyster plant, doz	.40
Okra	.20
Peas, lb	.4@6
Parsley, doz bunches	.35@40
Paranips, doz bunches	.50@60
Radishes, doz bunches	.20@25
Rhubarb, Strawberry	.1.50
Rhubarb, crimson winter	.75@90
Spinach, doz	.20@25
Squash, summer	.70@90
Tomatoes, Mexican, crate	.3.00@3.50
Turnips, sack	.1.25@1.50

Citrus Fruits.

Navels	.2.75
Grapefruit, seedless	.1.75@3.00
Lemons	.1.25@2.75
Tangerines	.1.75@2.00

Fresh Fruits.

Wholesale prices on the market are:

Apricots, crate	.2.50
Alligator pears	.3.00@4.00
Pearmains	.2.75@3.00
Newtown Pippins	.2.50@3.00
Cantaloupes, ponies	.3.55
Cantaloupes, standard	.5.00@7.50
Cherries, black, box	.1.40@1.50
Cherries, black, bulk, lb	.10@12½
Cherries bulk, lb	.6
Bananas	.4½
Loquats, lb	.4@6
Pineapples	.10
Blackberries	.8@9
Raspberries	.12@15
Gooseberries, lb	.15
Strawberries	.7½@8

Dried Fruits.

Wholesale prices are:

Apricots	.16
Evaporated Apples, fancy, lb	.13½@14
Figs, box	.1.65@2.00
Peaches	.9@10
Nectarines	.10
Pears	.13@14
Prunes	.12@14½
Plums	.10

Beans Dried.

Wholesale quotations:

Limas	.6.75
Black eyes	.7.50
Pinks	.5.75@6.00
Lady Washington	.4.25
Small white	.3.75@4.00
Mexican reds	.5.00@5.25
Garvanzas	.4.50
Bayous	.4.50@5.00
Lentils	.6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	.17@18
Chestnuts	.10@12
Almonds, IXL, lb	.17@18
Pecans, polished	.15@17
Peanuts, Eastern	.7@7½
Peanuts, California	.6

Honey.

Wholesale quotations:

Extracted water white	.10
Extracted light amber	.8
Comb water white	.18@19
Light amber	.15
Beeswax	.30

Hay.

Buying prices f. o. b. cars Los Angeles are:

No. 1 old barley hay	.12.00@13.00
Barley hay	.11.00@12.00
Wheat hay	.12.00@13.00
Tame oat	.15.00@16.00
Alfalfa	.11.50@12.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	.1.80
Corn	.1.75
Popcorn	.4.00@4.25
Egyptian corn	.1.65
White oats	.1.80
Rye seed	.1.90
Seed barley	.1.50
Broom corn	.1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	.1.10
Cracked corn	.1.70
Cracked wheat	.1.95
Shorts	.1.90
Bran	.1.65
Oil cake meal	.2.50
Feed meal	.1.75
Rolled barley	.1.50

San Francisco Market

SAN FRANCISCO, May 30, 1911.

Butter.

Butter declined a cent on all lines, with fairly steady market at this writing. Receipts about 85,000 pounds daily.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	.21½
Prime firsts	.21
California firsts	.20½
Seconds	.20

Cheese.

California flats	.10@12½
Cal. Y. America, fy, new	.13@13½
Oregon, fancy	.13½

Eggs and Poultry.

Eggs are practically as last week, with firm market and receipts about 2800 cases daily.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	.21½
Prime firsts	.20½
Firsts	.19½
Seconds	.18½
Eastern seconds	.17½
Select pullets	.18½
Hens, doz	.4.50@10.00
Fryers, doz	.6.00@7.00
Ducks	.6.00@9.00
Broilers	.2.00@4.00
Roosters, doz	.4.00@10.00
Geese	.2.00@2.50
Pigeons	.1.75@2.50
Squabs	.2.00@3.00
Rabbits, doz	.2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	.4½@6
Cows and heifers	.4@5
Calves, lb	.5@6½
Hogs	.5@7
Milk lambs	.5½@5¾
Wethers, No. 1, unshorn	.4¾@5
Ewes, No. 1, unshorn	.4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

Salinas Burbanks, cwt	.2.85@3.00
Oregon Burbanks, cwt	.2.25@2.75
New potatoes, lb	.2½@3½
Texas Triumphs	.3.00
Eastern	.2.00@2.15

Onions.

New green, box	.50@65
Red, new, sack	.2.40@2.50
Australian brown	.3.50@3.75
Bermuda, seed	.2.00
Garlic, lb, old	.10@12½
Garlic, lb, new	.6@8

Vegetables.

Wholesale quotations:

Asparagus, box	.65@1.50
Beans, string	.4@6
Carrots	.60@75
Cucumbers, doz	.50@75
Corn, doz	.20@25
Celery, crate	.1.50@2.50
Chili peppers, lb	.30@40
Egg plant, lb	.15@20
Lettuce, crate	.75@2.00
Okra, lb	.10@12½
Peas, sack	.1.00@1.50
Rhubarb	.65@1.35
Summer squash	.75@1.00
Tomatoes, Mexican, lug	.1.50@1.80
Turnips	.60@75

Citrus Fruits.

Navels, new	.1.25@3.00
Valencias	.2.00@2.75
Grapefruit	.75@2.50
Lemons	.1.75@4.00
Limes, Mexican	.4.50@5.00
Tangerines, halves	.1.25@2.00

Fresh Fruits.

Apricots, crate	.2.25@2.50
Alligator pears, doz	.75@1.00
Apples, box	.1.90@2.25
Apples, Bellflowers	.1.00@1.35
Newtowns	.1.90@2.00
Spitzenberg	.1.50@2.75
Cherries, Purple Guignes	.60@65
Cherries, white and red, box	.40@50
Cherries, bulk, lb	.8@9
Cherries, Black Tartarians	.70@1.00
Gooseberries, drawer	.50@70
Bananas, Hawaiian	.1.00@1.50
Blackberries, basket	.10@12½
Raspberries, basket	.12½@15
Strawberries, Southern, crate	.75@1.00
Strawberries, Lgwths, ch	.6.00@8.00
Mandas, chest	.4.00@6.00
Pineapples, Hawaiian	.2.00@3.50

Dried Fruits.

FRUITS—1910 crop, f. o. b. carload lots, per lb.—Apples, 11¾@13c; Apricots, 12½@15½c; do, Moorparks, 14c; Peaches, 7¾@9c, with a premium of ⅛@¼c on Muirs; Prunes, bulk basis, 11½c; Prunes, 1911 contracts, 4¾@5c, with a premium of ½c and 1c on large sizes; Figs, 1911, 4½@5¼c for White, and nominal for Black; Pears, 9¾@13c.

RAISINS—1910 crop: Seeded, per pkg. —Fancy, No. 16, 7½c; Choice, No. 16, 7@7¼c. Loose Muscatels in 50-lb. boxes—Standard 4-crown, 6¼c; do, 3-crown, 5¾c; do, 2-crown, 5¼@5½c. Seedless—Muscatels, 5c; Sultanas, 5¾c; Thompsons, 6¼@6½c.

Nuts.

Walnuts, No. 1 soft shell	.16@16½
Walnuts, No. 1 hard shell	.14½
Almonds, '10 N P U	.14½
Almonds, '10 Nonp	.16½
Almonds, '10 I X L	.15½
Almonds, Peerless	.13
Pecans	.14@17
Chestnuts, California	.6@8

Beans Dried.

Limas	.6.25@6.35
Pink	.4.75@5.15
Black eyes	.6.50@6.75
Small white	.3.35@3.45
Large white	.3.25@3.40
Kidneys	.5.50@6.00
Garbanzos	.2.50@3.25
Bayou	.4.40@4.50
Horse beans	.2.00@2.50
Red Mexicans	.5.15@5.25
Cranberry	.3.75@3.90

Hops.

Hops, coast, 1910	.21@25
Hops, 1911 contracts	.20@25
Hops, Oregon, 1911	.24@25

Honey.

Water white, comb, '10	.15
Dark comb	.12½
Extracted white	.8
Extracted dark	.6½
Beeswax, lb	.24@30

Hay.

Receipts of hay on this market for the past week were 2600 tons, as against 2938 tons the preceding week. With the exception of fancy grades of wheat, wheat and oat, and red oat hay, these receipts move off slowly, and we note some dealers making concessions in prices, in the past week, to effect sales.

Fancy grades of hay are very scarce, and an occasional car of same will bring at times as much as $1.00 per ton in excess of our quotations. Hay cutting is in full blast in a great many sections, and reports as to yield are improving daily.

Export trade has shown somewhat of improvement during the past week, and considerable hay has moved in this direction. This has helped to work off the surplus of the market; otherwise we believe it would have shown still greater weakness.

We quote the wholesale prices in round lots on today's market as follows, viz:

Fancy wheat hay	.13.50@14.50
No. 1 wheat or wheat & oat	.11.00@12.00
No. 2 wheat or wheat & oat	.10.00@11.00
Choice tame oat	.10.00@12.50
Other tame oat	.8.50@10.50
Wild oat	.9.00@10.00
Stock hay	.6.00@8.00
Alfalfa	.9.00@10.50
Straw, bale	.40@50

Grain.

Barley, fancy	.1.40@1.41¼
Barley, good to choice	.1.35@1.37½
Barley, poor to fair	.1.30@1.32
Oats, white	.1.50@1.60
Rye, new crop	.1.40@1.50
Mustard, brown	.5½
Alfalfa seed	.5½
Millet	.2¾@3¼
Flaxseed	.5@5½
Broom corn seed, ton	.23.50

Feed Stuff.

Alfalfa meal	.17.00
Bran, ton	.28.00@29.00
Feed cornmeal, ton	.33.00@34.00
Cracked corn	.33.00@34.00
Rolled barley, ton	.30.00@31.50
Rolled oats, ton	.29.00@30.00
Middlings	.32.00@34.00
Oil cake, ton	.40.00@41.50
Cocoanut cake, ton	.25.50@26.50
Mixed feed, ton	.25.00@27.00
Shorts	.29.50@30.00

A test of Nitrate of Soda on celery resulted as follows: Crop receiving 675 pounds per acre was ready for market five days earlier than that receiving 475 pounds, and the heavier fertilized tract gave a net profit of $939.13 per acre; while, owing to a most severe drought during the test, the crop that received no nitrate was a practical failure and not worth harvesting. Eighteen dollars and sixty-seven cents in nitrate of soda saved the crop. All the land received 30 bushels slaked lime and 20 tons stable manure per acre, worked into the soil before planting. It is very necessary that celery should have plenty of lime in the form of carbonate,

Deciduous Fruit Market

Sacramento, May 27, 1911.

The following gives number of cars of deciduous fruit shipped from all points in California for the week (7 days) ending Friday morning, May 26, 1911:

Cherries: Nine cars. The pleasant weather reported in our last letter of the 20th did not last very long, soon changing to very cool weather, which still continues. As a consequence, cherries have not ripened as fast as expected, but nevertheless are being shipped daily from Vacavilla and Suisun, with the promise of carlot shipments from the Santa Clara Valley next week. So far we have had four carloads sold and the fruit has gone at very satisfactory prices. Our first car in Chicago grossed $5554.00. The first in New York, containing 1166 boxes, sold for over $3600.00, an average of $3.10 per box. Our second car in Chicago sold yesterday for $5352.00, while our second car in New York sold at the same time for $6234.00, this being the banner sale for a carload of deciduous fruit.

The later varieties of cherries, such as Tartarian, are now going forward from the early sections in fairly liberal quantities. The first few scattering boxes of Royal Ann and Bing have made their appearance.

Apricots: The first few crates of apricots are now going forward, but there will be no considerable quantity of them for about one week.

There is no change in the situation of plums, peaches, Bartlett pears and grapes. All these varieties are growing nicely and promise well.

Citrus Fruit Market

LOS ANGELES, May 31, 1911.

Navels are not exactly going begging, but the market is looking with disfavor on them. Between off sizes and overripeness and the more satisfactory Valencias only a small portion of the extra fancy fruit is commanding good prices. Shipments are practically ended; a few Seedlings and Mikes will yet go, though Saturday of this week should see the last of those. Valencias are being well received, though some small offs are not commanding the best of prices. Unlike Navels, the Valencias are running to small sizes, but the quality of the fruit is of the very best.

Foreigns are coming in greater quantity, high prices offering special inducements for them, but even with this California lemons are still commanding the top of the market and prices are most satisfactory. It is not thought that the Mediterranean country can supply enough to materially affect the market, and certainly not so long as weather conditions remain as they are.

Shipments.

Shipments of oranges to date since November 1st, 1910: 28,884 cars, lemons 3,812, total 32,696. To same date last year: Oranges 19,044, lemons 2,541, total 21,585.

LOS ANGELES, Wednesday, May 24. —Two cars Valencias, one seedlings and one mixed car sold.

	Avge.
Equator, Fy, Or, Valencias, Orange, shipped May 23, iced	$2.05
Blue Ball, Sd, Valencias, Orange, shipped May 23, iced	1.80
Equator, Fy, Or, Valencias, Orange, not shipped	2.05
Blue Ball, Sd, Valencias, Orange, not shipped	1.80
Heap Good, Fy, Or, Seedlings, shipped May 22, precooled, iced	6 1.25
Heap Good, Or, Sweets, Riverside, shipped May 23, iced	.87½
Heap Good, Valencias, Riverside, shipped May 23, iced	.87½
Heap Good, Seedlings, Riverside, shipped May 23, iced	.87½
California, Cr, Valencias, Riverside, shipped May 23, iced	.87½
Rubidoux, Sd, Valencias, Riverside, shipped May 23, iced	.87½
Rubidoux, Sd, Seedlings, Riverside, shipped May 23, iced	.87½

LOS ANGELES, Friday, May 26.—Three cars Valencias, 1 lemon and 1 budded seedling sold.

	Avge.
Woodland, Xf, Valencias, Orange, not shipped	$2.17½
Blue Ball, Sd, Valencias, Orange, not shipped	1.92½
Red Raven, Fy, Or, Valencias	2.22½
California, Ch, Or, Valencias	1.97½
California, Fy, Or, Lemons, Riverside, not shipped	3.22½
Date Palm, Ch, Or, Lemons, Riverside, not shipped	2.72½
Equator, Fy, Or, Valencias, Orange, not shipped	1.85
Blue Ball, Sd, Or, Valencias, Orange, not shipped	1.60
Heap Good, Or, Budded Seedlings, Riverside, shipped May 24 (precooled and iced)	1.20
Heap Good, half boxes, Or, Budded Seedlings, Riverside, shipped May 24 (precooled and iced)	.60

LOS ANGELES, Monday, May 29.—Three cars Valencias, three cars lemons sold.

	Avge.
Woodland, Xf, Valencias, Orange, shipped May 27, iced	$2.12½
Blue Ball, Sd, Valencias, Orange, shipped May 27, iced	1.87½
Equator, Fy, Or, Valencias, Orange, shipped May 26, iced	1.75
Blue Ball, Sd, Valencias, Orange, shipped May 26, iced	1.50
Woodland, Xf, Valencias, Santa Ana, shipped May 29, iced	2.10
Blue Ball, Sd, Valencias, Santa Ana, shipped May 29, iced	1.85

Lemona, Xc, lemons, La Mesa, not shipped 3.67½
Dog, Sd, lemons, La Mesa, not shipped 3.42½
Sapphire, Xc, lemons, El Cajon, shipped May 28, iced 3.72½
Commodore, Xc, lemons, San Diego, not shipped 3.92½
Captain, Sd, lemons, San Diego, not shipped 3.42½

NEW YORK, Monday, May 29.—Thirty-one cars Navels, five Seedlings, six Sweets, nine St. Michaels, ten Valencias, two lemons sold. Market strong on oranges and lemons. Fair and warm.

NAVELS—	Avge.
Orchard, Imp, Or, National O Co	$3.05
Standard, Imp, Sd, National O Co	2.60
Corona, National O Co	3.25
Euclid, Or, Growers F Co	4.05
VALENCIAS—	
Corona, National O Co	2.95
Corona, Standards, National O Co	2.40
Old Mission, Fy, Chapman	4.15
Golden Eagle, Sd, Chapman	3.05
Independent, Growers F Co	3.75
Sceptre, Or, Rialto O Co	3.65
Rooster	3.15
Glendora Heights, Fy, A C G	4.45
Glendora Heights, Ch, A C G	3.75
Prong Horn, O K Ex	3.85
La Mesa, Riv Ex	3.25
Whittier, S T Ex	3.70
Royal Knight, R H Ex	3.90
Playmates, R H Red	3.20
Pointer, A C G Ex	3.40
Red Shield, A C G Ex	2.80
Green Crown, A C G Ex	2.70
Peacock, Or, W & Strong	2.40
Elephant, Or, Elephant Orchard	3.45
Old Oak, Tustin P Co	2.75

CHICAGO, Monday, May 29.—Lemons are strong. The late hot weather has caused prices to advance sharply. Offerings are fair, no more than the trade requires. Boxes, California fancy, $6.25@6.50.

Oranges—Late Valencias are selling well, but for navels and Mediterranean sweets the demand is slow. The market was steady. Boxes, California navels, sound or made sound, extra fancy, depending on size, $3.25@3.50; extra choice, $3.00@3.25; choice, $2.75@3.00.

CLEVELAND, Monday, May 29.—One car Valencias, two navels, one seedling, one St. Michaels, three lemons, two mixed cars sold. Market strong on Valencias, easier other varieties oranges and lemons; very cool.

NAVELS—	Avge.
Pet, S A Ex	$1.90
Red C, Covina Ex	1.65
Playmates, R H, Red	3.65
Parrot, S A Ex	1.80
Cougar, Covina Ex	1.40
LEMONS—	
Homer, Q C, Corona	$5.95
Pet, S A Ex	5.55
Pup, S A Ex	4.70
Highland B, High, C A	3.95
Camel, Q C, Corna	5.45
Arab, S A Ex	5.50
Highland A, Xf, E High, C A	3.40

ST. LOUIS, Monday, May 29.—Warm; cloudy. Market firm on good fruit. Seven cars oranges and two lemons sold.

VALENCIAS—	
Planet, S S, Orange	$2.90
Peacock, Or, W & Strong	3.30
Searchlight, S S, Orange	2.75
El Toro	2.80
NAVELS—	Avge.
Parrot, S A Ex	$2.00
Volunteer, S A Ex	2.30
LEMONS—	
Peacock, Or, W & Strong	$5.40
Stock Label, A C G, Azusa	4.80
Red Shield, A C G, Azusa	5.75
Lemon Grove, Randolph F	3.35
Al Azar, A C G, Azusa	5.15
Green Crown, A C G, Azusa	5.00

SWEETS—Belt, $2.05; Fiesta, $2.10; Billiken, $2.10; El Toro, $2.45. ST. MICHAELS—Fiesta, $2.40; Billiken, $2.05. SEEDLINGS—Fiesta, $2.10; Orchard Run, $2.10; Billiken, $2.15.

PITTSBURG, Monday, May 29.—Eleven cars sold. Market fairly steady on oranges and strong on lemons. Hot.

NAVELS—	Avge.
Orchard, Or, National O	$3.50
Naralimo, Or, Sparr F Co	2.55
Carlo, S A Ex	1.80
California Orange, Riv Ex, Riv	2.50
Golden, Riv Ex, Riv	2.70
Foothill, Riv, Arl Sta	2.00
LEMONS—	
Greenleaf, S T, Whittier	$5.60
Hawk, S A Ex	5.55

CRAFTON LATES—Redlands Pride, $2.25. VALENCIAS—Carnation, $3.30; Daisy, $2.80. ST. MICHAELS, HALVES—Red Globe, $1.45; Blue Globe, $1.50. SWEETS—Jasmine, $2.60.

PHILADELPHIA, Monday, May 29.—Six cars navels, three Valencias, two seedlings, one St. Michaels, seven mixed cars, one lemon sold. Also two cars Florida Valencias, $2.35 to $3.95, average $3.15.

NAVELS—	Avge.
Yankee Doodle, A F, High	$2.00
Hunter, A C G, Lateen S	1.00
White House, A H, Casa B	1.80
Lincoln, A H, Casa B	2.55
Fates, King F Co	2.90
Pointer, A C G, Lateen S	1.95
Quail, O K Ex	2.10
Navajo, A H, Casa B	1.95
Native Sons, King F Co	3.45
Salt Lake, Sd, King F Co	2.50
SEEDLINGS—	
Pointer, A C G, Lateen S	$2.45
Santa Anita	2.70
Hunter, A C G, Lateen S	2.00
Titus Ranch, Fy, San Marino	2.60
El Toreador, Sd, San Marino	2.30

BOSTON, Monday, May 29.—Fifteen cars sold. Clear and hot. Market doing better on oranges and lemons.

NAVELS—	Avge.
Stork, S A Ex	$2.15
Quail, O K Ex	2.60
Athlete, S A Ex	2.65
Lincoln, A H, Casa B	2.30
Golden Cross, O K Ex	3.65
Standard, Sd, National O	2.85
Paul Neyron, S A Ex	2.80
Quail, O K Ex	2.65
Touchdown, S A Ex	2.40
Athlete, S A Ex	2.60
Red X, O K Ex	2.90
Orchard, Or, National O	3.60
Uplander, Growers F Co	2.80

SEEDLINGS—Athlete, $2.10. SWEETS—Homer, $2.00; Camel, $1.85; Quality, $2.00. GRAPEFRUIT—Homer, $2.10. BLOODS—Quality, $2.50. VALENCIAS—Stag, $3.95; Pointer, $3.60. LEMONS—Pet, S A Ex, $5.25; Greyhound, $4.55.

PITTSBURG, Saturday, May 27.—Seven cars sold. Market steady on oranges; very strong lemons. Warm.

NAVELS—	Avge.
Golden, Riv Ex, Riv	2.65
Crystal, Riv Ex, Riv	2.35
Hawk, S A Ex	2.05
Circus, Xc, Sparr F Co	2.45
Crystal, Riv Ex, Riv	2.20
Golden, Riv Ex, Riv	2.50
Parrot, S A Ex	2.50

REASONS FOR SAVING.

California is advancing as no other section of the world, and the opportunities are here for all to advance in proportion to their means. The trouble is with many of us we haven't been saving enough to have the little nest egg to secure the start. The most humble of us may, however, get this start if we will. The best way to do this is, whenever possible, to set aside out of one's earnings each week or each month, a certain sum, placing it in a savings account and by continual deposits and the interest which they earn, from time to time, the depositor is often surprised to find how rapidly the money accumulates and is sometimes surprised to learn how many opportunities for making money in a legitimate, conservative way are offered to those who have money to invest.

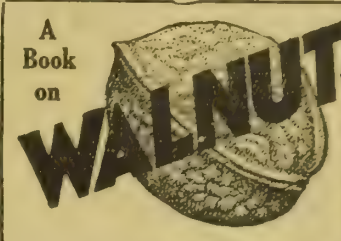
One of the national banks of California has made a specialty of affording the people opportunities for saving their money at interest in a national bank. The reference is made to the Fort Sutter National Bank, of Sacramento, which offers the public certificates of deposit drawing interest at the rate of 2 per cent per annum, when running three months; certificates of deposit running six months draw interest at the rate of 3 per cent per annum, and when running twelve months, draw interest at the rate of 4 per cent per annum. In addition to these certificates, the same bank has its Interest Bearing Department, which issues pass books to the depositors, paying 3½ per cent per annum interest on deposits made from time to time.

The Byron Jackson Iron Works, 357-361 Market St., San Francisco, with works at Carlton Station, manufacturers of pumping machinery, have recently perfected a new and improved pumping system for irrigating farm lands, which possesses unusual merit.

Their patented Automatic Water Balanced Irrigation Pump, direct connected to electric motor, is self-operating and makes an ideal pumping plant, superior to gasoline enginer power in every way. The electric driven direct connected pumping plant allows of irrigation during the night. This means a big gain to growing plant life.

The attention required with gasoline engine power absolutely prohibits all night irrigation, unless extra help is provided. The electric driven direct connected pumping plant is self-operating and requires no attention. The valuable time saved means much: simply turn on the switch to start the plant or close the switch to stop operations. If desired, the switch can be placed in the home, any member of the family can operate the plant from the house, start or stop the plant in one second of time.

A Book on WALNUTS And How to Grow Them



The only book ever written devoted exclusively to the walnut. Gives instructions for planting and propagating compiled from results of twenty years experience in walnut growing. The grafting process as depicted with photographs is applicable to all trees. Prepaid, $1.00.

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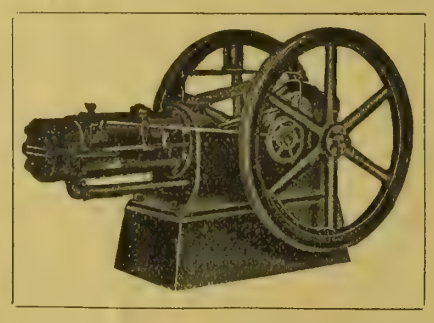

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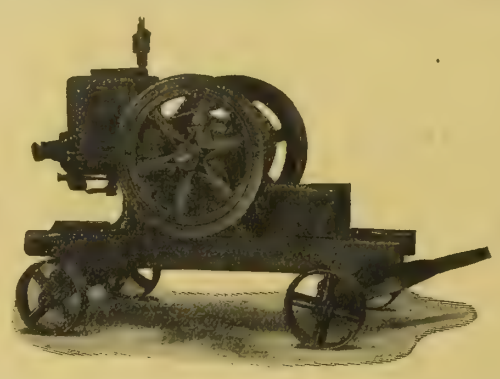

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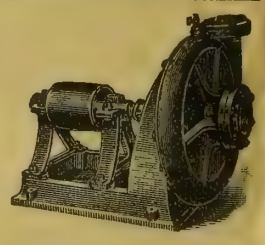

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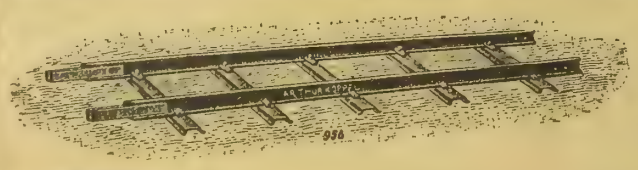

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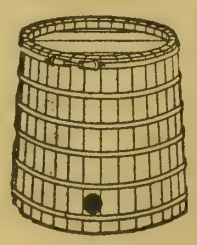

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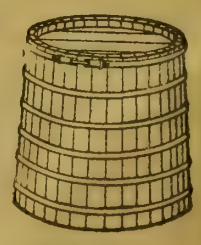

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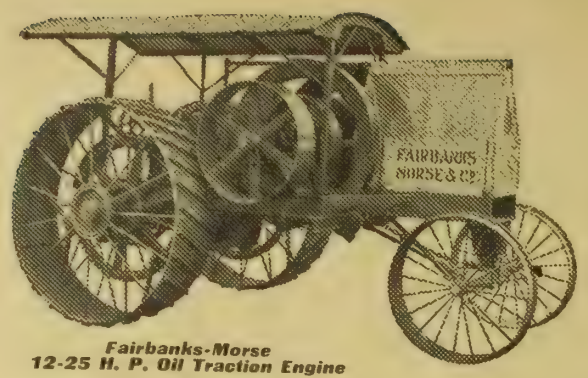
LOS ANGELES JUNE 8, 1911 SAN FRANCISCO

Lemon Blossoms, Showing the Three Forms

Photos by Dr. J. Eliot Coit.

1. Normal Shedding of Buds and Blossoms.
2. Male Flower with Aborted Pistil.
3. Upper Blossom Perfect; Lower Blossom Perfect with Part of the Floral Organs Removed to Show the Pistil.
4. Healthy Young Lemons with Harmless Cladosporium Growing on Their Stigmas.

See Article by Dr. Coit on Page 683, This Issue.



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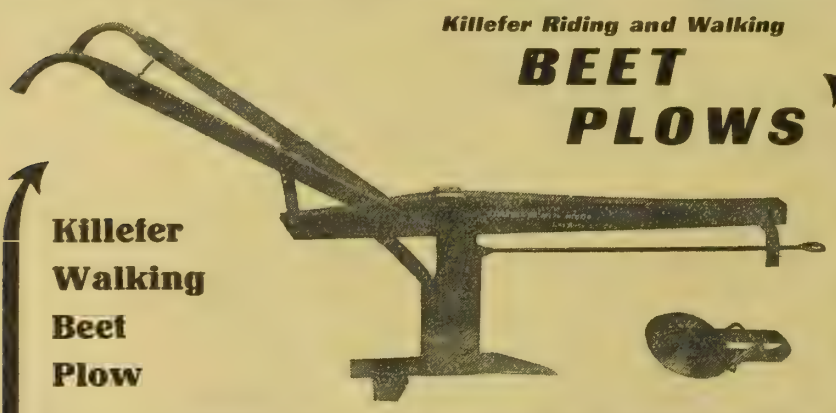

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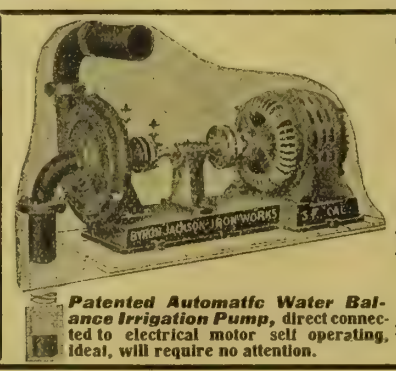

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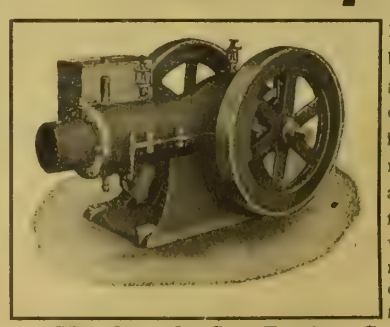

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Vol. XXXVI. No. 23. LOS ANGELES: THURSDAY, JUNE 8, 1911 One Dollar the Year

Lemon Blossoms and Why They Fall Off

By Dr. J. Eliot Coit, Southern California Pathological Laboratory.
See Engraving on Cover Page from Photos Taken by Dr. Coit.

Every year during the month of May it is a common thing for the Experiment Station to receive letters from a number of lemon growers expressing a feeling of alarm over what they consider an abnormal and damaging crop of the blossoms. Such persons often take the position that shedding of the bloom is an indication that some element of plant food is lacking in the soil and suggest soil analysis as the logical method by which the trouble may be overcome.

In order to demonstrate the fallacy of such reasoning and at the same time gain more definite knowledge of the subject, the writer has undertaken a series of experiments which are calculated to throw more light on many factors influencing the setting of lemons. While the complete results will not be ready for publication within a year, certain of the preliminary observations are of sufficient general interest to warrant publication at the present time.

Three Kinds of Lemon Blossoms.

Some blossoms may be found on lemon trees at almost any time of the year. There are several periods each year, however, when the bloom is heavier than at other times and these coincide more or less with the different periods of growth. As the vegetative activity of the tree is greatest in the spring, so is the blooming season of April and May the heaviest of the year.

The spring bloom is made up of three kinds of buds, viz.: split buds, abortive buds, and normal buds. A considerable proportion of the spring buds are what I will call, for lack of a better name, "split buds." They are peculiar in that they do not develop properly, are full width but very short and stubby. They usually split open and expose the pistil which shows a dark spot on the stigma. The petals are not developed. All of this type of buds fall off either just before or just after splitting. I have never known one to set fruit. Their nature is not well understood nor is their function known.

Abortive buds have the petals and stamens fully developed but the pistil is represented by a mere rudiment. Such buds open wide and are very showy, but of course never set lemons, as they lack the female parts. The normal buds are long and cylindrical before opening and when open present a perfect development of petals, stamens, and a large, plump and conspicuous pistil. It is from this type of bud only that lemons are produced. Usually a great many more normal blossoms are borne than the tree could possibly mature lemons, and as a consequence there is a struggle for life between them, the smaller and weaker ones being shed off and the stronger remaining to maturity.

It is therefore perhaps safe to say in regard to the spring bloom that if 10 per cent. of the total buds that form, or 20 per cent. of the total blossoms that open, or 40 per cent. of the normal blossoms that open set and mature fruit, a very satisfactory crop will result. Many lemon growers are prone to become alarmed at the large number of blossoms and small lemons seen on the ground during May. It is suggested that if they focus their attention on the young and inconspicuous fruit still on the tree, prospects will be decidedly brighter. There is a limit to the amount of lemons a healthy tree can produce. If the weather is favorable the tree will set many more lemons than it can mature, hence a drop taking place, during the first unfavorable weather, is perfectly natural. Of course there may be in certain special cases an abnormal dropping of the fruit due to certain well understood causes, such as a sudden very hot wind on an orchard already needing water; cutting too many large roots with the subsoil plow in shallow soil; applying improperly mixed sprays; or perhaps an unusually severe attack of red spider or scale. Such cases are easily understood and require no further discussion.

It has been claimed in certain quarters that much of the dropping of lemon and orange flowers is caused by the withertip fungus. The writer does not believe this to be the case. While the withertip fungus is common in all the orchards on trash under the trees and on senile leaves still clinging to the branches, and may even occasionally be found on young fruit predestined to fall from other causes, I have never yet seen a single healthy lemon or orange bud or fruit which was dropped by the withertip fungus. There is a common saprophytic fungus, a species of Cladosporium, which grows on the stigmas and styles of the blossoms after the petals fall. As these styles should fall off any way, the fungus is of no importance and the brown spots on the stigmas caused by it are no cause for alarm. Cladosporium grew abundantly on the stigmas of many of the blossoms under our paper bags with no injurious effect on the lemons whatever. It may be possible for withertip dropping to occur in certain situations along the coast which may be exposed to cold sea winds. Such instances, however, are quite rare and should be easily controlled with Bordeaux mixture. It is idle for lemon growers who are located away from the coast to worry about such an imaginary evil.

As a result of experiments carried out this spring it has been found that pollination of the blossoms of lemons is not necessary for the setting of fruit. In this the lemon differs radically from the deciduous fruits, the proper pollination of which is a very important matter. Lemons will set just as well with no pollen whatever as they will with pollen. Bees are undesirable in lemon orchards because they may cause the lemons to contain more seed by bringing about pollination and fertilization. The Eureka has practically no pollen. In the course of two or three hours search it is possible to find a flower with one or two anthers which may contain a few grains of pollen. For all practical purposes the Eureka lemon is as lacking in pollen as the Washington Navel orange. The Lisbon, on the other hand, bears an abundance of pollen. In this variety about 60 per cent. of the grains of pollen are shrunken and void, while perhaps 40 per cent. are round and plump, some of which will germinate readily under the microscope in a 10 per cent. solution of sugar in water. It is therefore evident that lemon bloom is not shed on account of a lack of pollination, for this is not at all necessary.

I wish to point out an error in another belief commonly held by lemon growers. The statement has been widely accepted that while oranges fruit on new growth of the season like the quince, lemons fruit on old wood like the peach. This is not strictly true for the lemon buds appear on very short but nevertheless new growth each year. If a bud on an old interior limb be carefully examined it will be found that the stem or peduncle is really a shortened branch bearing small foliar bracts which represent abortive leaves.

It is expected that a continuation of these studies will yield additional points of interest, such as the effect of pollen on seed production, and the possibility of producing and advertising a strictly seedless lemon.

The Necessity for City and County Foresters

An Address by J. H. Reed Before the Arboricultural Conference, Los Angeles, May 24-25

In a recent address by Horace McFarland, president of the American Civic Association, before the American Association of Park Superintendents, he quoted the following from former Mayor McClellan's writings:

"In a self governing community, the ultimate object of government is the happiness of the governed. Something more is needed to make the happy city than health and wealth and wisdom. The city healthy, the city wealthy, and the city wise, may excite satisfaction, complaisance and pride, but it is the city beautiful that compels and retains the love of her people."

The sum of human happiness depends in no small degree on our immediate surroundings, on the things most constantly in sight. At least this is true of people of more or less culture, in its broad sense, and to those without this culture from inheritance or training, those who do not seek to surround themselves with pleasing objects, if encouraged by others to do so, these pleasing objects become a means of training and education to better tastes and more enjoyment. Hence we find the tendency to provide our homes with things of good taste and beauty is constantly increasing. Not only our parlors where we occasionally entertain our friends, but our living rooms that are occupied constantly must be pleasingly fitted up with things that add to everyday enjoyment. We are constantly demanding more and more pleasing architecture for our homes, whether they be the mansions of the rich or inexpensive cottages of the laborer. If the yard is embellished by lawn and flowers, the everyday enjoyment of the house is greatly increased.

You get my thought. The sum of the day by day enjoyment of our lives is materially increased, if our immediate surroundings are pleasing. This fact is utilized outside of our residences. The offices of our professional and business men, where they spend their working hours, are tastefully, if not elegantly furnished. The merchant goes to large expense to make his business place attractive, not only to please his customers, but because there is more satisfaction, more enjoyment in doing business with pleasing surroundings. The principle is being recognized by manufacturers who care for the best well being of their operatives. Not only the interior of those working places are often made attractive, but the surroundings of the buildings are beautified.

I was much interested in a letter to his father by one of our Riverside large orange growers, recently written from Hartford, Conn. The family has several extensive packing houses where many men and women work much of the year. He says "I find one thing here which I think we might adopt about our packing houses to advantage. Many of the factories are set in large grounds, which have been beautifully parked and are well cared for." Those of you who are familiar with that beautiful city will recall this feature with pleasure.

Till recently the grounds around our public school buildings, as a rule, were bare and unattractive places. Now they are being beautified, adding immeasurably to the daily enjoyment and culture of millions of children.

On this coast our railroads are accustomed to put a little dab of green and a few date palms near their homely stations. In the East, on many roads, they do better. On some of the important lines the rights of way, for long distance, are being parked, as they are in England, adding immensely to the enjoyment and culture of the thousands of trainmen, as well as to the pleasure of the millions of passengers.

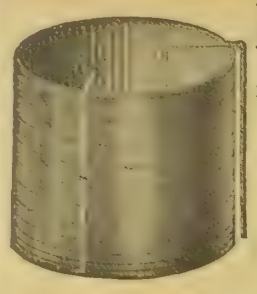
After our homes and places of business, the streets of our home cities are the most immediate, intimate places to make or mar our daily pleasure. It is just beginning to dawn upon us that we have been neglecting a most important means of adding to the everyday enjoyment of the people of our cities.

In the aggregate, an immense amount of time is spent on our streets every day. We must admit that for the most part, they are dull, uninviting, often repulsive lanes, even through important residence sections, often most woefully bare of the artistic feature that has so much to do with our daily happiness.

Why has the beautification of our streets been so long and grievously neglected? It is not entirely from the lack of appreciation of beautified streets. In most of our cities there are streets made attractive by trees and lawns. These are popular places where people go to walk or drive. But they are the exceptions, the majority being merely passage ways for travel and traffic.

There have been various efforts made to induce street tree planting more generally. I remember very well when village improvement societies began to be organized fifty or more years ago, and many a New England town bears distinct results from those efforts to this day. But for the most part, the movement was temporary. It depended on the enthusiasm and organized ability of a few individual leaders. When their day had passed, as a rule there was no one to take the work up and carry it on.

In more recent years, organized efforts of various sorts for street tree planting have been undertaken in many places. A few cities have been permanently benefited, but, because voluntary organized effort is difficult



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to keep up in carrying on any kind of public improvement, such efforts are comparatively short lived.

Municipal Control.

The modern plan of municipal control has now come to solve the problem of street beautification. In spite of its having been left for so long to the individual taste and judgment that adjoining property owners have felt that they have a right to control their street frontages, this plan appeals so strongly to the judgment of those most interested in the beautification of our cities that it is being rapidly adopted all over the country. There are more cities now in the little state of New Jersey managing directly and fully their street beautification than there were in the entire country six years ago, and, as the absurdity in theory and inefficiency in practice of the old system is brought to the attention of the people, the more rapidly will the new plan be adopted.

Street tree planting fortunately is becoming popular, at least in speech and print. But most people have really little notion of what the thing means. Many think it means simply putting trees in the ground, while it should mean selecting the right tree for the proper place, planting it properly and then caring for it properly or continually.

Arbor days have been popular in some places. Sometimes whole communities turn out to plant trees on the streets on such occasions, but I have not known this to be tried in any place the second time. During the past winter a large department store in an eastern city made much ado about offering a million catalpa trees to school children to plant on the streets. A splendid advertisement for the store, but for reasons appearing in this discussion later on, a real misfortune to the beautification of the streets of the city. All this sort of generosity in providing trees and voluntary planting reads well in the papers and sounds well in speeches, but does not materialize in satisfactory street trees.

I am reminded of an incident that illustrates this matter of donating trees. When in Washington recently, my attention was called to a conspicuous row of trees near the water border of the Potomac Park that quite disfigured that portion of the beautiful park. It was explained to me that the trees were a personal present from the emperor of China, a very noted tree in that country, but its behavior in the, to it, strange location, was very disappointing, and the order had already been given to have them removed.

After a somewhat comprehensive study of this street tree planting matter for several years, I have come to the conclusion that before any general, permanent, fully satisfactory progress can be made in the street beautification of our cities, it must be taken over by the cities, and managed by them as fully as are now the roadways, the sidewalks, the lighting and other already admitted strictly municipal affairs.

Going in to the reasons for municipal control more definitely, it will be conceded that not one in one hundred of city residents is competent to choose the right tree for a given block or street, considering all the conditions that have to do with its fitness for the purpose when grown, its natural ability to stand the hard conditions of the street, and its native longevity. A street tree should be expected to serve for generations. With the right tree chosen, as few know how to plant it properly or give it the after care wisely. The proper pruning, cultivation, prevention of damage by disease and insect pests, all require trained expert work. It is as absurd to leave the important feature of the beautification of the streets of our cities to the management of those who chance to live or own property along their margins, as it woudl be to turn over to these people the making and maintenance of the adjoining sidewalk.

And yet this has been so long and generally the custom, that it is no easy matter to correct the mistake. Few of us who have taken pains to plant trees and care for them on our own frontages, but would wince at a public official taking them in hand. This probably is the most serious obstacle in the way of municipal control where considerable attention has been given to trees and other street adornment by individuals. When the street trees of Riverside were turned over to me six years ago, this was the most difficult problem I had to meet. In many sections of the city there were many well-planted, well-cared for isolated sections of streets. Naturally, those who had gone to the expense and labor of making these improvements objected to their being taken out of their hands. This I fully appreciated and at once gave special permission to such parties to continue the care of their frontages, except in cases where it had been radically objectionable to the general interests of the street. Within three years, I was requested in nine-tenths of such cases to take charge of their trees. And now I seldom have any trouble from this source. Almost unanimously our people, not only acquiesce in the city control of the trees, but think it the wisest plan.

On unplanted streets, at first, it took much patience and caused no little trouble to secure consent to plant suitable trees, property owners often having decided notions as to what they wanted or did not want planted, and sometimes insisting on varieties utterly unsuitable. While this consent was not necessary, it was better to secure it where possible than to proceed in an arbitrary manner, even if it occasioned some delay in planting.

The general interest in street tree planting and care is largely a matter of education. Many have been accustomed to live on and traverse streets bare of ornamentation for so long that they think little about the effect different varieties would have when planted. But it is wonderful how quickly a community becomes interested in street trees when the planting is once done and more wonderful how quickly it leads to the ornamentation of adjoining private grounds and to additional ornamentation of the parking spaces by lawns or flowers. We have hundreds of well-kept lawns on parking spaces, frequently continuing unbroken for entire blocks and hundreds of private yards covered with fine lawns where, when the tree planting commenced, there were but bare dirt surfaces on the yards and margins.

Now, if these premises are correct, it seems to me that there remains no further occasion for plea for the need of some one in every city, thoroughly acquainted with trees and their planting and care, some one adapted not only by training, but by temperament fitting him to deal with people, and with a genuine love for the work to take charge of its street ornamentation, just as the trained road man takes charge of road building and repairing.

A word as to the name of such official. The common designation "Forester" is an euphonious term, but seems to me misleading. I can not see that the duties have any connection with forestry. The man who undertakes the job will find it no sinecure, but a most exacting, constant, severe caretaking of an important feature of a city's property, and I think the homely old term "Tree Warden," "Tree Caretaker," most nearly expresses his duties. But where are the men of suitable fitness for this important work to be found? This at present is probably the most serious problem in the systematic beautification of our cities.

When in the East, looking into this matter of tree planting, I was repeatedly told that finding the man with the right training and general fitness was their greatest trouble. At that time an effort was being made to have established at Yale University a department especially for the training of young men for this work. If the present interest in city beautification in Southern California continues and extends to other parts of the state, as I feel sure it will, I believe it need not be long before we may have such a department established at our state university. In the meantime we must do the best we can. One thing is very certain, money alone will not bring the service needed. There must be enthusiasm and adaptation to the work.

Hence we must depend largely upon the public spirit of men who are willing to sacrifice something of their own

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1000 one and two year **Eureka Lemons.**

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(1200) One year Selected Buds

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A farmer at Colfax, Washington, has been seriously poisoned by handling of large quantities of grain poisoned with phosphorus.

time and effort with little or no remuneration, in getting the work properly started and carrying it on till especially trained men can be secured. We have a good example of what I mean in the case of the honored president of our Arboriculture Association. Mr. Pentelow's home is in Corona, a vigorous, pretty town in one of our best citrus fruit centers. In its early days many street trees were planted, but in late years no attention had been given them and few new trees planted. The old trees became in very bad shape, a disfigurement rather than an ornament to the streets. Through Mr. Pentelow's urgency, supported by active women's clubs, an effort was made to have the city assume the planting and care of street trees. The city council finally agreed to pass the desired ordinance, provided Mr. Pentelow would take charge of the work. This would necessitate a severe burden to be imposed on a man of his age, besides taking the time needed in his own affairs. But Mr. Pentelow's love for his city and appreciation of the need of something done for its beautification prevailed. He accepted, was appointed tree warden and given full control of the neglected trees. His intelligent work has already materially changed the appearance of the place and Corona will soon be one of the beautiful cities of Southern California. All this work has been and is being done without remuneration. But it is greatly appreciated and has secured a public sentiment that will assure it permanency. I believe that it is in this way that the work of systematic tree planting and care will need to be started in many of our smaller cities, if not in the larger ones. I can think of no better service that a man can render to his town than by organizing a work that will eventually make it generally, conspicuously beautiful for the present and for generations to come.

County Forester.

There are two very important things to be secured by a properly equipped county forester. Intelligent tree planting along our highways would not only relieve their monotony and add immensely to the pleasure of travel, but would have immediate and important influence on the beautification of the adjoining country home premises. It would arouse interest in farmers' families, and proper advice could be given as to how most effectively to beautify their frontages.

Again, in many of our counties, large areas of eucalypti are being planted with widely differing results, because of different management. It has been my conviction from the first that the forester fitted for his business would be of enough value to the county by judicious advice in this eucalyptus planting to pay for his salary many times over. The great fear is that the position will be sought for the salary by those not fitted for the service. But, however important this county work may be, and no one appreciates its importance more than I, it occurs to me that it may be wise to largely concentrate our efforts on securing proper tree planting in our towns as generally as possible and then we will be better prepared to urge it in the counties.

The United States Department of Agriculture has just issued a bulletin entitled "Irrigation in California," by F. W. Roeding. It is one of a series of reports dealing with irrigation in the arid states and territories, and was prepared for the purpose of answering inquiries regarding irrigation conditions in California and the opportunities and cost of settlement. The work on this report was done in cooperation with the State of California, and includes a general description of the climate, industries, water resources, lands, products, history of irrigation development, water laws, irrigation enterprises, and the cost of preparing land for irrigation.

The above report is known as Office of Experiment Stations' Bulletin No. 237, and may be had without charge as long as available upon application to the Secretary of Agriculture, Washington, D. C., or to United States Irrigation Investigations, Berkeley, Cal.

Roseville is making an effort to secure a viticultural experiment station.

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keeps a building cool because its white surface reflects the heat and because of the great insulating quality of the *Asbestos* of which it is principally composed. Asbestos, you know, is used as a covering on about all the pipes carrving steam, etc., in the world to prevent heat escaping.

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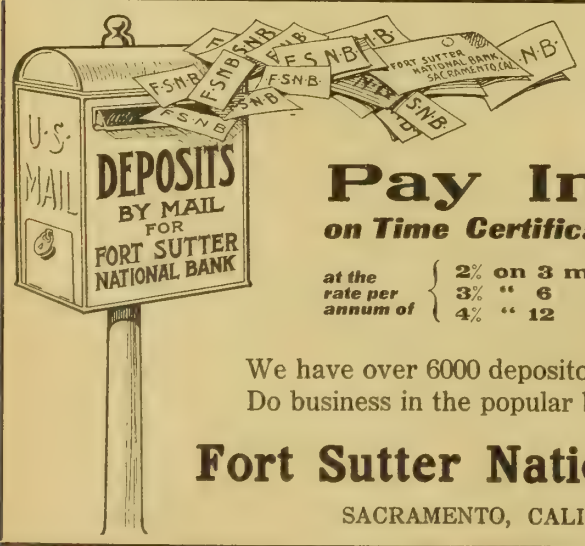

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Deciduous Fruit Culture

THE APPLE ORCHARD.

Of the great beauties of the farm,
The one that has the foremost charm,
The apple orchard leads them all,
From early spring to latest fall.
The budding trees of pink and white—
The whole world shows no fairer sight.
An apple tree's full bloom will stand,
Beyond all rivals, broad and grand.

The honey bees, rejoicing, find
Its blooming sweetness to their mind.
They come from far, they come from near—
The early harvest of the year.
At length the baby apples show
Amid the green leaves, growing slow;
A promise of a tempting treat,
Which rain and sunshine kindly greet.

Those red-striped apples, tempting, rare—
No golden orange quite so fair.
Though tropic trees have long been mine,
For apple orchards still I pine.
That orchard to my childhood known
No tropic fruits can half atone.
The early bloom, the red-cheeked fruit,
Are visions which my dreams salute.
—Colman's Rural World.

STANDARDIZING OF FRUIT.

The deciduous fruit growers of the foothill sections and the Sacramento Valley were so abundantly satisfied with the standardization—or as Mr. DeMotte expressed it, "The honestization of pack," that the movement will be even stronger than last year. One of the prime movers in the effort has been Geo. D. Kellogg of Newcastle, Placer County. Mr. Kellogg sends us the following agreement and standard requirements as adopted this year as follows:

Agreement.

We, the undersigned, fruit growers and shippers, of Placer County, hereby agree for the term of one year to pack and ship only fruit according to the standards established by the mass meeting of May 11th, 1911, at Newcastle as per the standardization found below.

We further agree for one year, to abide by the decisions of the following board of five supervisory inspectors: Geo. D. Kellogg, Antone Fereva, W. H. Tudsbury, H. E. Butler and H. H. Bowman, or their successors, who shall serve without pay and who shall supervise the inspection of all fruit coming within this agreement, and employ all paid independent inspectors, to pass on the quality of such fruits.

This committee of five to be empowered to arrange for boards of three arbitrators for each of the various shipping points in the county to whom shall be referred all disputes arising from the inspection of fruit.

We further agree to become members of the Placer County Growers and Shippers Association, which organization shall in the future elect the above board of inspectors and assume the responsibility of working out and correcting the details of this plan and executing its provisions.

We further agree to bear our proportionate share of the expense of the inspection of fruit under this plan and the cost of labels used to label fruit conforming thereto.

We further authorize the collection by the committee of five, or supervisory inspectors, and the payment by the fruit shipping house to which our several crops of fruit are delivered, of a sum not to exceed one-quarter cent per box, which sum shall be used by said committee of five, or supervisory inspectors, to defray the cost of inspection under this agreement, the cost of labels to designate fruit passing this inspection, and the necessary expenses incurred by the supervisory inspectors. Any surplus in this fund to become common property of the association.

Standard.

Cherries. All cherries must be in perfect condition, the right degree of ripeness and color, neatly packed, double faced, square method of facing instead of the diamond pack, with corners of boxes reinforced or well supported so that the box will be full and the surface unbroken, no stems showing on the top or bottom of the box. Cherries packed all through the box, in perfect condition, or what is sometimes called 4-tier may be designated as solid pack. Cartons, 4, 5 and 6-row admissible.

Grapes. Grapes of standard pack shall be fully matured, carefully picked, properly trimmed, wilted at least twenty-four hours before packing, neatly packed in regular baskets, four baskets to a crate, the crates to be 4¼ inches deep, with an 11-16th in. cleat under the cover; no stems in sight; weight to be not less than 26 pounds; depth of crate not to exceed 5 inches inside measurement.

Plums. Plums are to be packed in crates with four baskets, two or three tier to the basket with not more than five by five in each tier and every tier uniformly numbered excepting Royal Hative, Clyman, Tragedy, Red June, Botan and kindred varieties which may be packed five by six; with the exception also that Climax, Wickson and Kelsey must be packed not smaller than five by five for the top two tier and four by four on bottom of basket.

Apricots. The grading of apricots will be governed practically by the same rule as applied to plums.

Pears. Pears shall likewise be packed with neatness and uniformity. Four or five tier to the box, free from worms, bruise or defect; no pear to be less than 2¼ inches in diameter for five tier, and 2½ inches in diameter for four tier; to weigh not less than 50 pounds to the box. Half boxes may be packed with three tiers, no pears to be less than 2¼ inches in diameter; to weigh not less than 25 pounds. Covers of the box to be sprung. (Sugar and Seckle pears not to come under the above rule.)

Peaches. For peaches the grades are to run as follows: 60 and larger, 72 and larger, 84 and larger and 96 and larger to the box, for all except Triumphs, Imperials, Alexanders and St. Johns; for these 105 and larger to the box would be permissible. All must be of sufficient degree of ripeness, evinced by proper color, and package to present a neat and uinform apearance, the pack free from worms, bruise or defect. THE BOTTOM AND TOP LAYERS MUST CONSIST OF THE SAME NUMBER AND SIZE; sides of boxes to be sprung.

Triumph, Alexander, Hales Early, Early Crawford and Hull's Late free smaller than 96 to the box, if sound of good color and flavor and uniform in size, may be packed in three tier crates, four by four in each tier. Each box shall be designated as to its contents by stamping upon the box the number contained therein, thus: Peaches—60—72, 72—84, 84—96, 96—105, and three tier, as the case may be. Pears—four tier or five tier or ½ box. Cherries—9 rows, 10 rows, 11 rows, 12 rows, Solid Pack or Cartons, 4, 5 and 6 rows. In all packing of fruits standard boxes to be used only. These regulations apply to good fruits for interstate shipments only.

APPLE EXPORTS AND THEIR LESSON.

Referring to the season's shipment of apples and some facts worth remembering, a letter from W. N. White & Co., fruits and general produce, says:

"This week will about wind up the exports of apples to Europe, and the following figures of exports in barrels may be interesting and instructive:

	This Year.	Last.
Port of New York	326,219	398,944
Port of Boston	440,926	263,626
Port of Portland	72,807	248,020
Port of Montreal	169,940	587,287
Ports of Halifax and Annapolis	204,254	676,424
Port of St. John	5,055	45,356
Boxes of Far Western	1,070,500	463,362

"The early spring and late frost destroyed large portions of the crop east

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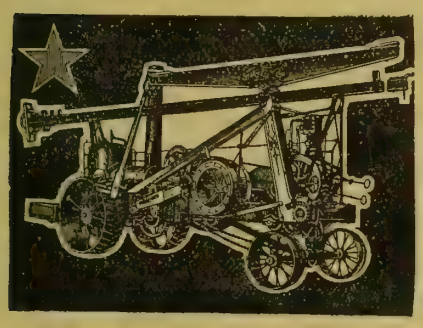

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San Joaquin Valley

3000 acres of irrigated alfalfa and fruit land in 20 acre tracts. On the Santa Fe Main line. Station on the land. In the heart of a proven district.

Merced Colony No. 2

Deep, rich, sandy loam soil; can be worked every day in the year. Abundant water from a long established irrigation system.

Write today for particulars.

Send this to us.

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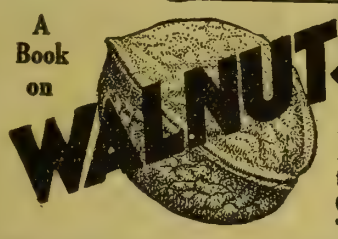

The only book ever written devoted exclusively to the walnut. Gives instructions for planting and propagating compiled from results of twenty years experience in walnut growing. The grafting process as depicted with photographs is applicable to all trees. Prepaid, $1.00.

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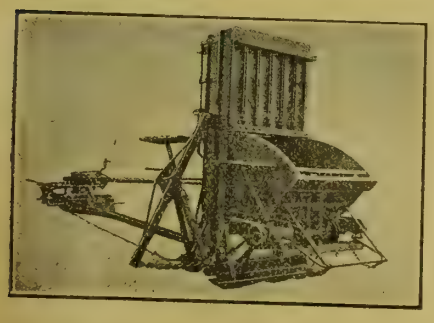

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San Leandro, California

of the Rockies and in many parts of Colorado. New York kept her supplies up to the average through drawing large lots from the Virginias, where they have gone into extensive planting during the past decade. It will be seen that Boston and Portland combined are about equal for the two seasons. From our own observation, Massachusetts and Connecticut, that were for many years a by-word among fruit suppliers from other states, will in the future have to be reckoned with. Growers there are taking more pains with their orchards, until today the quality is equal to some of the best in New York State.

"Attention is called to the falling off from Montreal, Halifax and St. John of over 800,000 barrels. Last year's warm March, followed with bad weather in May, accounts for this. Otherwise, Nova Scotia alone, with her increasing acreage, expected 1,000,000 barrels. This year things are reversed. They still have cold weather, and their season is fully four weeks later than last. It is said their trees are looking well, and, having had light crops last year, Canadian ports are expected to ship this year 2,000,000 barrels, or 700,000 more than two years ago.

"Further attention is called to the remarkable increase in far-western boxes, the largest in any previous season exported being 520,000 boxes. This industry started in 1885, and my firm sold the first car that ever was shipped to England. The total output this year has been reckoned at about 15,000,000 boxes. Each box when sent to New York pays the railway 50-cent freight. At the present time everything West looks well for good crops. Colorado, that only had 2,500 carloads last season, has already come out with the statement that they expect 10,000 this season. This would mean 8,000 carloads of apples (6,000,000 boxes). The immense tracts laid out in Idaho, Utah, Oregon and Washington during the past ten years, which are now coming into bearing, look like 28,000,000 to 30,000,000 boxes next season, and it remains to be seen if these quantities will be able to stand the present railway charge.

"All barrels of apples have sold at good prices, but boxes have sold at lower prices than they have in their history, particularly those grown under irrigation. Some of these have arrived in Europe in bad condition, proving that fruit grown under irrigation has poor carrying quality—too much water in the fruit; and as the American government is expending some $25,000,000 on irrigation, this season's lessons may be of some value. We are continually being asked about fruit growing in the West by parties who have read glowing descriptions of the real estate dealers. We trust they will be able to draw their own conclusions from this report.—Journal of Commerce.

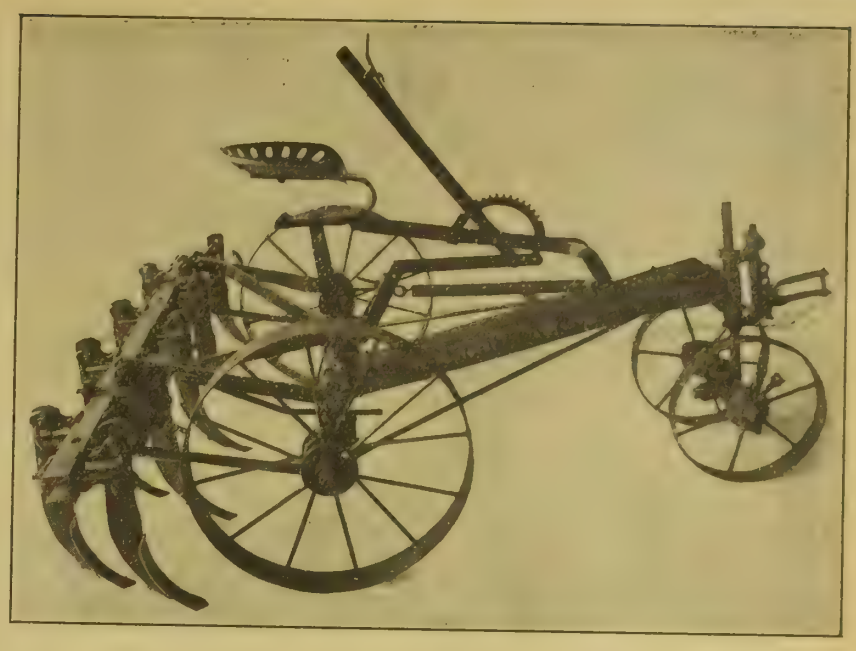
IRRIGATION AT POMONA.

The United States Department of Agriculture, in co-operation with the State of California, has just issued a bulletin on "The Use of Underground Water for Irrigation at Pomona, Cal." The work was prepared by Mr. C. E. Tait, irrigation engineer in charge of the work of irrigation investigations in Southern California.

The Pomona Valley is typical of localities in the citrus belt in the southern part of the state, where water has a high agricultural value and can be secured only at high cost. Much of the water is pumped, and there is no other section where it is used more economically or where greater effort is made to improve methods of development, distribution and application. This report describes the problems confronting the irrigators, the methods employed, and the progress made in the economical use of the water resources. It is believed that it will be of value as suggesting further progress in both Southern California and in other regions.

The report is known as Office of Experiment Stations' Bulletin No. 236, and may be had without charge as long as available upon application to the Secretary of Agriculture at Washington, or to United States Irrigation Investigations, Berkeley, Cal.

Ukiah will soon build a mammoth winery.



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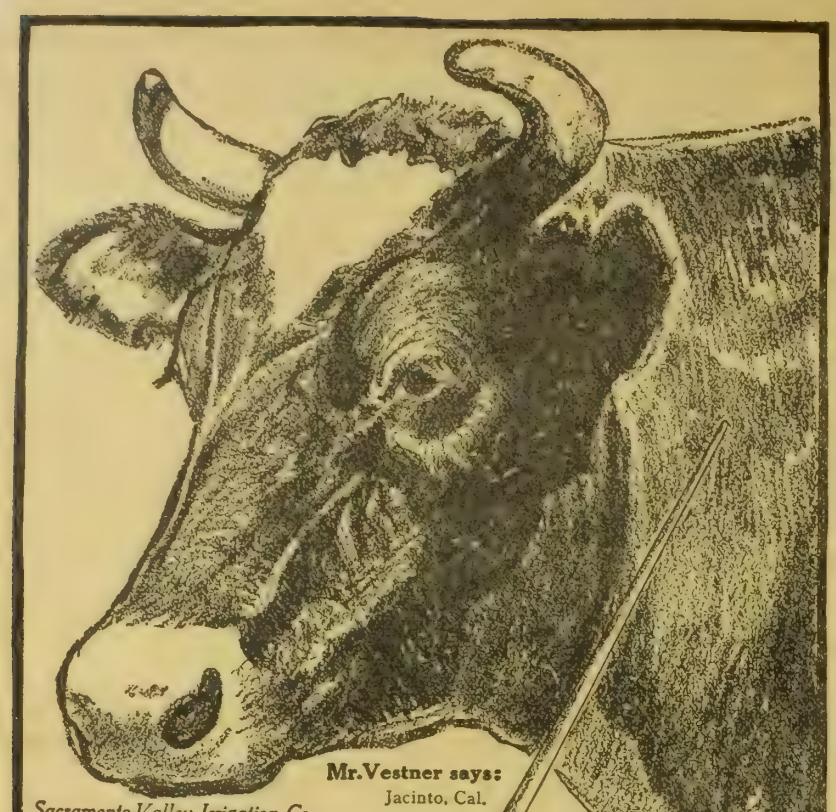

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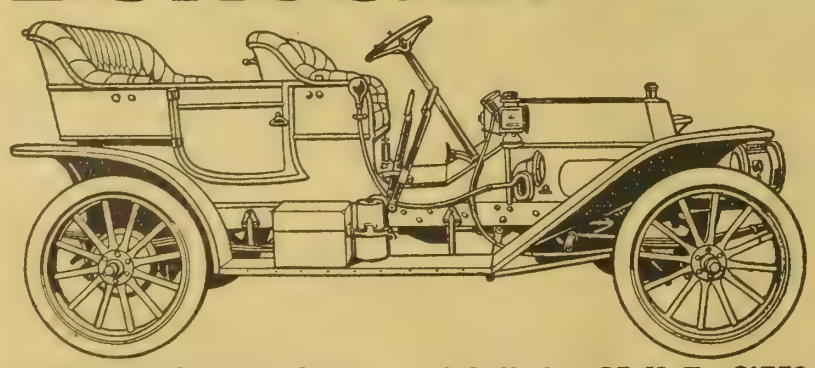

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CARE WITH MILK AND CREAM.

It is to the everlasting interest of the dairyman to see that his creamery produces only the best product. Whether the creamery is co-operative or buys outright of the producer is of but small moment. Ultimately the loss or gain comes at least in a measure back on the producer.

One thing is absolute, if the producer of the cream is slovenly or careless the creamery can never produce a first-class article.

Mr. J. P. Murphy, manager of the Dairymen's Co-operative Creamery at Tulare, in his desire to have the fullest co-operation of his members writes them as follows:

"A large number of our patrons are skimming their cream too thin. No cream should be sent to the creamery in the summer time especially, that does not test at least thirty-five per cent., and should be forty per cent. in warm weather. Some of our patrons are skimming their cream at a test of forty per cent. and taking care that it arrives at the creamery in first-class condition. These dairymen are a credit to the dairy industry and deserving of better prices for their product. If the proper results cannot be obtained from all the patrons in the near future the creamery management will be compelled to pay a lower price on thin cream and cream that has not been well cooled and cared for.

"You need the skim milk for feeding purposes and it is a loss to you to send it to the creamery. Twenty-five or thirty per cent cream does not make an exhaustive churning, that is, more of the fat goes off in the buttermilk—here you lose again. Thin cream contains a much larger percentage of bacteria than rich cream as the bacteria is in the milk and not in the fat.

"Butter made from thin cream is of inferior quality and brings less price than from cream handled in the proper manner. All cream should be cooled as soon as possible after separation and the proper results may be obtained by adopting the following rules: See that your separator is in good condition. Keep the speed up so that it will skim clean. Keep the flow of milk the same from start to finish. Set the cream screw so that you will skim between 35 and 40. The surroundings and general conditions of the dairy must be sanitary. The tinware and separator must be washed thoroughly and well aired each time after using.

"On going to milk in the evening cold water should be pumped—enough to fill one can—this cools the can and when the first pail of milk is ready to be strained pour the water into another can and strain the milk into the cool one. The cans should be placed in the shade and wet sacks put around them, if possible. When ready to separate the milk, pump more cold water into the can which is to receive the cream. By the separator have a half barrel or tub with a rack to hold the cream cans straight. Partially fill this tub with cold water and as the cream fills the can it will settle down into the water; then have a small pulley at the top of a pole or on a tree; put a stout cord through this pulley with two hooks on the end of the rope—these hooks fasten in the handles of the cream can. Put two well-soaked sacks around the can and haul it up to the pulley—thus raising it away from the heat of the earth to an elevation where the air is circulating freely, causing a rapid evaporation. The water evaporating carries away the units of heat from the cream, leaving it in good condition. In the morning the can of cream should be lowered and placed in a sack cooler, which everybody should have. When the morning's cream is separated then a wet sack should be put around each can and taken at once to the creamery.

"Now as a dairyman who is in the business for the money can you afford to go on losing day after day? Will you see to it at once that your cream comes to the creamery testing above 35 per cent of fat, well cooled and clean, or will you compel the directors of your creamery to set a lower price on your cream because it is not worth as much as that of your neighbor?"

A COMMON AILMENT OF FOALS.

The first fortnight or three weeks is a critical period in the life of a foal. At this tender age, when least capable of offering resistance, it is especially liable to be overtaken with accident and disease. As regards disease, derangements of the digestive system are, perhaps, the more common ailments, but the mortality from respiratory disorders, the result of cold, and blood poisoning as the consequence of exposure to filth, are very much in evidence, even in some of the best and most fashionable studs. Experience shows that the prevalence of these affections can be largely curtailed by care and foresight. This is seen in the difficult results which attend the management of different studs in respect to their sickness and mortality.

Constipation is of common occurrence at the time of birth, although no solid food has been taken during the foetal life of the foal. The intestines always contain a certain quantity of what is known as meconium. This is a yellowish-brown or greenish-brown substance, which is the solid residue of the secretions formed in the bowels and the liver in the course of gestation, and which is normally discharged by the foal soon after birth.

It is a practice with some breeders to anticipate constipation by administering to all foals a dose of castor oil soon after birth, but the disagreeable consequences which have resulted in the writer's experience from this custom does not warrant its adoption; for in those cases where the bowels are relaxed at birth a dose of oil may be the means of provoking fatal diarrhoea.

Early foals whose dams have lived in confinement on hard food are more liable to this affection than are those of mares who have had a succulent diet. Under ordinary circumstances, foals will empty themselves in the course of two or three hours after birth. Should they not do so, an enema of milk and warm water in which a little soap and glycerine has been dissolved should be given and repeated in a short time, if necessary. If there is no response and the foal shows restlessness by straining, whisking the tail or looking backward toward her flank, a dose of castor oil should be given. If after this, the bowels do not act, there is need for professional assistance. — Coleman's Rural.

SCIENTIFIC STOCK-FEEDING.

Under the direction of Prof. T. L. Haecker, the Division of Animal Husbandry at the Minnesota University Farm is carrying on a series of experiments which are expected one day to furnish to the stockraisers of the Northwest an invaluable guide for the feeding of beef cattle, so as to secure the largest, most steadily-progressive gain in weight from the amount of feed given, and at the smallest proportionate outlay. A system of minute observation and recording has been adopted, similar to that which, carried on for fifteen years, enabled Prof. Haecker at last to formulate a table of rations for dairy cows, the systematic use of which is today enabling dairymen to secure far larger returns, in milk and butter-fat, from cows of whatever breed, than was before deemed practicable.

Commencing in 1907, a certain number of calves have been bought each year, and fed "from birth to block," in such a manner that the effects of different combinations of feeds are made apparent. Every mouthful of feed is carefully weighed, and the proportion of each ingredient in the day's ration noted. This work is to be carried on until the observers shall know

exactly what and how much food it requires to produce a certain gain in the period from birth to any given time in the steer's life. The element of chance will thus be practically eliminated from the stock-raising industry, so far as the production of beef is concerned; to eliminate it from the marketing is another question!

One thing is already demonstrated: that the cattleman who fattens his animals "from birth to block" has a much better chance of satisfactory returns than he who sells half-grown feeders for some one else to "finish" for marketing. The latter turns over to the stockyard men, to feeders and the railroads a very large share of the profits which might have been his.

EDUCATIONAL BUTTER SCORING CONTEST.

By Leon M. Davis.

Report of Third Entry, third year, scored May 30, 1911, at the University Farm, Davis, California. Highest score 94, obtained by Suisun Creamery, Suisun, California.

In response to the call for third entry of the 1911 California Butter Scoring Contest, twenty-eight creameries responded, which is the largest number of entries sent to a single scoring since the contest began in 1909. Such a general renewal of interest in the work is encouraging, and it is to be hoped that all the participating butter makers will continue to lend their support to the remaining three scorings of this year. Mr. W. B. Thurston, dairyman in the U. S. Division, directed the scoring, being aided by members of the Dairy Department.

The scores placed were as follows:

Creamery—Location	Score
Suisun Creamery, Suisun	94
Salinas Creamery, Salinas	93½
Univ. Farm Creamery, Davis	93½
Laton Co-op. Creamery, Laton	93½
Grizzly Bluff Cry, Grizzly Bluff	93½
Castroville Creamery, Castroville	93
Glenn Co. C. S. & Cr. Co., Willows	93
Cal. Poly. Sch. Cry, S. L. Obispo	93
Cottonwood Cry., Cottonwood	92½
Elk Grove Cry., Elk Grove	92½
Visalia Co-op. Cry., Visalia	92½
Santa Ysabel Cry., Paso Robles	92
Riverdale Co-op. Cry., Riverdale	92
Delta Creamery, Imperial	92
Elkhorn Creamery, Sta Barbara	92
Dairymen's Co-op. Cr., Tulare	91½
Eclipse Creamery, Beatrice	91½
Meridian Cry., Meridian	91
Lampenheim Cry., Hardwick	91
Pozzi Creamery, Marysville	90½
United Creameries, Arcata	90½
Elite Creamery, Nicasio	90½
Stanislaus Creamery, Modesto	90
Ceres Creamery, Ceres	90
Bridgeport Creamery, Manchester	90
Standish Creamery, Standish	90

The butter on the whole represented a better lot than was received at the April scoring. That the buttermakers had put forth their best efforts was noticeable under all points on the score card, even under package. Most of the boxes were very carefully made, and indicated that pains had been taken toward a neat, attractive cube. Paying attention to this detail usually follows careful attention to all those points which the buttermaker has under his control in the manufacture of good butter.

It was necessary to cut but two cubes for defective salt, these being very high or gritty. Many of the entries were slightly low in salt, especially when most markets will stand 2 per cent. The low salt content of these entries was possibly responsible for a flat flavor which was prevalent, the general criticism of the judges on flavor being a "light flavor," or lack of desirable delicate butter flavor." In contrast with the previous entry, very few pieces showed any marked evidences of feed flavor, and such would not be expected so much at this season. A few cuts were made under body, due largely to faulty temperatures. Most of the entries arrived at the University Farm in time to have the advantage of at least thirty-six hours hardening in the refrigerator room, and when scored were in excellent condition. Several cubes were shipped in iced boxes.

With an occasional exception, the buttermakers taking part in the contests are doing remarkably well in view of the raw product with which they have to work, and the lower scores must be charged to those of their patrons who will assume no responsibility in the production of good cream. The few creameries in the state which are grading have made a wise step, and, sooner or later, their example must be followed by all.

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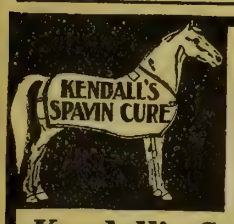

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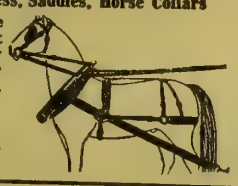

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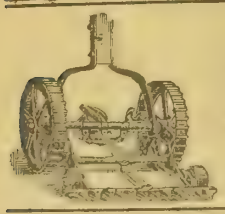

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CUTWORMS.

By S. Arthur Johnson, Colorado Agricultural College.

Cutworms do the most injury in the spring. Their ravages are most noticeable in gardens and wheat, although they often attack beets, and in fact, any green vegetation. They receive their name from the habit they have of cutting off plants just below the surface of the ground.

Cutworms are rather plump and sluggish and have the habit of curling up when touched or exposed to the light of day. The color is dull green, or greenish brown, with two broad, irregular stripes of somewhat lighter color extending down the back. They are night feeders altogether, and the farmer's crop slowly disappears while he sleeps. During the day they hide in the ground at a depth of about an inch, or under some protecting shelter, such as a board, clod of earth, or cow dropping. Here they may often be found, and if they are very numerous in the fields, search in these places will almost surely reveal their presence.

The worms, in early spring, are about half-grown. They hatched the previous fall from eggs which were laid on vegetation during September and October. While young they attracted little attention. They hid during the day; food was abundant, and they ate comparatively little during the early stages. During winter they lay buried in the earth.

When the warm spring days arrive, they come to the surface of the ground and eat ravenously. Just at this time the farmer plows under the abundant vegetation, which was their food supply, and plants in its stead a scanty crop. Injury to the young seedling crop is all the more disastrous because the destruction of each tender plant means a serious loss later in the season.

The damage continues till about the latter part of May, when the worms are full fed, and retire about two inches below the surface of the ground to transform in earthen cells to brown pupae. In about a month the moths appear, and when numerous, cause considerable annoyance by flying into the houses and darting about the lamps. These moths measure about two inches from wing tip to tip. The ground color of the upper wings is blackish brown, with lighter markings. The under wings are lighter in color with darker edges.

A second brood of worms occurs in late summer, but the damage done at that time is not often of serious proportions.

Under field conditions, prevention is the best of remedies. Where the ground is plowed in August or September, and kept free from growing vegetation, the rest of the season there will be no damage from cutworms except possibly on the margins of the fields. In the Canadian wheat fields arsenic bran mash has been used with success. This is the most effective when applied before the sprouting grain appears above the surface.

The formula is as follows:

Paris green	½ pound
Bran	50 pounds
Syrup	1 quart
Water	2 gallons

Mix the Paris green and bran till the color is even, then stir in the syrup and water, making a crumbly, but not sloppy mass. Scatter this mixture thinly over the fields during the afternoon and early evening. In wheat, from thirty to fifty pounds per acre may be used, but in more valuable crops it will pay to use two or three times this amount. White arsenic may be substituted for the Paris green with good effect, but this poison is very hard to see in the bran and it is difficult to obtain an even mixture.

Poisoned bait made by cutting green alfalfa or clover and dipping this in a pail of water, to which a spoonful of Paris green has been added, works well where small areas are to be protected. This bait is distributed in small handfuls every few feet during the latter part of the day. Often it is advantageous to spray very thoroughly a patch of growing weeds or grain, then cut the bait and distribute it. Potato patches have been successfully protected by spraying the vines with Bordeaux mixture to which Paris green has been added.

Under garden conditions other methods are often available. Surround each cabbage or other plant set with a collar two or three inches in diameter. These may be made of pasteboard or stiff paper and should be about two inches high and thrust into the ground to the depth of about an inch. Old tomato cans from which the tops and bottoms have been melted are excellent for this purpose and may be used year after year. Sometimes boards or cabbage leaves are laid out as traps. These are lifted each day and the hiding worms killed.

When cutworms infest seed beds they may be controlled by spraying the young plants with Paris green and water, at the rate of one-half pound of the poison to fifty gallons of water.

CABBAGE APHIS.

By J. E. Mundell, New Mexico College of Agriculture.

The cabbage aphis or louse is one of the worst pests the grower of this crop has to contend with. This aphis is a sucking insect and must be combated with a contact spray. It is of a bluish-gray color, of an oval shape, being a little larger than the head of a common pin. They make their appearance in early summer on the plant, and are usually found on the under surface of the leaves. Their presence on the plant may be easily detected by the edge of the infested leaf curling up.

The aphides live in colonies, and multiply very rapidly. Unless checked they soon spread over the entire plant and either kill it or cause it to head very poorly.

Remedies.

There are quite a number of remedies recommended for use against the aphis. The Horticultural Department of the New Mexico Experiment Station has used several of these remedies, and has found some of them to be both practical and effective. They are used as follows:

Kerosene Emulsion.

Dissolve ½ pound of laundry soap in 1 gallon of hot water. Then add, away from the fire, 2 gallons of kerosene. Churn this mixture until white and of the consistency of cream. After the oil and soap have been thoroughly emulsified, add 25 gallons of water, and apply as a spray or with a stiff paint brush or swab. It is important that the mixture be thoroughly emulsified. On indication of injury to plant, dilute the emulsion with more water.

Whale-Oil Soap.

Dissolve 2½ ounces in 1 gallon of hot water, and apply while still warm, as a spray or with a stiff paint brush or swab.

Tobacco water is used frequently as a remedy for plant lice. Boil for half hour 1 pound of tobacco dust or stems in 1 gallon of water, and use as a spray or wash without diluting.

Tobacco dust is also quite effective for combating cabbage lice. This dust is applied with a bellows blower, or may be shaken on the plant with a pepper box. The blower gives the better results of the two, as it puts the material on with more force.

Hot water or strong soap suds heated to a temperature of 130 to 140 degrees Fahrenheit may be used effectively against these insects. The hot water or suds applied as a spray or with a brush at the above temperature will not hurt the plant, but will kill the lice.

In using any of these remedies, promptness and thoroughness in applying will count a great deal. On the first appearance of the insect the remedies should be used, and applied a second time, if necessary.

In regard to the cost of the materials for the different remedies, it will depend on the quantity purchased at one time. The tobacco dust costs 3½ to 10 cents per pound; whale oil soap 8 to 15 cents. These insecticides are carried in stock by most of the seed houses.

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Bees and Their Care

DEPUTY BEE INSPECTORS.

By Chas. C. Shubert.

I believe that a thorough system of inspection of the apiaries and subsequent control and final eradication of foul brood from the bees, the safeguarding against spread of black brood, which has made its appearance in some districts of the state, concerns the beekeepers about as much as any one subject in apiculture. Localities which are free from these diseases should be protected. And in places where foul brood is almost general in the apiaries, the most efficient system of inspection with rather radical methods of treatment carefully carried out, are required to get and keep control of the disease. Once this is accomplished eradication may be hoped for in the course of several years.

A system of inspection and treatment should be carried on in such a way as not to interfere with the beekeeper's crop of honey for the season any more than is necessary. Now the question arises how to best accomplish these results. The past I believe, has demonstrated that the present system is unsatisfactory. I am of the opinion that from a practical standpoint no efficient inspection and eradication of foul brood can be accomplished under tne present law.

So let us take the liberty of assuming that there is a chief inspector of apiaries either county or state, with an efficient corps of deputies, whose duty it shall be to cause inspection of all apiaries, and bees under his jurisdiction, especially in those localities where bee diseases are known to exist.

It seems to me that the most practical way to gain control and eventually eradicate the disease is a judicious system of inspection through field worker deputies. This work should be done early in the spring when there is not much brood and few bees in the hive and the supers are light. The greatest amount of work can then be done with the least expenditure of money and time. Also the disease can more readily be detected.

For instance, take Los Angeles county. While our county inspector is engaged in traveling from one end of the county to the other inspecting an apiary here and an apiary there, the deputies could be doing good work inspecting not only an occasional colony, but every colony and every brood comb in every colony. This is absolutely necessary in a locality affected with the disease.

The deputies being on the ground would constantly have a general supervision over their territory.

I have in mind a locality of nine apiaries of say 1600 colonies of bees. Perhaps each apiary has more or less foul brood and several of them are badly diseased. The county inspector comes along about once a year, makes a hurried inspection of two or three easily accessible apiaries, finds foul brood, instructs the beekeeper to clean up and away he goes, perhaps to the other end of the county. In order to do thorough work here every brood comb in every colony should be inspected in these nine apiaries.

If the bees are in modern hives, a deputy with the assistance of, the owner of the bees should do the work of going through the 1600 colonies in ten to twenty days.

The expenditure in railroad fares, hotel bills and livery bills that are necessarily incurred by the inspector from a distance, to say nothing of the time consumed in hunting up bee ranches, is money and time used that could be directly applied to the actual inspection of bees by deputies.

On more than one account it seems well worth while that a woman should not only be able to help in some particular department of bee keeping, but that she should have a good general knowledge of the whole business.—American Bee Journal.

TREATMENT OF FOUL BROOD.

While I do not desire to invite unprofitable discussion concerning foul brood, it does seem to me that there should be a systematic method agreed and acted upon in unison by all bee keepers who suspect that they have this very destructive ailment among their bees. I have special reference to the matter of diagnosis, for until the bee keeper is absolutely certain as to which form of disease his bees are infected with, he is quite liable to treat for black or European foul brood as the American form must be treated, or he may treat the American foul brood according to the Alexander method of treating the black or European form, which method never did, and never will, rid an apiary of American foul brood. In making this sweeping declaration I speak from experience.

I had in my apiary what I confidently felt was American foul brood, judging from the offensive odor from the hive, and the ropy character of the dead larvae. Other bees in this county were infected with the same ailment, and when I called upon our county inspector to look after and stamp it out, one bee keeepr stated that it was not foul brood, and threatened to prosecute me for circulating such a report, assigning as a reason that I was doing him a very great injury by so reporting. I at once sent a sample to Dr. E. F. Phillips, at Washington, D. C., who very promptly notified me that I had a typical case of American foul brood, which report put to rest the character of the malady.

It being understood that nothing short of a removal of both the combs and honey from the hive, and putting the bees upon new comb foundation in clean frames, would eventually stamp out the disease, this method was adopted, and in a short time we got rid of the pest. It is proper that I should state further that in most cases the bees were put on narrow strips of comb foundation for two days, and then on to full sheets of foundation.

In the treatment of European or black foul brood the destruction of neither comb nor honey, it seems from reports, is necessary. Simply remove the queen and leave the colony queenless twenty-three or twenty-four days, then give them a virgin queen; and some say at the same time make the colony strong in numbers. The cure is regarded as complete. Thus it will be seen that there is no removal or destruction of either combs or honey.

But an amateur, or any bee keeper not familiar with either form of foul brood, is quite likely to mistake the American for the European, or the European for the American form, and in case of success in stamping out the disease, call it American foul brood when it is the European form, and thus unintentionally mislead many bee keepers. When a sample of the diseased brood is sent to Dr. Phillips for microscopic inspection, it would put the bee keeper on the right road to success and avoid the publication of misleading reports. To do this is no hard task. Dr. Phillips will gladly send boxes and mailing cards upon application, and, moreover, it will cost no postage to send samples.

In one instance I put an infected colony on comb foundation, and after some twenty-one days found the bees in excellent condition, and, feeling anxious to help them, I gave them a comb from the infected hive I had taken away from them, it being, from all external appearances, free from anything of an infectious nature; it contained a few cells of sealed honey and no unsealed honey that I could discover; but the experiment was a costly one, it being only about two weeks after giving them the comb referred to until foul brood showed up again, and it came from no other source. So do not give such combs to bees.—American Bee Journal.

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A Journal of Horticulture and Agriculture.

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:
THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,269 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres. and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, June 8, 1911

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We have a circular letter from the Riverside Public Library with list of recent additions to its shelves. Among these are several books pertaining to gardening and agriculture, and many documents, especially those from the Department of Agriculture, which are classified and listed. Many of these are such as would not be listed in the farmer's or fruit grower's library and should be appreciated by agricultural readers of that rich section. We believe this is a wise move on the part of the library management and a valuable hint to libraries in other sections.

CALIFORNIA AGRICULTURALLY.

From California's Agricultural Statistics, issued by the Bureau of the Census, we note as to rates of increase and decrease:

"It is pointed out in the statement today that the principal rates of increase in California in 1910, as against 1900, in the items for which percentages are given in the first section of the summary, are: In the expenditure for fertilizers, 128 per cent; in the average value per acre of farm land alone, 116 per cent; in the average value per acre of farm land and buildings, 112 per cent; in the value of farm land alone, 109 per cent; in the total value of farm land and buildings, 105 per cent; in expenditures for labor, 92 per cent; in the total value of farm buildings alone, 71 per cent; in the total value of all farm implements and machinery, 71 per cent; and in the whole number of farms, 21 per cent.

"The only decreases during the decade, among the items for which percentages are given, occurred in the average acres per farm, 20 per cent; in the total improved farm acreage, 5 per cent; and in the total farm acreage, 3 per cent.

"The statement shows in detail that the number of farms reported in 1910 was 87,670, as compared with 72,542 in 1900, an increase of 15,128, or 21 per cent."

One decrease is especially gratifying; the average acres per farm has been reduced 20 per cent. The decrease of 5 per cent in the total improved farm acreage, however, calls for explanation. This is due to discrepancy with the 1900 report, and is only apparent. Many acres of pasture were at that time reported as improved land but in the 1910 census were not so classified. This was largely in three counties, Merced, Orange and Sacramento. As a matter of fact, the improved acreage forms 41 per cent of the total acreage, as it did in 1900. The decrease of 3 per cent in total farm acreage is due to two causes, first to a similar error to the above mentioned, and next the land which has been incorporated within the forest reserves within the last ten years. In 1910 there were within the forest reserves of the state only 9,000,000 acres, while now there are over 28,000,000 acres, and included in this are some of the lands reported in the 1900 census as farm lands.

The total farm acreage of the state is now 28,883,000 acres; improved land, 11,380,000 acres. The average acres per farm is 318; in 1900 it was 397. The total value of farm lands, including buildings, is $1,448,560,000. Average value per acre, including buildings, is $51.95. Expenditure for farm labor was $49,735,000, as against $25,845,000 in 1900. The greatest advance seems to be in expenditure for fertilizers, 128 per cent increase in the ten years, the amount in dollars being $2,132,000, while in 1900 it was only $937,000. Of the total of 87,670 farms, 84,692 are owned by white farmers, and 2,978 are owned by negroes and non-whites.

"SLICK UP."

With nearly every municipality in the state discussing how it can make itself more attractive to the thousands of visitors who will tour the state during the two great expositions to be held in 1915, it is well for rural communities to swing into line with the same point in view. In some parts of the state there has been such a plan of roadside planting developed that Eastern visitors have involuntarily remarked on seeing them that "your country districts miles from town often show more taste than many streets in Eastern cities." Unfortunately, these conditions do not obtain the state over, and there are places where an awakening is needed. From a purely selfish standpoint it is wise to discuss the pros and cons of bringing every section up to its greatest possibilities of beauty. Some of the narrow minded acreage owners claim that beautified roadsides add nothing to the productivity of the farm. In this we do not agree, for while there have been cases of planting of pepper or eucalyptus trees along roadsides which have caused loss of moisture so that there has been a reduction in the productive power of the orchard or ranch, as a rule the "slicking up" of property frontage gives a feeling of pride which inspires better cultural methods within its boundaries, and better culture brings better financial returns. Another objection sometimes raised is that the assessor, noting the improved conditions, adds to the real estate valuation, and so the taxes are increased. We doubt it, but if it be true, we are going to set up the counter claim that improved conditions and higher valuation bring to the neighborhood a higher grade of people, create better social conditions, and the farmers' young people find greater social advantages and contentment. So, considering the advantages and disadvantages, let us, for the time being at least, prepare to welcome the Easterner and show him the garden spot of the earth. California offers every inducement; let California men and women accept them. Speaking of the women, by the way, reminds us that some of the best civic improvement societies in this state are made up of women who realize the real value of beautiful surroundings.

One county has already officially taken the first step. This is Los Angeles, which has appointed a commission to have charge of roadsides and parkings of the county. It is expected this will lead to the selection of a forester or tree warden who shall have charge of roadside plantings of the entire county outside the municipalities. Los Angeles may usually be depended upon to keep step with any advance movement; let every other county in the state excel her if possible.

It is to be hoped that the Arboricultural Conference held in Los Angeles recently will inspire action on the part of people in various parts of the state. This conference was fathered by three different organizations, the Southern California Arboricultural Society, the State Planning Commission, and the Civic Federation. Dana Bartlett, of Los Angeles, presided, and the discussions and addresses were most valuable. One of the addresses given appears on the first page of this week's Cultivator and is by that veteran tree warden, J. H. Reed, of Riverside. Others will appear later.

PACIFIC COAST NURSERYMENS ASSOCIATION.

A letter from George C. Roeding, President of the Pacific Coast Nurserymens Association, calls attention to the importance of this meeting, which is to be held in San Jose, Wednesday, Thursday and Friday, June 21-23. The three days will be given over to discussing the needs of the nursery trade and methods of handling fruit conditions of the Pacific Coast. Several states join in this association, and remarkably able delegates will be in attendance. The state should unite in giving a royal welcome, and San Jose is reported to be in line for doing its share. Among pleasant features we note that the Chamber of Commerce of that city will take the delegates in hand on Thursday for a trip through Congress Springs, Los Gatos, Saratoga, Campbell and other fruit growing districts of the Santa Clara Valley. Friday afternoon Manager Eberly of the California Nursery Company will take the delegates in a special train for an inspection of that nursery. The Cultivator hopes to have an outline of the program in hand for the next issue.

The last decade has shown one peculiarity in the farms of Arizona; their number and value have materially incerased, but the farm area of the territory is less today than it was ten years ago, the decrease amounting to 700,000 acres. This decrease is more apparent than real, however, for the reason that so-called agricultural lands of the railroads have been transferred to the forest reserves. In valuation per acre Arizona's increase is 475 per cent, while the increase in value of farm lands, including buildings, is 436 per cent. The total expenditure for farm labor now averages 117 per cent higher than ten years ago, and increase in total expenditures for farm fertilizers is 100 per cent. The average acreage per farm has decreased during the decade 54 per cent. All told, there are in the territory 8,078 farms.

The Florida Grower says:

"One hundred dollars spent yearly in a national campaign of advertising for Florida citrus fruits would add certainly from 25 to 50 cents a box to the price received on the trees, and this campaign would cost only two cents a box to carry on."

We believe the Grower is right in its general statement as to the value of advertising, but we believe this suggested appropriation is decidedly low. One hundred dollars these days spread over the East would cover the country so exceedingly thin that we do not believe any very substantial results would be observable. Perhaps about three ciphers were left off the suggested appropriation.

It is with a great deal of pleasure that the Cultivator reports Mrs. M. E. Sherman recovering after a serious operation performed in one of San Francisco's hosiptals. Her recovery is so far advanced that we have received a short note in her own hand. We congratulate our readers that while it may be some time before she is able to contribute to the live stock department, she promises that as soon as possible she will be again with us.

With citrus fruit shipments more than 10,000 cars in excess of last year this same date, and all handled so as to bring an average of the best prices ever received, the citrus grower is appreciating more than ever the value of his co-operative system, which markets the greater part of this crop. California may well feel proud of its greatest co-operative marketing organization in the world.

The state engineer has issued his biennial report covering two years preceding November 30, 1910. Of course it gives many points regarding construction of state buildings, and in addition many facts regarding reclamation of lands along the Sacramento and San Joaquin Rivers, and also gives information on state highway construction.

We note that Superintendent Carnes of the State Insectary is carefully nursing a bug to eat more bugs. It is in the form of a parasite of the black scale. This beneficial insect was sent to the state insectary from Cape Town, South Africa; its name is Aphicus Lundsbury.

Agricultural News Notes of the Pacific Coast

Northern California

Some Sonoma County hop growers report offers of 22 cents.

Honey Lake Valley, Lassen County, is experimenting in sugar beet culture.

Corning Poultry Association is planning for its next show to be held in November.

A delegation of Santa Cruz County poultrymen visited Petaluma poultry yards last week.

One apricot grower at Hayward, Alameda County, reports the sale of his cots at $60.

With only 103,000 tons of holdover hay it is predicted that prices will be exceptionally strong.

Sites for two high dams and reservoirs have been filed on in Tuolumne County for power purposes.

A rancher in Alexander Valley, Sonoma County, has sold his crop of dried prunes at $130 per ton.

A half million dollar corporation will reclaim and irrigate 2000 acres of tule lands in Siskiyou County.

The cold weather prevailing through most of the spring has proved a serious setback to many hop yards.

The Empire Lumber Company, of Mendocino County, has sold 24,000 acres of timber land for $500,000.

Sacramento hopes to secure a branch of the state highway on top of the levees of the Sacramento River.

Alameda County is planning for a fine building to exhibit its products in at the Panama-Pacific Exposition.

Colonists are settling in the neighborhood of Arbuckle, Colusa County, for the purpose of growing almonds.

Happy Valley, in Shasta County, reports century trees in bloom, the first within the memory of the oldest inhabitant.

An irrigating pump with capacity of 185,000 gallons per hour has been installed at Maine Prairie near Dixon, Solano County.

Orland's Carnival at the formal dedication of the reclamation dam is promised to be a hummer with various games, contests and parades.

The Horst Company, of Wheatland, is preparing hop picking machines for the coming season; these machines have been tested for several years.

The Butte County board of supervisors is being petitioned to levy a tax to provide a suitable county building at the San Francisco World's Fair.

Redding, Shasta County, had a visitation of grasshoppers which were so numerous that they were gathered in great piles underneath the arc lights.

Several crates of apricots are going forward from Sacramento every day and car shipments will soon be in order. Prices are the best ever received.

Commissioner Hecke of Yolo County reports the flea beetle doing much damage to the large vineyards near Woodland; hundreds of four-year old vines have been killed.

The weather observer at Sacramento estimates almost a record height for the Sacramento River during the month of June because of the snowfall reports received from various mountain stations. There are still some sections showing fifteen feet of snow.

Central California

Madera reports extensive planting of figs.

Tulare shipped two cars of orange honey last week.

The first car of cherries out of San Jose this year was on Saturday, May 27th.

Kings County peach growers are finding it necessary to thin their Muirs.

Hanford peach growers are being offered $30 per green ton for good canners.

Lindsay, Tulare County, expects to have a rural delivery route from its postoffice.

Kings County celebrated its birthday at a "Kings Kounty Karnival" at Hanford last week.

Santa Clara Valley will ship about 100 cars of cherries this season as against 155 last year.

A large ranch near Tulare has been subdivided into smaller dairy farms, over 3000 acres being subdivided.

The board of trade of Turlock is urging the shipment of fruit and other products by barge instead of by rail.

A section of 8000 acres of land near Fresno has been purchased and an immense colonization scheme is proposed.

Orange pickers at Lindsay went on a strike last week demanding five cents per box instead of four, the former price.

Prunedale, Monterey County, reports all crops looking the best; beans show a largely increased acreage over former years.

Packing houses at Turlock have been enlarged and new machinery and appliances installed to handle the increased output.

Onion growers near Stockton have received notice from the shippers that they will not in the future handle onions offered in old bags.

Orange orchards in eastern Fresno County are carrying the biggest crop of fruit ever; the output of the county will be double that of last year.

Growers of red onions near Lodi, San Joaquin County, have been producing between 200 and 300 sacks per acre and selling at $2.00 per sack.

A writer in the Fresno Republican advises every fruit grower this year to hold for the top of the market, as this is what he terms the fat year.

A mass meeting was held at San Jose last week, the aim being to encourage the more extensive employment of white families in fruit harvesting.

The thrips destroying device invented by a Dinuba vineyardist is working overtime and it is estimated that the machine is catching 30,000,000 bugs an hour.

Patrons of the Spreckels Sugar Factory at Spreckels, Monterey County, will hold a picnic tomorrow. An address will be made by Prof. Shaw of the State University.

Deputy Commissioner Riley of Tulare County reports plant lice as exceptionally thick; they are affecting the young growth of orange, peach and plum trees, as well as melons and other garden truck.

Southern California

Manifee, Riverside County, reports honey crop almost a failure.

Grape shipments will begin in a short time from the Imperial Valley.

Santa Paula lemon packing houses are working full gangs of men overtime.

The Antelope Valley claims to be an ideal almond producing section of the state.

Coachella Valley in Riverside County is shipping quantities of tomatoes at $3.50 per crate.

Southern California estimates that its hay crop will be about 75 per cent of that of last year.

Ventura Chamber of Commerce has already begun to plan for its exhibit at the coming state fair.

The Redlands Golden Orange Association is experting its books and calling for an accounting from its former manager.

The brick work on the Holly Sugar Factory near Huntington Park is complete and the machinery practically all in place.

A mathematical orange grower has figured out that nearly 2,000,000,000 oranges have already been shipped from Southern California.

A Japanese colony at Mesquite Lake, Imperial County, has 200 acres in onions; they are shipped green in crates to the Los Angeles markets.

A conference of foresters and tree wardens was held in Los Angeles last week and methods of beautifying the roadsides of the state were discussed.

San Diego claims that the cost of her Carnival and pageantry at the breaking ground ceremonies for the Panama-California Exposition will be in excess of $50,000.

Hueneme fishermen report a great run of smelts; the only limit to the catch seems to be the number of hooks on the line; eight hook lines were repeatedly hauled in with eight smelts.

Cucamonga, San Bernardino County, orange growers have formed a Growers Fumigation and Supply Company which will purchase supplies and have charge of fumigating orchards of the members.

Monrovia, Los Angeles County, is making an exhibit of introduced tropical fruits which shows a wide range of cultural conditions. Much of the fruit was introduced from the Hawaiian Islands.

The general land office at Washington has announced its decision in the Palo Verde case in which 100,000 acres claimed as swamp lands near the Colorado River are declared to be open to homestead entry.

The government station at Bard near the Colorado River, Imperial County, has produced five bales of Egyptian cotton which were sold to the Clark Thread Company at 28 cents per pound. The yield was about one bale per acre.

Antelope Valley orchardists are greatly disappointed in the failure of Governor Johnson to sign the fence law passed by the last legislature, but it is now found that reasonable damages may be collected for injury by trespassing stock.

The Coast

Spokane, Washington, hopes for the early establishment of a union stock yard.

Centerville, Washington, has good crop of apricots already as large as walnuts.

The Farmers Union of Lincoln County, Washington, are against reciprocity with Canada.

Wool so far received at Caldwell, Idaho, has been warehoused awaiting more satisfactory prices.

Grain growers at Pullman, Washington, report the whole Palouse country will have a bumper crop of grain.

Railways of Washington and Oregon are planning for increased freight equipment to handle the season's output.

The Union Stock Yards at Portland, Oregon, reported a drop of 60 cents a hundred in price of prime steers last week.

Wheat growers at Odessa, Washington, have gangs of men going through the wheat fields and cutting out noxious weeds.

Grain fields along the Canadian Pacific were given a heavy rainstorm last week to the great improvement of crop prospects.

Cattle men at Boise, Idaho, are forming a cow testing association. The idea is to have a fine article of food for humans.

A form of gummosis has attacked cherry trees near Spokane, Washington, and experts are baffled to know about its control.

At a wool sale at Pilot Rock, Oregon, on May 26th, 20 clips were offered and sold at prices ranging from 12⅜ to 14⅝ cents.

At a recent sale of Indian lands near Vollmer, Idaho, some of the most valuable portions were sold at more than $100 per acre.

The Douglas County, Washington, Farmers Union has appealed to the state railway commission to investigate rates from Mansfield.

Wenatchee, Washington, estimates that the recent rain will assure the biggest wheat crop in the history of the central part of the state.

Boulder, Montana, reports the spring decidedly backward with scarcely a rain, but present conditions good for a crop of grain.

Experimental pig feeding at the Pullman, Washington, Experiment Station, has shown that "tankage" is a very valuable addition to the feeding ration.

Portland reports wool two to three cents lower than last year. Last week over a million pounds were disposed of at prices ranging from eight to fifteen cents.

Two wool clips from Boise, Idaho, aggregating a half million pounds have been sold to a Boston wool house, the total purchasing price running well up towards $75,000.

Fruit growers associations of Hood River, Wenatchee and Milton, Oregon, are protesting at the ruling of the railways that the minimum carload shall be 24,000 pounds. The fruit men's contention is that they will be driven from the smaller markets by the new ruling.

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We have 5000 per day of most all standard varieties of chicks. Right now we are making special prices on chicks in lots of 100 or more. Send today and state what kind of chicks you wish, and we will be glad to quote the price. We sell hatching eggs of all standard kinds, also cocks, cockerels, and laying hens and pullets.

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Makes hens lay; none better. Special prices: 90 lb. sack, $1.75; 75 lb. sack, $1.50; ton, $37.50

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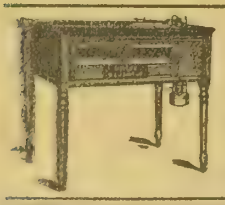

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Wanted—If the thousands of people in Los

Profit in the Poultry Yard

Practical poultry people who may have ideas from their experience as to methods of feeding and housing and general care of poultry will convey a favor upon the Cultivator and its circle of readers by sending in concise accounts. Mrs. Basley is always willing to answer queries which with the experience of others should make this a most valuable feature in poultry life on the Coast. Opinions or matters of a personal nature should be omitted, but a concise statement of facts is always valuable.

"THE SORROWS OF OTHERS."

By Mrs. A. Basley.

There are so many pleasant things in the chicken business that I reluctantly turn to the sad side, but just now there are some shadows from the troubles of others that we must try to break through, especially as it may help others besides my sorrowful correspondents.

S. C. F. writes: "I have a hen with twelve little Wyandottes that are getting sick. I killed two of them that were sick. They had phlegm in the throat and were sore in the corners of the mouth, and I fear that more are getting the same way. My other three broods are doing fine, but they were hatched in February and March. These twelve were two days late in hatching but thirteen hatched out of fourteen eggs."

This is a request from a successful and careful breeder, but I feel sure that the chickens have now lice and possibly mites. I think that the reason two hens were late in hatching was that they had mites and possibly lice also. It is very easy in this climate to let the mites get in. One man told me he saw three mites one day and did not think much of it, so he waited three days before fighting them, and he said in those three days there had been hatched out three million. When the setting hens have mites it so lowers their vitality that they either die on the nest or if they manage to live the low vitality is communicated to the eggs and the chicks in the eggs, and this makes them late in hatching, and usually gives the chicks a weakened constitution, which succumbs to the first baby illness or chill.

Now the first thing to do is to get rid of the lice with the little chicks and in this instance, as the writer of the letter is a busy man, I would say get some buhach or California insect powder and powder them thoroughly. Try it at night. Take them into the house. Put a newspaper on the table, rub the powder well into them and then see the lice fall out. Then put the hen and the chicks out in a clean coop on the lawn away from any of the other chickens and give the little chicks some Germozone in the drinking water. This should be renewed at least three times a day. Swab out their throats with Germozone, give them planty of onions chopped fine and mixed with bran or with hard boiled eggs and bread crumbs and give them all the lettuce they will eat. The onions will cure the cold and be a good tonic for the liver and kidneys.

I am afraid that it may be roup, and that the chicks having a weakened constitution from the slow hatch may have it so severely that they will not recover. Be sure to bury the dead very deeply or better stil burn them. You do not want to leave anything about that can possibly infect the others later on.

Mrs. W. T. K. writes: "My hens have a very strange ailment. They seem to lose the use of their legs. They are not apparently sick, combs are red and they eat well. The first one just sat down all the time. We thought it possibly might be worms so we gave her worm medicine, and when we finally killed her we cut her open and could not find a thing wrong with her. She was very fat. That was a white Orpington that I paid ten dollars for. Now we have a Buff Orpington that is beginning in the same way, she eats well and does not seem sick, but cannot use her feet. Can you suggest any solution of the problem and give any remedy? Do you suppose that lack of sharp grit would cause it?"

These hens as the post mortem showed are too fat. This is caused by two things, first not enough exercise and second wrong feeding. The dual purpose fowls such as the Orpingtons and Plymouth Rocks very easily get overfat at this season of the year if they have not plenty of green food (at least a third of the food should be green), and they should exercise for all the grain they get. The overfeeding of heat-giving foods in this climate to those breeds, the lack of exercise due to close houses and small yards and insufficient scratching material, all these cause a deposit of fat in various parts of the hen's body and eventually affect the liver, causing weakness in the legs and hypertrophy of the liver. I would advise you to give the whole flock a little epsom salts in the drinking water (a teaspoonful to each quart of water) for a week and the following week give the same amount of bicarbonate of soda, reduce the amount of fat-forming food and give more green food; also give onions chopped finely. To the Buff Orpington that is now ill give for a week every day ten grains of sulphate of magnesia and bicarbonate of soda.

You little know what injury you do to your flock by not making them exercise by scratching for all their grain in deep straw or hay. You not only make them too fat and prevent their laying, but also you weaken the constitution of the offspring. It is not a "strange ailment," but a too fattening diet that is killing them. We who have been in this climate for years learn to know that plenty of green food at this season, plenty of fresh water and plenty of exercise are necessary to keep the fowls vigorous.

Mr. W. G. brought for examination four little dead turkeys from two to six weeks old. There was not the slightest symptom of disease on the exterior, they were beautiful birds, plump, large for their age and well feathered. No signs of cold or roup. We opened all of them and my verdict was either ptomaine or fungoid poison. There were signs of congestion all the way through. Little bright red veins showed clearly the whole length of the bowels. The caecum was in good order, the liver rather small and dark from congestion, above the heart or almost round it was blood and the kidneys and lungs were also slightly congested. Death came from the congestion of the heart for evidently a blood vessel there had burst. We talked over the problem of how they could have been poisoned, finally deciding that it must have been either from the granulated milk, or the new bran, and Mr. G. went home determined to send some of both to have them analysed at the Agricultural Experiment Station at Berkeley.

The chief source of ptomaine poison is bad animal food. We cannot be too careful about this. In the summer time, or in fact at any time in this climate meat goes bad very quickly. A lady I knew gave her hens some green bone, it was sold her from a meat wagon and she thought that as the man said "it was good enough for chickens" even if it smelt a little "high," she would feed it. The next morning she lost about a dozen of her best hens. A man found a nice fat hen dead under the perch. He threw it up on the edge of the roof intending to bury it that evening, but forgot it. In a few days he found half a dozen of the hens in the pen dead and two very ill. He guessed in a minute it was the maggots from the dead hen and buried her. Maggots from a decaying dead animal, gopher, squirrel, rat, cat, dog or even bad meat, will kill both chickens and turkeys and even ducks. Another man lost over $3000 worth of chickens from bad beef scraps. I rather think those beef scraps were perfectly good when he bought them, but that the rats got in and moistened them and in a very few days ptomaine poison had generated and the good food was turned into a subtle poison.

Dr. Sanborn says: Extreme care must be employed in selecting the meat food or beef scrap as it is through infected beef scrap that many cases of bowel trouble arise. Good

beef scrap should not have a foul odor, neither should it be lumpy or full of vegetable fiber (adulteration with cotton-seed hulls). If the scrap is lumpy and the lumps show white in the interior on being broken apart the scrap should not be fed to either young or old; it is only fit for fertilizer.

A good way to test beef scrap is to examine it first for lumps. If none are found and the scrap smells reasonably sweet wet up a little of it with scalding water. If the odor remains sweet and meaty it is usually safe to feed the scrap. Good pure meat scrap may be fed freely with no danger of harmful results if the chickens have plenty of raw vegetable food.

A friend of mine poisoned ducks by giving them buttermilk that had spoiled, become putrid. Drinking vessels that have contained milk should be frequently scalded, and rinsed with sal soda.

THE BREEDING OF DUCKS.

Ducks are becoming very popular, and many new breeders will venture into the line of poultry keeping. Already many letters have reached us asking us how much and how often to feed ducklings. Well, I am convinced that five times a day is not too often to feed ducklings for the first ten days. Not a great amount, but just what they will eat up quickly. After our ducks are ten days old we feed but three times daily. Don't overlook the old ducks, but see that they get their food twice daily—morning and night. I am convinced many amateur breeders feed ducks too much. It's not so easily done as with chickens, but it is frequently done. Never, under any circumstances, do we feed more than they will clean up quickly. Ducks are surprisingly free from disease, but if overfed leg weakness is the result. We feed in troughs made for the purpose and as soon as our ducks walk away from the feed we remove what is left in the troughs and feed to hogs, or if it has not been soiled we retain and feed it for the next meal. Ducks are easily killed by feeding on sour foods. Hence the cleaner you are about your duck yards the better success you will have. The old ducks should never be neglected as soon as you produce a new output of ducklings. Very frequently the old ducks are neglected as soon as ducklings are out to attract attention. This is a serious mistake and should never be tolerated. We feed our old ducks with as much care and attention after the ducklings make their appearance as before and find they respond very readily to good treatment and feed the year round. It is very true you can get ducks, especially the breeders, too fat if fed largely on corn or cornmeal. Prepared fish foods offered on the markets are excellent for the breeding ducks, but unfit for the ducklings if intended for market purposes, as it will taint the flavor of the flesh. Wheat bran, cornmeal, whole wheat and beef scraps make the finest food for the breeding ducks. This ration is fine for the ducklings, also should you not care to offer your ducklings on the early markets for broiler purposes the commercial fish foods are fine for young ducks; it serves the purpose of natural food ducks receive along brooks and ponds. Strange as it may appear, yet it is true, milk is not good for young ducklings, for the reason it will get in their eyes, causing sore eyes and disfiguration. I much prefer milk to water for mixing the mash for ducks, but to give it the same as we would to any other fowl proves fatal.

About the only trouble you will have with ducklings will be leg weakness. As soon as you discover your ducklings are suffering from this trouble feed less cornmeal and more whole grain. I know some writers claim whole grain will kill ducks. I once thought the same thing, just because I heard someone say so, but it proves to be a false impression. However strong your impressions may be that whole grain will kill ducklings, dismiss such an idea from your mind and feed mixed grains freely, especially if leg weakness makes its appearance. If sand and sharp grit is given freely the ducklings will develop much quicker than they would otherwise. This must be provided freely to the ducks that are brooded indoors. It must be remembered that ducks soon render their quarters filthy and litter must be provided frequently, removing the old litter at least twice a week. If you are compelled to handle your ducklings, always handle them by the neck, as their legs are very tender and with but a slight flounce the duck will surely cripple itself, rendering it worthless for any purpose. Hence, to avoid any disaster of this kind, I prefer handling them by the neck. Ducks are not only tender, but very timid. If you approach them at night with a lantern you do them more harm in one minute than you can regain in one week's care and feeding. Strange as it may appear, nevertheless it is true, a lantern will cause a falling off in eggs faster than you can feed them up to save your life. Some duck fanciers would no more approach the ducks at night with a light than they would write you a check for several dollars. They consider the loss just the same as you would so many dollars. I don't know of anything that is as fatal to egg production in ducks as to frighten them a few times at night with a light. At any event, avoid a fright in your breeding yards, and likewise use the same precaution with your youngsters, but the most fatal results are with the laying ducks. Speak to your ducks when you approach them the same as you would to your horse and they will soon become attached to you.—American Poultry Journal.

A DOSE OF EPSOM SALTS.

A good dose for one fowl is a teaspoonful of the salts. For 140 hens, make a mash of ground grains and bran, and wet with water in which the salts has been dissolved. While one teaspoonful is a good dose for a sick hen, it would not be wise to give 140 spoonfuls in a mash for 140 hens, as some hens would get more than their share. A quarter to half a spoonful for each hen in mash would ordinarily be sufficient. Or the salts may be given in the drinking water.—Wallace's.

WEAK DIGESTION.

For mild attacks of indigestion caused by heavy feeding, when the quality of the food given is not wrong, there is nothing so good as fasting or withdrawing the greater part of the food from the fowls, excepting the green food for a day or two and then feed sparingly. In hens forced for eggs the digestive system is often overworked. It may affect only a few hens of the flock as a system of feeding or a quality of food that one hen or one pen stands all right may be all wrong for another of the same flock. A poultryman must judge of how and what to feed by watching the results in his own flock. To get good growth and heavy egg production, we must feed heavily on rich foods. And we are running the risk of breaking down the digestive system by overwork. Watch closely the signs of indigestion especially lack of appetite and looseness of the bowels. When such symptoms attack a few hens of the flock remove them to quarters by themselves for a few days and let them go without grain for a day or two, as the case may seem to require. A little attention paid to such individuals of the flock will keep up a strong, vigorous strain. A hen predisposed to looseness of the bowels will not be a good breeder. We want hens that have bright, red combs and wattles and are the picture of health to put in the breeding pens. The pale-combed individuals have no place in a good breeding pen. Weak digestion can be transmitted from one generation of fowls to another until the flock is all run down and it becomes necessary to start with new blood.—Wisconsin Agriculturist.

SULLIVAN'S
Buff Orpingtons
1000 birds to select from. Trios, $7.50 and up. Eggs for hatching, $2 and $3. Special selection; prices on application. Mr. & Mrs. W. S. Sullivan, 50 Market St., Agnew, Santa Clara Co., Cal.

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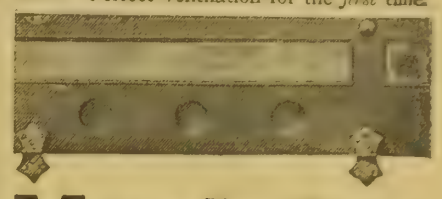
Here's his new Incubator door all are talking about. Perfect ventilation for the *first* time.



Mandy Lee Incubators
supply life-giving oxygen freely to the eggs and just as naturally draw off the poisonous gases. The most important step ever taken in incubator ventilation—neither above nor below, but *right at the eggs*—the correct principle, for the new Mandy Lee is making better hatches of *stronger* chicks than any other incubator in the world.

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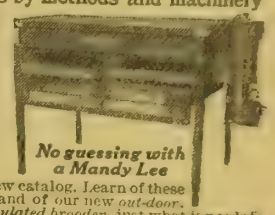
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Answer ?

A List of Prices Appears on Page 651 of Cultivator of May 25

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Geraniums Blasting.

What is the cause of geranium buds and flowers drying up as soon as they open? The bushes look thrifty, but as soon as buds open they die.—Subscriber, San Diego.

This is doubtless due to the variety of geranium. The inquirer does not say, but we presume it is the double geranium. For this reason the singles prove far more satisfactory. In selecting plants for taking the next slips from or in purchasing young plants, be sure and observe this habit; some of the doubles are not so badly affected as others, but even these may blast if care is not taken in watering with hose and allowing water to spray over the blossoms. When the sun shines on them afterwards they are almost certain to blight.

Bee Paralysis.

My experience in treating bee paralysis has been successful. We hunt out the queen and kill her, and wait about two days and then give them a queen cell from a good, healthy stand. Do not let the bees raise any queen from their own brood, and I will almost guarantee them to come out all right, as ours have that we have treated that way.—Mrs. B. L. D., Fillmore.

Angora Goats.

Can you give me any information in regard to the raising of Angora goats? In what part of this country are they raised with the most profit, etc.? How are the mountain lands of Southern California for goat raising? —Subscriber, Tropico.

There is no reason why Angora goats should not do well in Southern California if one has range which will provide abundance of feed. From San Jose north, however, we think their raising would be attended with greater profit because of the more abundant rainfall giving better pasturage. Probably the greatest Angora goat raising section is in the Northwest, particularly in Western Oregon and Washington.

Container for Egg Preservative.

Can I use galvanized iron tubs for preserving eggs in water glass? If not, what is the best vessel to use? Would like to hear from others as to what they have used.—C. A. Loud, Standard Poultry Yards.

We would not use any metal container. The liquid will remain in them for several months, and while the water glass may not have any particular affinity for galvanized iron, we would prefer either earthen jars or wooden tubs or tanks. These are both entirely satisfactory, but care must be taken to keep surface covered so that liquid will not evaporate.

Palm Seeds.

How shall I treat palm seeds to make them germinate? They have been in the ground three months and have not sprouted.—A. E. R., Laton.

We do not know whether this seed will stand boiling water or not, but some seed requires treatment with boiling water. They should be covered and allowed to stand over night, and be planted in the morning. We also know of palm seeds that have been planted and remained in the ground several months before sprouting, and ultimately made fine, thrifty growth.

Sulphuring Roses.

How may sulphur be applied to roses affected with mildew, dry or in the form of a spray?—Subscriber, San Diego.

Sulphur may be applied with a little hand bellows or simply scattered by hand over the leaves when they are moist with dew. If in the open sunlight where the sulphur is later vaporized, good work will be accomplished. In the shade the effect is not so good. In this case a form of liquid spray known as sulphide of potassium given in our issue of November 3rd, composed of potassium sulphide six ounces, water 100 gallons, is better to use and it does not color nor injure foliage.

Nitrate of Soda—Alkali.

I have noticed much discussion regarding nitrate of soda producing black alkali, and would like to ask if you consider 150 to 200 pounds of nitrate of soda applied in November in prune orchard, for benefit of cover crop as well as the trees, a good thing, or is the black alkali question sufficiently dangerous to warrant leaving the nitrate alone?—Subscriber, Campbell.

There is carried into the ground by the application of nitrate of soda some carbonate, which is the ordinary black alkali. In theory this would in time increase the percentage of alkali in some heavy soils so that there might be danger, but in practice we have never heard of any injury, and one case has been reported of the application of thirty-five pounds of nitrate of soda to a single tree, which resulted, so far as could be observed, only in benefit. However, we would under no circumstances apply in the fall as suggested by the inquirer, because the very purpose of green manuring, over and above the formation of humus, is the securing of nitrogen from the atmosphere. If the nitrogen is supplied in the expensive form of nitrate of soda, the bacterial action is not so active, and part of the profit of the green manuring crop is lost. As to benefiting prune trees by a November application, we do not think that would help in any way. The nitrogen in nitrate of soda is very elusive, and one season's heavy rains would carry it all away from the roots before they become active in the springtime. The application of nitrate of soda or any other quick acting form of nitrogen should be in the spring, when the roots are ready for taking it at once. Our suggestion would be to apply bone meal or superphosphate on the cover crop, and let it rustle for its own nitrogen and potash.

Sex of Chicks.

Some breeders claim to be able to distinguish sex of chickens when first taken from the incubator. No doubt this ability is dependent on close observation? A general outline of the method of judging would be appreciated.—J. W. S., Hayward.

We do not believe the claim of these poultry breeders can be made good, but if there are any who make the claim who see these words, we will appreciate it very much if they will give the Cultivator readers the secret. We imagine, however, it would be very similar to the claim made for years of the ability to determine sex of the chick from the egg. Every theory ever advanced along that line has been proven without foundation. We doubt not it would be most valuable to poultry breeders to pick with reasonable certainty the pullets from day-old chicks.

Anthrax Cure, Milk Fever Outfits. See O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.

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Soil for Tomatoes.

I wish to plant tomatoes on heavy, sandy loam where I have grown them for three or four years. Wish to use fertilizer for forcing and increasing crop. Is nitrate of soda desirable and how much per acre? Will plant rows seven feet apart. Should fertilizers be applied between rows and would the effect be less upon a crop bearing another year?—G. M. L.

Planting tomatoes on land that has grown tomatoes three or four years is such bad farming that my counsel would be do not attempt it. It is almost certain that it will prove unsatisfactory, no matter how much you fertilize. If however, you feel like risking it, it would be better to use some good brand of superphosphate at the rate of six to seven hundred pounds per acre, sowing it broadcast and harrowing it in before planting. Then about the time the plants begin to bloom sow broadcast 200 pounds per acre of nitrate of soda and 15 days later a like amount of nitrate of soda. Break up all lumps in the nitrate of soda with the back of the spade and it would pay to run it through a coarse sand or gravel screen, say one-fourth-inch mesh. This will enable you to sow it regularly. Cultivate after each sowing. It took me a good while to learn that there is nothing gained in setting out tomato plants early in Southern California. It is better to wait until the ground gets well warmed up. But you must keep your soil in first-class condition by frequent cultivation, very much as the lima bean growers do, so that when you are ready to set your plants the soil is moist enough to allow the plants to start without resort to water. My own practice is to grow the plants in pots, or next best, in flats so that they can be transplanted without check.—Q. A. L.

Ripening of Lemons.

I have a few Eureka lemon trees bearing fine fruit, which does not ripen in hot weather. Cannot I get a variety that will?—Subscriber, Winchester.

Our subscriber is confronted with a difficulty not often before lemon growers. Most complain that their lemons turn yellow before they attain proper shipping size, but if the inquirer will pick his lemons as soon as they become of proper size, store away in boxes where they are not allowed too much air to make them wither, he will find in the course of a few weeks that they will take on a beautiful lemon color. Lemons which ripen on the trees are almost sure to be filled with seed, while lemons picked while of a perfectly green color will be seedless, juicy and in fact almost perfect in quality. If ripened on the trees and taken to market they will necessarily command lower price than when picked green and cured in the house. If only a box or two of lemons are in hand, the wrapping of each individual lemon in paper is sometimes thought best. This prevents excessive evaporation and also at time of sweating absorbs the surplus moisture, so that there is less danger of decay.

Moles.

I am a newcomer and my troubles are legion. My recently purchased ranch is over-run, or rather under-run, with moles. How may I get rid of them? They have completely ruined a new lawn, and traps which I have used have captured but few of them. —Newcomer, Whittier.

We are glad to receive Newcomer and appreciate that he comes to the Cultivator for help. If his troubles are no greater than those caused by a few moles, he is indeed fortunate, though even such troubles if they be legion, sometimes cause life to be a burden. Moles are very easily controlled, at least the writer has so found them. In fact, we never catch one of these little fellows without a twist of conscience. As a matter of fact they would be beneficial if only they would cease the upheaving the ground in the new made lawn. They are consumers of grubs and other pests of the soil; they do not destroy roots of plants and only take away the enemies of those roots, but it must be confessed that their run-ways do disfigure flower-beds and especially lawn surface. When it becomes necessary to remove them, the use of the ordinary mole-trap does it very easily. The trap which we have used is the "Out-of-Sight," and is set by finding the main run-way of the mole, pressing down a three or four-inch stretch of the run so that when the mole comes through again he has to raise this section. The trap is then set so that the trigger rests immediately above the pressed down surface, with the two jaws of the trap on either side so as to catch the mole coming from either direction. We have never heard of any way of poisoning because the trapping has been sufficient.

Gum Disease.

What is the trouble with my lemon tree? It is five years old, filled with fruit, but black ants are swarming over it and they have killed the bark around the foot of the tree. What will prevent this? The tree is covered with black scale.—Subscriber, Anaheim.

We think our subscriber is mistaken as to the ants destroying the bark at the base of the tree. We think they are simply swarming over the tree to secure the honey-dew exuded from the bodies of the black scale. The destruction of the bark is doubtless due to gum disease, which is caused by the condition of the soil. If the tree is fumigated to destroy the black scale and the soil is loosened up about the roots and put in the best of condition, and the parts of the trunk affected by the gum disease are scraped and an application of neat's foot oil made, we believe the troubles of this tree will disappear. For more complete treatment we would refer you to the Cultivator of April 13th, page 451, by Mr. A. F. Call, which is generally considered to be the best ever suggested.

Erinose.

I send walnut leaves with blisters or foreign growth on them. What is it and what shall I do with them?—I. L., La Grange.

This was referred to Prof. Smith, and he answers:

"Your correspondent's walnut leaves are affected with the so-called erinose or blister mite. This is a very small insect which gathers in numbers at certain spots on the under side of the leaves and produces there these little blister-like swellings. The trouble is not a serious one, although very common, and there is no necessity of carrying out any treatment to suppress this insect.

Blossoms Dropping From Tomatoes.

What is the cause of and what will cure defect in tomatoes, dropping off of young fruit or blossoms? The vines are healthy looking. Will alkali soil cause it? They break off about an inch back from the blossoms. It is the Ponderosa variety. Another variety, the Tennyson, growing alongside, is not as vigorous,, in fact is wilting and half dead, yet does not lose its blossoms. — Subscriber, Santa Barbara.

The vigorous vines are no doubt losing their fruit because of the cold weather, which will cause exactly the condition you mention. The others which are wilting may be affected

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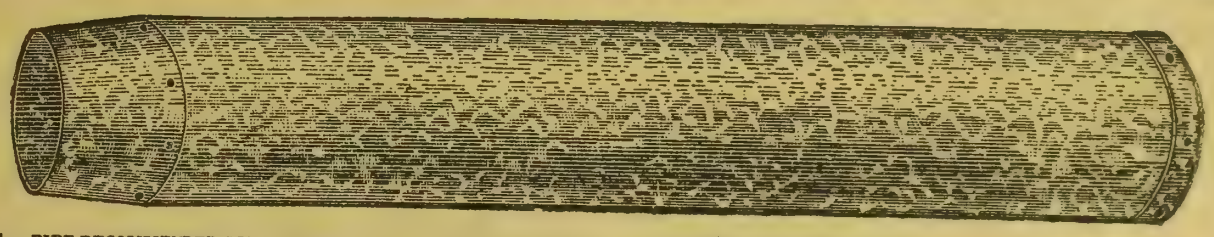

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with blight. If this is the case, they should be removed and burned at once, and another year clean ground be secured for the tomato planting. We do not think there is any cure for the dropping of the young fruit excepting warm weather, and for early fruit the selecting of other varieties. We do not think alkali is a factor in the case.

Plowing at Blossoming Time.

How about plowing during blossoming time? Will it lessen the setting of fruit? My trees are prunes, and I would like to know if there are not small roots near the surface that would be cut in plowing so as to injure the tree and the fruiting, if done just prior to or during blooming? Also in use of dynamite to uproot dead trees and to loosen sub-soil for a new tree will there be any injury to another tree twenty-five feet away?—Subscriber, Campbell.

Without doubt plowing at blossoming time cuts many rootlets which come to the rich surface soil for nourishment, and we believe that plowing prior to blossoming time, two or three weeks or a month, if possible, is to be preferred, but we would by all means give the deep plowing, and if the work has been deferred to blooming time we would take the chances rather than attempt to carry the orchard through the summer season without the benefit of the deep plowing. The injury depends somewhat upon the past working plan in the orchard. The orchard which has been plowed thoroughly since setting will have no large roots near the surface to injure.

There could hardly be any injury to a tree twenty-five feet away from any reasonable charge of dynamite. Many orchardists in hardpan sections place charges of dynamite much nearer trees than that purely for the sake of loosening up the subsoil, and with benefit.

Sulphur-Lime on Twigs.

I sprayed my peach trees with standard lime-sulphur solution, and some buds were burned and some young twigs. What was the trouble?—J. O., Glenn.

The sulphur-lime solution was used too strong and destroyed the growth. Spraying two weeks earlier would have done fully as much good to the tree and would have saved this young growth. This wash is too caustic to apply in usual strength after growth has started.

Time for Budding.

I have 600 two-year-old orange trees I would like to have budded. When is the proper time, and where can I get a budder?—Subscriber, Hollywood.

The proper time for budding is early spring, when the sap first shows good strong flow and the bark will peel; also again in the fall. The present time is a little late, though if in best growing condition it is possible you could get buds to grow. Buds can be secured from any orange or lemon grove, but of course it is best to get them from trees which are known to bear high-grade fruit. As to the budder, we know of no one in your neighborhood, but a little inquiry will probably develop one. Any nurseryman should be able to inform you.

Dying Watermelons.

I send with this watermelon vines which are mysteriously dying. The vines are healthy until the trouble shows; it appears to be at the root. Is it insect or other trouble, and what is the remedy? Neighbors' vines are also affected. There are ants in other portions of the field, but not in the part affected.—Subscriber, Spring Valley.

Mr. C. O. Smith, Assistant Plant Pathologist at the Southern California Pathological Laboratory, answers:

"The trouble, from the description given, would seem to be due to a fungus in the soil that finds its way into healthy melon roots and by stopping up the circulatory pores of the plant produces wilting and death. A microscopic examination failed to show any fungus, but possibly a fair sample was not sent us. It might be, or course, a case of cut worms, but there is nothing present on vines to show this. The best remedy for the melon wilt is to grow a variety more reristant to this disease. If the correspondent will send us more material we could give more definite information regarding his trouble."

Removing Fruit From Young Trees.

I have orange trees planted a year ago, at that time year-old buds, and many of these young trees now have fruit. Should I take it off, or may I leave it without injury to the trees?—Subscriber, San Bernardino.

We would not allow trees of this age to bear any great quantity of fruit; now and then one will do no injury. The only point is that trees of this age should make wood rather than fruit. We have seen such trees bear, say a half dozen fruits, without any apparent injury.

Ground Squirrel Eradication.

I enclose clipping dated at San Jose in which it is stated that there are government and county inspectors engaged in the work of exterminating ground squirrels, also that all property owners are required to kill squirrels on their property within thirty days. Is there a state or other law which will compel cleaning up of places, especially of non-residents?—Subscriber, Covina.

There is a state law empowering county boards of supervisors to control this pest. We believe it is not within the jurisdiction of the county horticultural commissions, though they should be able to give you information as to how to proceed. The government officers are merely working in an advisory capacity; they have no power to compel your neighbors to clean up.

TULARE GRANGE.

At the recent meeting of Tul Grange Mr. Miot, Secretary of the lare County Board of Trade, gave address on the measures taken to mote the welfare of Tulare County, pecially by means of displays of var products. Mr. Miot has proven a p er as executive head of the Board Trade, and his work in showing county's productions has added to population.

Following Mr. Miot, Prof. Albee, perintendent of the Tulare Cou Schools, spoke of industrial and a cultural conditions. No state in Union has such possibilities as C fornia for advancement along th lines, and to the end that they may brought to the highest completion work should be begun in the scho of the state.

Mr. John Tuohy made an addr touching upon the history and acc plishment of Tulare Grange, fr which we quote:

In 1889 some little interest taken in the preservation and cons vation of our forests and streams. that time I met with much strong position from a class of men kno as timber grabbers. Such matters public interest do not always the public attention and support t deserve; they need the active supp of some well organized body. In t case Tulare Grange took the mat up, discussed it and called a meeti in Fresno to support it, appoint Hon. Tipton Lindsay to represent grange. The meeting was a succe Mariposa, Fresno, Tulare and K counties being represented. Reso tions favoring a forest reserve w passed and sent to the secretary the interior, ultimately resulting congress passing a law empower the president to withdraw from s forest land; as a result one of first withdrawals was the Sierra F est Reserve in the counties of M posa, Madera, Fresno, Tulare a Kern, containing 5,049,934 ac There are nineteen forest withdraw in California, the Sierra Forest serve being the first and as large the next three largest in the st combined.

The next effort of Tulare Gra was to get a body of giant sequo preserved from the timber grab and kept as a national park. In 1 there was but one township of gi sequoias that had not been grabb T. 18 S., R. 30 E., Mount Diablo B. M. This measure had the earn support of four active, patriotic n in Visalia, Hon. Tipton Lindsay, F. Walker, Geo. W. Stewart and Jo Tuohy. Had it not been for the w done by each and all of those men Sequoia National Park would ne have been. The bill creating the quoia National Park contains se townships in Tulare county and f sections known now as the Gen. Gr Park, two in Fresno and two in lare county.

The sequoia has no equal in world, growing at an elevation of fr fifty-five to seven thousand feet abo sea level. The park besides its equaled sequoias has many attr tions. Every American should v it. The best season to visit it is Ju July, August and September. Th its diversity of scenery, purity water, evenness of temperature a salubrity of climate are unequal Strange to say that whilst the pres vation of the beautiful timber and being kept as a park was the w of the four men I have named, no tree, a spring, a valley, a mounta a park or a meadow bears one their names on the maps of the partment.

The Tulare County Park o its preservation to Tulare Grange being a representative body of peo Forty years ago the delta of the weah had the finest body of oak t ber in the country. Very few of th are now left since the coming of railroad; it has consumed thousa of cords and other thousands of co have been sent out of the country firewood. An appeal was made to board of supervisors to buy and p serve one of the beautiful groves fore all was consumed as firewo The board of supervisors said t

(Continued on Page 703.)

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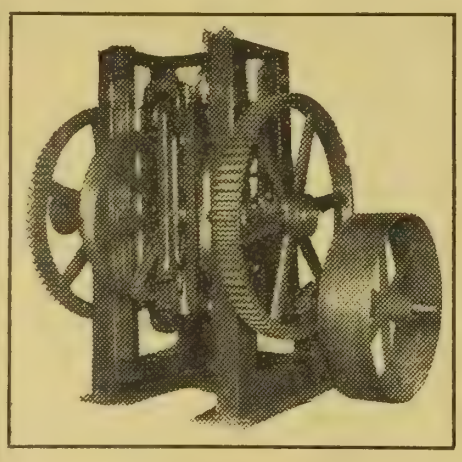

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Auction Sale of Holsteins—150 Holstein cows and heifers; 70 fat steers and calves; 1 thoroughbred Holstein bull; 80 head of hogs; 8 head of horses and mares; farming implements. Monday, June 12, 1911, at the W. E. Premo Ranch, ten miles west of Porterville, nine miles east of Tipton, one mile south of and one and a half miles west of the Poplar Store. Will allow reasonable terms to responsible parties. Send for pictures and information regarding the herd. W. E. Premo & W. L. Beedy, owners, Porterville, Cal. McKelvy & Ridgway, auctioneers.

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Wanted—A 600-pound Sharples Separator. Also to correspond with a dairyman who has from 50 to 100 cows and wants to change his location. Dr. J. E, Minney, Perris, Cal.

Wanted—A chance to estimate on your cement pipe line. Edw. P. Burnham, Hemet, Cal.

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Two thousand one and two-two Eureka lemons, two thousand two-year Valencia, sweet and sour orange seed bed trees, one hundred camphor trees. Southland Nurseries, F. H. Disbrow, Prop., R. D. 1, Pasadena.

For Sale—2500 Valencias; 1000 W. Navels; 500 Eureka Lemons, one year and first-class stock, one-half to seven-eighths inch. Will make attractive price for immediate delivery. Phone Home 2062. C. W. Wilson, Glendora, Cal.

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For Sale—320 acres in Fresno County, all in fence and cross-fenced. Thirty acres best orange land in state, the rest cattle ranch. Plenty of standing oak timber. One acre in oranges, mostly bearing; one-half acre in other fruit; eight acres vines, half Thompsons, half Malagas, two years old, will bring a good big crop this year. Plenty of water can be gotten. Also big house, barn and other buildings. Call or address, A. Schlcenvogt, Reedley, Fresno Co., Cal. Price $4,500.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Price $65 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

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For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

For Sale—90 acres of fine orange land near Edison, Cal., with $5,000 improvements. A bargain at $18,000. Terms cash. Write Lewis J. Young, Route 4, Kern, Cal.

NURSERY STOCK

For Sale—Sour Orange Seed Bed Stock. Clean and thrifty, having excellent fibrous roots. $3.00 per hundred, $25.00 per thousand. We ship safely to all parts of the country. Armstrong Nurseries, Ontario, Cal.

Chayote, Chocho (Sechium Edule), the delicious, perennial, Mexican summer squash; large fruited, smooth skinned variety, introduced by Dr. Francheschi. One plant ripened more than 500 fruits last season. Strong, pot grown, $1 each. Montarioso Nursery, Santa Barbara, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson. El Monte, Cal.

RARE PLANTS

Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Ahuacates, Alligator Pears (Persea Gratissima). Fresh Mexican seeds, none better for stock; $4.50 per 100 seeds; $40.00 per 1000 seeds. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nurserv. Pasadena, Cal.

TURKEYS.

White Holland Turkey eggs and poults. Two pens headed by magnificent, heavy toms, correctly mated with beautiful hens. Eggs $3.50 per setting. Bronze Turkey eggs $2.50 per setting. Poults 50c. Richard Eble, Casa Verdugo, Cal. Sunset Glendale 164 J Rhode Island Red and White Leghorn eggs and baby chicks.

Mammoth White Holland Turkey Eggs, $5.00 per 13. No better stock anywhere. A. H. Blakely, Ontario, Cal.

For Sale—White Holland Turkey eggs, 35c each; from extra large, vigorous stock; gobblers $7. Mrs. Hocking, Guasti, San Bernardino Co., Cal. Winner of first prize Los Angeles, 1911.

Mammoth White Holland Turkey eggs, $3.50 per 13 eggs, after May 26. A. H. Blakely, Ontario, Cal.

POULTRY

The Standard Poultry Yards. Back again with my first love. I have just received from the best White Leghorn breeders in the East 200 selected heavy-weight Knapp and Wyckoff trap nested White Leghorns, not one scoring less than 91 and up to 96 points. I am now prepared to furnish baby chicks and eggs together with my Cook and Kellerstrass White Orpingtons. I feel sure I have the best on the Coast. C. A. Loud, Prop., 3944 Cleveland Ave., San Diego, Cal

All We Know is Rhode Island Red Chickens. But we know them so well that our baby chix, $15 a 100, are the best on earth. There! Pure blood, good strains, well mated by expert breeders. I. X. L. Poultry Yards, 587 Mission St., Santa Cruz, Cal.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

The Goodacre Strains—Just the time to get our Quality Reds, our special offer on eggs from choice matings of $3.00 per 15 or $5.00 per 30 is hard to equal; our commercial day-old chicks we now offer in 100 lots at $12.00; our Reds have been constant winners the past three years in our Coast shows. We can sell you choice eggs, Buff Orpingtons, Anconas and White Runner Ducks. Write us today. Goodacre Bros., Compton, Cal.

Hayes, R. B., Poultry Fancier and Rhode Island Red Specialist—30 breeding pens of Reds, 20 pens miscellaneous varieties. See our birds, they tell their own story, or write for circular. Eggs for sale only. Yards in Arroyo, opposite Ostrich Farm. Box 35, Garvanza, Sta., Los Angeles, Cal. Phone East 1631.

BONNELL'S S. C. BLACK MINORCAS WIN EVERY TIME.
At Los Angeles Show, 1911, every first premium and two silver cups; two specials for best male and female. Eggs at half price, $2.50 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles, Cal.

Eggs $1.00, 15; $5.00 per 100. Chicks $15.00 per 100, $12.50 for incubator lots. R. I. Reds, Barred Plymouth Rocks and B. Orpingtons. A few B. Orpington pullets for sale. Cash with order or stamped envelope for reply. L. W. Neilsen, R. R. 2, Box 1 A, Petaluma, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. Eggs for hatching $5.00 per 100. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

Baby Chicks from thoroughbred White Leghorns, "bred to lay," not simply chicks, but "Stock," the kind that breed true to color and fill the egg basket; May and June, $8.50 per 100; safe delivery insured. F. W. Dobbel, Buena Vista Poultry Yards, R. F. D. No. 1, Sonoma, Cal.

Rose and Single Comb R. I. Reds. Rose Comb a specialty. Eggs for hatching from stock winning each year at shows. Send for mating list. W. H. Pickering, 984 E. 55 St., Los Angeles, Cal.

White Orpington Eggs from my Blue Ribbon pens, $3.50 for 13; others $2.50. Henhatched bay chicks for sale. Laying pullets for sale. L. F. Barber, 1116 Mariposa Ave., Los Angeles, Cal. Phone 71453.

White Leghorns—Buff Orpingtons. Bred for beauty and great egg production. Grand lot of both old and young stock for sale. Prices reasonable. Write your wants. Model Poultry Farm, Box H, Irvington, Cal.

Blue Andalusians—Beautiful and odd. Not too late to hatch if you have green feed. Eggs $2 per 14, $8 per 120. Two trios at $5 each. Have bred them 11 years. L. A. Wilson, Winters, Cal.

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal.

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Hicks Jubilee Hatchery, now booking orders. Write us your wants. We use eggs from first-class stock only. Try us. W. J. Hicks, Petaluma, Cal.

Mammoth Pekin Duck Eggs, $1.00 per dozen, $6 per 100, Select White Leghorn eggs, $3.50 per 100. Clough, 3826 Peralta Ave., Dimond, Fruitvale P. O., Cal.

Baby Chicks Every Week—Eggs for hatching. Large, vigorous, heavy laying strains. S. C. White Leghorns, Barred Rocks. D. S. Willey, Inglewood, Cal.

White Orpington and White Wyandotte eggs for hatching. Send for list of winnings. Arthur W. Huskins, 713 Waterloo St., Los Angeles, Cal.

For Sale—French Houdan eggs, $1.50 per 15; $4.50 per 50; pen headed by prize winner. Mrs. Hocking, Guasti, San Bernardino Co., Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

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Settings from splendid strains White and Buff Wyandottes. Prices reduced for months of May and June W. C. Parker, 113 Pacific Ave., Santa Cruz, Cal.

POULTRY.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. Third St, Los Angeles, Cal.

MISCELLANEOUS

Free—"Investing for Profit" Magazine. Send me your name and I will mail you this magazine absolutely free. Before you invest a dollar anywhere get this magazine—it is worth $10 a copy to any man who intends to invest $5 or more per month. Tells how $1,000 can grow to $22,000; how to judge different classes of investments, the real power of your money. This magazine for six months free if you write today. H. L. Barber, Publisher, R. 430, 28 W. Jackson Boulevard, Chicago, Ill.

Eight Big Family Games, 12 cents, consisting of Checkers, Chess, Dominoes, New Game of Authors, Fox and Geese, Nine Men Morris, Spanish Prison, Game of Flirtation, all for 12 cents. Eureka Supply Co., 427 Pacific Building, San Francisco, Cal.

H. Eckart, General Contractor, Bridges and Buildings, Reinforced Concrete Water and Oil Reservoirs, 256 Wilcox Building, Los Angeles. Phones A2443 or Alhambra 25812.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

MACHINERY

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, 20 sets harness taken in trade by us and must be sold. These are snaps. Disc, gang, walking, riding and side hill plows; slip, Fresno and wheel scrapers; 2 headers, 2 balers, seed sowers, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

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For Sale—Complete pumping plants, new and second-hand. Electric and gas engine driven. All sizes. Send us your details for our recommendations, irrigating appliances and pipe molds. We can save you money on your installations. H. U. Roeding & Co., Foxcroft Bldg., San Francisco, Cal.

For Sale—Small Gas Engine with pump jack, complete, ready for operation; also motors and other machinery. We can save you money. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—25 H. P. Fairbanks Morse Distillate Engine. Baillie & Brandt Co., 943-45 N. Main St., Los Angeles, Cal.

Empire Cream Separator for sale at bargain. Cost $68, used six months. Will take $34, as I have no cows. Robert W. James, Fair Oaks, Sacramento Co., Cal.

FOR RENT

For Rent—Twenty-five acres of the best early, nearly frostless land on Signal Hill. Three acres blackberries, two acres asparagus, glass house, etc. Plenty of water. Best local market, good wholesale trade. H. H. Hart, Box 304a, R. D. 1, Long Beach, Cal. Sunset Main 2042.

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WICK'S WHITE FOWL FARMS Moorpark, Cal

SAGACITY.

One would have it that a collie is the most sagacious of dogs, while the other stood up for the setter.

"I once owned a setter," declared the latter, "which was very intelligent. I had him on the street one day, and he acted so queerly about a certain man we met that I asked the man his name, and——"

"Oh. that's an old story!" the collie's advocate broke in sneeringly. "The man's name was Partridge, of course, and because of that the dog came to a set. Ho, ho! Come again!"

"You're mistaken," rejoined the other suavely. "The dog didn't come quite to a set, though almost. As a matter of fact, the man's name was Quayle, and the dog hesitated on account of the spelling!"—Lippincott's.

CHEESE IN SOUPS.

In making soups, if your stock is not as rich as you wish, add one-half teacup or less of grated cheese. You will be surprised how greatly it will improve the soup. Save bits of cheese left over, grate and keep in a covered glass vessel, ready to use as wanted. —Woman's Home Companion.

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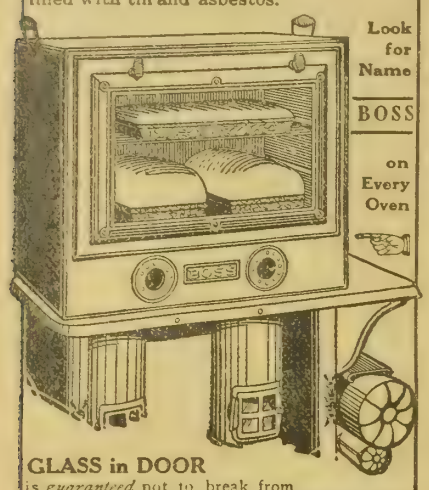

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When he lends a helping hand the average man makes so much noise that it spoils the effect.

Household Department

SEED TIME AND HARVEST.

As o'er his furrowed fields which lie
Beneath a coldly-dropping sky,
Yet chill with winter's melted snow,
The husbandman goes forth to sow.

Thus, Freedom, on the bitter blast
The ventures of thy seed we cast,
And trust to warmer sun and rain
To swell the germs and fill the grain.

Who calls thy glorious service hard?
Who deems it not its own reward?
Who, for its trials, counts it less
A cause of praise and thankfulness?

It may not be our lot to wield
The sickle in the ripened field;
Nor ours to hear, on summer eves,
The reaper's song among the sheaves.

Yet where our duty's task is wrought
In unison with God's great thought,
The near and future blend in one,
And whatsoe'er is willed, is done!

And ours the grateful service whence
Came, day by day, the recompense;
The hope, the trust, the purpose stayed,
The fountain and the noonday shade.

And were this life the utmost span,
The only end and aim of man,
Better the toil of fields like these
Than waking dream and slothful ease.

But life, though falling like our grain,
Like that revives and springs again;
And, early called, how blest are they
Who wait in heaven their harvest-day.
—J. G. Whittier.

MR. BASCOM GOES HUNTING.

"What on earth are you going to do!" Mrs. Bascom exclaimed, as she caught sight of her husband sneaking in the back way with a new repeating rifle under one arm and a belt with a hunting knife on the other.

"I'm going hunting," was the stammered reply, as the head of the house brought himself up with a sudden jerk.

"Which is it, Tom cats or trusts? The last time I believe you went after a bear which was supposed to be destroying Amos Walter's young orchard and, after you had sat all night in a tree watching, the bear turned out to be Kelley's goat. You——"

"I should think——"

"Well, why don't you?" Mrs. Bascom interrupted. "If you would only once in a while you would amount to something."

"Woman! Such language as that leads to the divorce court. You can't provoke me into a fight, nor can you persuade me to stay at home. I am determined to go." He dismissed the subject with a flourish of his hand, and entered the house.

"Well, well," Mrs. Bascom sighed, "I suppose he will go since he is so determined. I hope he has good luck on his trip, for——" An express wagon stopped before the house, and loaded up several boxes, which John briefly explained were for the camp.

All through the day, Mr. Bascom made his preparations. Twice he visited the stores, purchased a pair of boots and a revolver. Mrs. Bascom watched, but said nothing until after dinner.

"John," she asked, "when do you start?"

"Tomorrow," he replied. "Do you want to go along?"

"Me? I should say not! Do you think I'd risk my life while you were running around loose in the woods with your arsenal? Not me!" She shrugged her shoulders as if annoyed by the invitation.

"Very well," her husband remarked. "I shall go alone. A womans' a nuisance on an outing anyway."

"Oh! So you're glad I'm not going." Mrs. Bascom flared up. "A dutiful husband, I must say! Now for that I will go."

Early the next morning they started. Mrs. Bascom was ready, having packed her clothes on the previous evening. They drove in silence to the depot, where John bought the tickets. They had not long to wait before their train came in. But a few minutes more and they were off.

Mr. Bascom leaned back in his seat and smiled. "I'm glad you've come," he said, "because I could not get a cook, I don't like canned goods, and they would have been all I could have gotten." He beamed upon his wife affectionately.

For a moment Mrs. Bascom wished she had not come, as she thought of the clever way in which she had been fooled. Then, as he looked down upon her, her frown melted and she replied: "Yes, I'm glad I decided to enjoy the outing with you."

There was silence for several minutes. Then: "I've had good luck in getting a cabin," John explained. "It's right in the heart of the woods. Deer are plentiful, and"—he slapped his gun case—"I intend to get my share of them."

"I hope so; but I'm afraid——"

"Tut, tut. You don't need to be for I have hunted before."

"Yes," she replied. "I remember the time you sat in the tree all night, and——"

"Wildwood—Wildwood," the conductor shouted.

"Here's where we get off," John cried, glad of an opportunity to change the subject of their recent conversation. He grabbed his packages and left the train, his wife following.

A two hours drive brought them to their cabin. They arranged things, and made supper, after which they retired. "It's a dandy place," Mrs. Bascom murmured, as she viewed the landscape in the moonlight. "Just look at the river, John!"

"You will like the hunting even better." he exclaimed. "Tomorrow I will go after deer, and you can go along."

Despite the fact that they were very tired, they were up with the sun. A simple breakfast was made, and John, his Winchester under his arm, impatiently demanded that they start at once upon their hunt, after he had eaten but a few mouthfuls of food. Mrs. Bascom consented.

For two miles they walked in silence. Occasionally, John would halt and listen, then advance again with soft tread, motioning his wife to stand perfectly still. "Deer are wary," he exclaimed, "and it takes an experienced hunter to get 'em." Scarcely had he spoken when the brush cracked nearby, and a brown form disappeared in the bushes. Bang! Bang! Bang! the repeater spoke, and John, without stopping to eject the last empty shell, followed in the direction which the animal had taken. "I've got 'im! I've got 'im," he shouted to his wife as she overtook him.

"Yes," said a voice close to their side, as a man stepped into view. "You've got our mule, and it'll cost you one hundred and fifty dollars to settle."

"Who are you?" Bascom managed to gasp weakly.

"I am the foreman of a surveying gang," the stranger replied. "I heard the shooting, and came on the run, fearing you would kill some of my men. I found our mule dead behind those bushes. See"—he stepped forward a few feet, and pointed to the dead animal—"there is your deer."

Bascom glanced at the mule, then fished out a roll of bills. "Come," he said to his wife, as he paid over the money. "This is the darndest luck I ever had."

Mrs. Bascom smiled. "I remember once dear," she began, "when you sat all night in——."

He silenced her with a look.—Successful Farming.

PRACTICAL USES FOR OLD NEWSPAPERS.

Perhaps the most commonly known practical use for old newspapers is a covering for pantry shelves. They are easily folded to fit either large or small spaces and make the shelves look clean and neat with very little work.

Flatirons must always be well cleaned before they are put on light colored clothes, or the garments are sure to be soiled. A hard rubbing on several thicknesses of newspapers will leave the iron smooth and ready for use.

A very good way to prevent dust while sweeping a room is to sprinkle over the carpet a pan full of dampened newspapers torn into bits.

All of us haven't kitchen tables covered with oil cloth and so easily made clean and shining. In many homes

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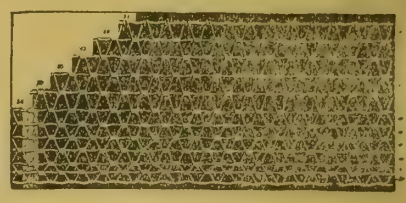

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there are hardwood tables which look beautifully white, but not until the housewife has spent several minutes with soap and the scrubbing brush over them. The hard scrubbings will be very much fewer if newspapers are freely used while the cooking and morning's work is being done.

Garbage, or refuse of any kind from the kitchen, is much neater and more sanitary if wrapped in newspapers before it is put in the can to await its disposal.

However clean kettles may be washed they are sure to leave a dark mark on the wall or woodwork against which they hang. Fasten up a newspaper wherever your pans or kettles may be hanging and keep your wall clean.

As you take the soiled papers from your kitchen table wrinkle them up and give the top of your stove a good rubbing and save blacking it for that day.

Newspapers are a most excellent non-conductor of heat. If they are put under the silence cloth in your dining room they will keep the warm dishes from injuring the polished surface of the table-top.

We all know what a difficult task it is to pack the heavy winter blankets and wraps during the summer so that the moths cannot get at them. Large bags made of several thicknesses of newspapers have been found excellent for this purpose. The ink used in printing seems to do away with the necessity for the use of moth balls or anything of the kind and the articles will be found free from any trace of a moth if the newspaper bag, in which they are stored, is tightly sealed.—Exchange.

MARK TWAIN SAID.

The true Southern watermelon is a boon apart and not to be mentioned with commoner things. It is chief of this world's luxuries, king by grace of God over all the fruits of the earth. When one has tasted it he knows what the angels eat. It was not a southern watermelon that Eve took; we know it because she repented.

It is easy to find fault if one has that disposition. There was once a man who, not being able to find any other fault with his coal, complained that there were too many prehistoric toads in it.

There is this trouble about special providences—namely, there is so often a doubt as to which party was intended to be the beneficiary. In the case of the children, the bears, and the prophet the bears got more real satisfaction out of the episode than the prophet did, because they got the children.

Whoever has lived long enough to find out what life is knows how deep a debt of gratitude we owe to Adam, the first great benefactor of our race. He brought death into the world.

Tell the truth or trump—but get the trick.

Adam and Eve had many advantages, but the principal one was that they escaped teething.

Adam was but human—this explains it all. He did not want the apple for the apple's sake; he wanted it only because it was forbidden. The mistake was in not forbidding the serpent; then he would have eaten the serpent.

The holy passion of Friendship is of so sweet and steady and loyal and enduring a nature that it will last through a whole lifetime if not asked to lend money.

Consider well the proportions of things. It is better to be a young June bug than an old bird of paradise.

Even the clearest and most perfect circumstantial evidence is likely to be at fault, after all, and therefore ought to be received with great caution. Take the case of any pencil sharpened by any woman: if you have witnesses you will find she did it with a knife; but if you take simply the aspect of the pencil you will say she did it with her teeth.

VERY STRONG.

"I see," said Slaters, "that our old friend Bilkins had a strong article in one of the Boston papers the other day."

"Really?" said Binks, incredulously. "I'd never have believed that of old Bilk. What was it?"

"A recipe for pickled onions," said Slaters.—Harper's Weekly.

$90,000 Daily

Now Spent for No-Rim-Cut Tires

Over 600,000 already sold—enough to equip 150,000 cars. All because they cut tire bills in two.

The sale of Goodyear tires has multiplied six times over in the past two years. Last year they jumped to $8,500,000. They are now running double last year.

Sixty-four leading motor car makers have contracted with us for these tires. To supply them and tire dealers we are running our factories twenty-four hours per day.

The reason lies in a patented tire—the No-Rim-Cut tire—10 per cent oversize. Men have found that this tire saves one-half on their tire bills. And the tire has become the sensation of motordom.

The No-Rim-Cut Tire

Here is the Goodyear No-Rim-Cut tire as it fits any standard rim. When you adopt this tire you simply reverse the removable rim flanges so they curve outward. They curve inward with old-style tires. This change can be made in ten seconds.

The rounded edge of the flange then comes next to the tire, and rim-cutting is made impossible.

No Hooks on This Tire

The ordinary tire—the clincher tire—has hooks on the base to hook into the rim flange. That is how the tire is held on. See the next picture.

When you use this type the removable rim flanges are set to curve inward. Note how they dig in when the tire is deflated: That is why the common tire will rim-cut if you run it flat.

Ordinary Clincher Tire

The No-Rim-Cut tire has no hooks on the base. It is held to the rim by flat tape, made of 126 braided wires, vulcanized into the tire base. These make the tire base unstretchable.

The tire can't come off because the base can't stretch. Nothing can force it over the rim. But, when you unlock and remove the rim flange, the tire comes off like any quick-detachable tire except that it won't stick.

The Ordinary Clincher Tire

This braided wire feature is controlled by our patents. And there is no other way known to make a safe tire which will stay on without hooks.

10% Oversize

These No-Rim-Cut tires, where the rim flanges flare outward, can be made 10 per cent over the rated size and still fit the rim. And we give you that oversize without extra cost.

That means 10 per cent more air—10 per cent greater carrying capacity. And that, with the average car, means 25 per cent more mileage per tire.

These two features together—No-Rim-Cut and oversize—will double the service one gets from a tire under average conditions. Yet Goodyear No-Rim-Cut tires cost no more than other standard tires.

GOODYEAR
No-Rim-Cut Tires

Our latest Tire Book, based on twelve years spent in tire making, contains many facts which motorists should know. Please ask us to mail it to you.

THE GOODYEAR TIRE & RUBBER COMPANY, 90th Street, Akron, Ohio

Branches and Agencies in 103 Principal Cities *We Make All Sorts of Rubber Tires*

(323)

SQUARING THE FAMILY CIRCLE.

Smith walked up the street the other evening with a box of chocolates under one arm and a big package of meat under the other.

"Hello, Smith," said Brown, "gone in for housekeeping? I didn't know you were married."

"I'm not yet."

"What are you doing with those chocolates and meat, then."

"Going to see my girl."

"Do you have to furnish the family with meat already?"

"Oh, no; the sweets are for the girl and the meat is for the dog. I have to square both."—The Sacred Heart Review.

ODD.

That we should speak of wading through a dry brook.

That a fellow can be in a girl's presence and yet be "gone."

That the more we think of some people the less we think of them.

That we often speak of folks being at odds when they are really trying to get even.

That the more people we get to help us keep a secret, the sooner it gets away from us.

That saying a man is "capable of anything" is a very different thing from recommending him as thoroughly capable.—Boston Transcript.

WHY INDEED!

"What you see in that creature to admire I can't see," said Mrs. Dubbleigh. "Why, she's all made up. Her hair, her figure, her complexion—every bit of her is artificial."

"Well, what of it?" retorted Dubbleigh. "If the world admires self-made men why shouldn't it admire a self-made woman?"—Harper's Bazar.

A pint milk bottle makes a first-rate pestle in the absence of an ordinary one.

SECURITY BUILDING
Ground floor and Basement occupied by the Security Savings Bank and Safe Deposit Vaults.

SECURITY SAVINGS BANK

Spring and Fifth Sts. Los Angeles, Cal.

OLDEST AND LARGEST IN THE SOUTHWEST

Capital and Reserve $1,938,000.00

Resources - - - $31,000,000.00

More than 64,000 Open Accounts

4% Interest on Savings Accounts
And on Six Month's Certificates of Deposit

3% On Special (Ordinary) Savings Accounts
Which Accounts may be checked against without presentation of Pass Book. Interest is paid monthly on the minimum monthly balances provided it amounts to $300 or over.

The Safe Deposit and Storage Department is the largest and best equipped in the West

Don't Make a Mistake

By deciding upon a place to spend your vacation before you have investigated the claims of

Coronado Tent City

The Queen Resort of the Pacific

Cool ocean breezes **No dampness or fogs**

Electric lighted palm cottages and tent houses at reduced rates until June 10.

Gas for Cooking on and after June 17th.

Send for beautiful illustrated booklet telling all about the resort of a thousand delights.

JOSHUA S. HAMMOND, Manager Coronado Tent City, Coronado Beach, Cal.

Leader Since 1884

Isaacs-Woodbury Business College

Strong, Modern, Successful.

Fifth Floor Hamburger Bldg., Los Angeles-100 feet above street-noise and dust.

Entire year-enter any time. Catalogue-27th year. F 1850. Main 2305. Edward King Isaacs, Pres

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June 7, 1911.

Butter.

The market conditions are rather weak on butter, with quotations practically as last week. Receipts large.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	.23
Firsts	.22
Ladies	.18
Country	.15
Eastern	.21

Cheese.

Oregon, Daisy	.16@17
Northern	.15
Domestic Swiss	.18
Imported Swiss	.32

Eggs and Poultry.

Eggs are exactly as last week, with firm condition of market.

Paying price f. o. b. Los Angeles is:

Local Ranch, candled	.25
Case count buying price	.21
Northern	.19@23
Eastern	.21

Dealers pay for live poultry f. o. b.:

Hens, per lb	.12@14
Roosters	.8
Broilers	.18@20
Fryers	.20
Roasters	.18@19
Turkeys	.20@23
Ducks	.14@15
Geese	.75
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	.7
Prime steers	.6
Heifers	.6
Calves, per lb	.6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	2.75
Oregon	2.75
Sweets, yellow, lug	3.50
New potatoes, lugs	.75@85
New Local, cwt	2.25@2.35
Texas Early Triumph	2.25@2.50

Onions.

Wholesale quotations:

Imperial, crates	2.00
Silverskins, ctl.	3.00
Bermudas, crate	2.00
White Wax, crate	2.25
Garlic	.8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	.20@50
Asparagus, lb	.5@7
Beets, doz. bunches	.20@25
Bell peppers, lb.	.35
Beans, lb	.4@6
Beans, wax	.4@6
Green chilis	.25@30
Cucumbers, Texas, crate	1.00@1.50
Cabbage, sack	1.00@1.25
Celery, crate	3.75@4.50
Carrots, doz	.20@25
Corn, lug	.75@1.00
Horseradish, lb	.12½
Onions, green, doz bunches	.10@15
Leeks, doz	.35@40
Lettuce, crate	.75@85
Mushrooms, basket	3.50@4.00
Oyster plant, doz	.35@40
Okra	.20
Peas, lb	.4@6
Parsley, doz bunches	.20@25
Parsnips, doz bunches	.20@25
Radishes, doz bunches	.15@20
Rhubarb, Strawberry	1.30@1.50
Rhubarb, crimson winter	.75@90
Spinach, doz	.15@20
Squash, summer	.60@75
Spearmint, doz	.25@30
Tomatoes, Mexican, crate	1.25@1.50
Turnips, doz	.30@35
Watercress, doz	.25@30

Citrus Fruits.

Valencias	2.75@3.00
Navels	2.75@3.00
Grapefruit	1.75@3.25
Lemons	1.75@5.00
Limes, hundred	1.25
Tangerines	1.75@2.00

Fresh Fruits.

Wholesale prices on the market are:

Apricots, crate	1.75@2.00
Alligator pears	3.00@4.00
Pearmains	2.75
Newtown Pippins	2.50@3.00
Currants	.10@12
Cantaloupes, ponies	2.75@3.25
Cantaloupes, standard	3.50@4.00
Cherries, black, box	1.40@1.50
Cherries, black, bulk, lb	.9@11
Cherries, white, bulk, lb	.7@9
Bananas	.4@4½
Loquats, lb	.4@6
Loganberries	.8@9
Pineapples	.10@12
Blackberries	.6@8
Raspberries	.7@9
Gooseberries, lb	.6@7
Strawberries	.5@6
Watermelons, lb	.3@4

Dried Fruits.

Wholesale prices are:

Apricots	.14@16
Evaporated Apples, fancy, lb	.13½@14
Figs, box	1.85@2.25
Peaches	.8@10
Nectarines	.10
Pears	.13@14
Prunes	.11@14
Plums	.10@11

Beans Dried.

Wholesale quotations:

Limas	6.25@6.50
Black eyes	6.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00
Mexican reds	5.00@5.25
Garvanzas	4.50
Bayous	4.50
Lentils	6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	.17@18
Chestnuts	.10@12
Almonds, IXL, lb	.16@17
Pecans, polished	.15@17
Peanuts, Eastern	.7½@8½
Peanuts, California	.6½

Honey.

Wholesale quotations:

Extracted water white	.9
Extracted light amber	.8
Comb water white	.18@19
Light amber	.15
Beeswax	.30

Hay.

Buying prices f. o. b. cars Los Angeles are:

No. 1 old barley hay	12.00@13.00
Barley hay	11.00@12.00
Wheat hay	12.00@13.00
Tame oat	15.00@16.00
Alfalfa	11.50@12.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.80@1.85
Corn	1.65@1.75
Kaffir	1.75
Millet	3.25
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.90
Seed barley	1.50
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.70
Cracked wheat	1.95
Shorts	1.90
Bran	1.65
Oil cake meal	2.50
Feed meal	1.75
Rolled barley	1.50

San Francisco Market

SAN FRANCISCO, June 6, 1911.

Butter.

Butter advanced a cent during the week, with a very firm condition at this writing.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	.22½
Prime firsts	.21
California firsts	.20½
Seconds	.20

Cheese.

California flats	.10@12½
Cal. Y. America, fy, new	.13@13½
Oregon, fancy	.13½

Eggs and Poultry.

Eggs are held firm and sales are free at present quotations, which are generally higher than last week.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	.22
Prime firsts	.20½
Firsts	.19½
Seconds	.18½
Eastern seconds	.16½
Select pullets	.18½
Hens, doz	5.00@10.00
Fryers, doz	6.00@8.00
Ducks	6.00@9.00
Broilers	2.25@5.00
Roosters, doz	4.50@10.00
Geese	2.50@3.00
Pigeons	1.75@2.50
Squabs	2.00@2.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	4½@5¾
Cows and heifers	3½@4¾
Calves, lb	5@6½
Hogs	5@6¾
Milk lambs	5@5¼
Wethers, No. 1, unshorn	4¾
Ewes, No. 1, unshorn	4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

Salinas Burbanks, cwt	2.85@3.00
Oregon Burbanks, cwt	2.40@2.60
New potatoes, lb	2½@3
Texas Triumphs	3.00
Eastern	1.75@2.15

Onions.

New green, box	.50@65
Red, new sack	2.00
Bermuda, seed	2.00
Silverskins	2.00
Garlic, lb, new	.5@6

Vegetables.

Wholesale quotations:

Asparagus, box	1.00@1.50
Beans, string and wax	.3½@4
Carrots	.60@75
Cucumbers, doz	.60@75
Corn, doz	.20@30
Celery, crate	1.50@2.50
Chili peppers, lb	.12½
Cauliflower, doz	.75@1.00
Egg plant, lb	.15@20
Lettuce, crate	.75@2.00
Okra, lb	.8@10
Peas, sack	1.75@2.00
Rhubarb	.90@1.25
Summer squash	.75@85
Tomatoes, Mexican, lug	1.75@2.00
Turnips	.60@75

Citrus Fruits.

Navels, new	1.25@3.00
Valencias	2.00@2.75
Grapefruit	.75@2.75
Lemons	1.50@5.00
Limes, Mexican	4.50
Tangerines, halves	1.25@1.50

Fresh Fruits.

Apricots, crate	1.50@1.75
Alligator pears, doz	.75@1.00
Apples, box	1.90@2.25
Apples, Bellflowers	1.85@2.50
Newtowns	1.90@2.00
Spitzenberg	1.50@2.75
Cherries, Purple Guignes	.60@65
Cherries, white and red, box	.75@90
Cherries, bulk, lb	.8@9
Cherries, Black Tartarians	.90
Currants, drawer	.90@1.15
Bananas, Hawaiian	1.00@1.50
Loganberries, basket	.6@7
Gooseberries, drawer	.75
Blackberries, basket	.10@12½
Raspberries, basket	.12½@15
Strawberries, Southern, crate	.75@1.00
Strawberries, Lgwths, ch	5.00@7.00
Malindas, chest	3.50@4.50
Pineapples, Hawaiian	2.00@3.50

Dried Fruits.

DRIED FRUITS—1911 crop, f. o. b., carload lots, per lb—Apples, 8¾@9½c; Apricots, 15½@17¼c; Peaches, 9½@10½c; Prunes, bulk basis, 4¾@5¾c; per lb, 4@8c, with a premium of ½@1c on large sizes; Figs, 4½@5c for white; Pears, nominal.

RAISINS—1911 crop: Seeded, per pkg—Fancy, No. 16, 7½c; Choice, No. 16, 7@7¼c; Loose Muscatels, in 50-lb boxes—Standard, 4-crown, 6¼c; do, 3-crown, 5¾c; do 2-crown, 5½c. Seedless—Muscatels, 5c; Sultanas, 5¾c; Thompsons, 6¼@6½c.

Nuts.

Walnuts, No. 1 soft shell	.16@16½
Walnuts, No. 1 hard shell	.14½
Almonds, '10 N P U	.15
Almonds, '10 Nonp	.17
Almonds, '10 I X L	.16
Almonds, Peerless	.13½
Pecans	.14@17
Chestnuts, California	.6@8

Beans Dried.

Limas	6.30@6.40
Pink	4.60@4.80
Black eyes	6.75@7.00
Small white	3.35@3.45
Large white	3.25@3.35
Kidneys	6.25@6.35
Garbanzos	2.50@3.25
Bayou	4.25@4.50
Horse beans	3.50@4.00
Red Mexicans	5.25@5.50
Cranberry	3.75@3.90

Hops.

Hops, coast, 1910	.19@23
Hops, 1911 contracts	.21@25
Hops, Oregon, 1911	.22@25

Honey.

Water white, comb, '10	.15
Dark comb	.12½
Extracted white, '11	.9@10
Extracted dark	.6½
Beeswax, lb	.24@30

Hay.

Receipts of hay on this market for the past week were 4369 tons, as against 2600 tons last week and 2938 tons the preceding week. These receipts are abnormally large for this time of year, and we would judge that holders of hay have made up their mind to clean up before the new crop is available and before they are forced to pay another storage, as crop conditions are reported much more favorable, daily, and it now looks as though we would probably have very close to an average crop of hay, although some districts will, without a doubt, show a shortage, yet others look good.

Fancy grades of hay are still very scarce on this market, and what few arrivals there are of this description are easily placed to advantage. There is very little demand for the ordinary and cheaper grades of hay; it is extremely difficult to effect sales of this commodity even with heavy concessions in price.

There has been no new hay in during the past week with the exception of several cargoes of first-cutting alfalfa, which have been hard to dispose of at other than for stock purposes, prices ranging in the neighborhood of $6.00 to $6.50 per ton.

Cutting of the new crop is in progress in a great many sections.

Trade on both sides of the bay has been very quiet during the week, and with the exception of a little hay moved for export to the Hawaiian Islands, there is nothing of interest to note in this line.

We quote the wholesale prices in round lots on today's market as follows, viz:

Fancy wheat hay	13.50@14.50
No. 1 wheat or wheat & oat	11.00@12.00
No. 2 wheat or wheat & oat	10.00@11.00
Choice tame oat	10.00@12.50
Other tame oat	8.50@10.50
Wild oat	9.00@10.00
Stock hay	6.00@8.00
Alfalfa	9.00@10.50
Straw, bale	.40@50

Grain.

Barley, fancy	1.36¼
Barley, good to choice	1.32½@1.35
Barley, poor to fair	1.27½@1.30
Oats, white	1.50@1.60
Rye, new crop	1.40@1.50
Mustard, brown	5½
Alfalfa seed	5½
Millet	2¾@3½
Flaxseed	5@5½
Broom corn seed, ton	25.00

Feed Stuff.

Alfalfa meal	17.00
Bran, ton	28.00@29.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	28.00@29.00
Rolled oats, ton	29.00@30.00
Middlings	32.00@34.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	29.50@30.00

Deciduous Fruit Market

Sacramento, June 3, 1911.

The following circular is from Manager McKevitt of the California Fruit Distributors:

The following gives number of cars of deciduous fruit shipped from all points in California for the week (7 days) ending Friday morning, June 2, 1911:

Cherries—22 cars. The cherry movement is now in full swing, with cars being forwarded from all the cherry shipping points in the state. In the early section Royal Anns, Bing, Tartarians and Centennials are going forward, while in the Santa Clara section the movement is restricted to the early varieties. In the Vacaville district this fruit will last for a week or ten days, but will probably be available from the Santa Clara districts for the next three weeks.

Apricots—One-fourth car. This fruit is now moving from Vacaville and Winters. Pringles are nearly done and Royals are increasing in quantity every day. There will be no considerable shipments, however, for another week.

Peaches—The early varieties of peaches are ripening. Like apricots, shipment will cut no figure for several days.

During the last week there has been no change in the fruit situation, except that all crops continue to look better and show increased quantity. Grapes are now blooming and promise to set well. Bunches are unusually large and fine, and the crop could not look better.

The cool, cloudy and threatening weather of the past few days has again changed and with the advent of sunshine and congenial warmth, we anticipate the more rapid ripening of fruit, which the growers of California and the eastern trade are both anxiously awaiting.

Citrus Fruit Market

LOS ANGELES, June 7, 1911.

A material improvement is noted in the orange situation, which was noted last week as decidedly easy. At that time some 1300 or 1400 cars were being forwarded every week, while last week only about 800 went forward, and this, together with rather better fruit and improved market conditions, is helping matters greatly. Valencias are the principal shipment now and excepting for the sizes running small, exceedingly fine fruit is going forward.

In lemons, the foreigns are anticipating the high prices preceding the Fourth of July and are now coming in a greater quantity than for months, but the hot weather prevailing over the entire East is absorbing everything and satisfactory prices are being obtained. It is not thought the foreigns will be in heavy enough receipts before July to break the market at all.

Shipments.

Total shipments of oranges to date since November 1st, 30,019 cars, lemons 4,142, total 34,161. To same date last year, oranges 20,680, lemons 2,763, total 23,443.

LOS ANGELES, May 31.—One car Valencias, two seedlings, two lemons sold.

	Avge.
Woodland, xf, Valencias, Santa Ana, shipped May 29, iced	$2.15
Blue Ball, ch, Valencias, Santa Ana, shipped May 29, iced	1.90
Heap Good, or, Budded Seedlings, Riverside, shipped May 24, iced	1.15
Heap Good, half boxes, Budded Seeds, Riverside, shipped May 24, iced	.57½
Heap Good, or, Budded Seedlings, Riverside, shipped May 28, iced	1.15
Heap Good, half boxes, Budded Seeds, Riverside, shipped May 28, iced	.57½
Rubidoux, sd, Budded Seeds, Riverside, shipped May 28, iced	.90
Commodore, xc, Lemons, San Diego, not shipped	3.90
Lemona, xc, Lemons, El Cajon, not shipped	3.67½
Dog, sd, El Cajon, not shipped	3.42½

LOS ANGELES, June 5.—Five cars Valencias, one St. Michaels, four seedlings, one lemon sold.

	Avge.
Woodland, fy, Valencias, Santa Ana, shipped 3rd	$2.20
Blue Ball, ch, Valencias, Santa Ana, shipped 3rd	1.95
Woodland, fy, Valencias, Orange, shipped 1st	2.20
Blue Ball, ch, Valencias, Orange, shipped 1st	1.95
Woodland, fy, Valencias, Santa Ana, shipped 3rd	2.20
Blue Ball, ch, Valencias, Santa Ana, shipped 3rd	1.95
Equator, fy, Valencias, Alhambra, shipped 1st	2.00
Blue Ball, ch, Valencias, Alhambra, shipped 1st	1.75
Woodland, fy, Valencias, Orange, shipped 3rd	2.00
Blue Ball, ch, Valencias, Orange, shipped 3rd	1.75
Red Raven, fy, St. Michaels, Riverside, shipped June 1	1.20
Heap Good, or, Seedlings, Riverside, shipped 3rd	1.15
Heap Good, or, Seedlings, Riverside, shipped June 3	1.17
Heap Good, or, Seedlings, Riverside, shipped June 3	1.05
Rubidoux, sd, Seedlings, Riverside, shipped June 3	.80

Heap Good, or, Seedlings, Riverside, shipped May 31 ..... 1.05
Rubidoux, sd, Seedlings, Riverside, shipped May 31 ..... .80
Lemona, xc, Lemons, El Cajon, shipped June 5 ..... 4.00

NEW YORK, June 5.—Twenty-six cars navels, eleven cars seedlings, six cars sweets, two cars St. Michaels, fifteen cars Valencias and one car lemons sold. Market steady on oranges and lemons. Raining.

NAVELS—	Avge.
Lotus, O. K. Ex	$3.90
Monogram, O. K. Ex	3.20
Diamond S, O. K. Ex	2.50
Golden Cross, O. K. Ex	3.80
Red X, O. K. Ex	2.80
Golden Star, O. K. Ex	1.80
Blue Jay, O. K. Ex	1.50
Lotus, O. K. Ex	4.00
Monogram, O. K. Ex	3.20
Diamond S, O. K. Ex	2.35
Lincoln, Imp., A. H. Ex	2.20
Navajo, Imp., A. H. Ex	1.65
Victoria, A. H. Ex	2.85
Lincoln, A. H. Ex	2.30
Golden Cross, O. K. Ex	3.75
Red X, O. K. Ex	2.70
Golden Star, O. K. Ex	1.60
SEEDLINGS—	
Iris, D. M. Ex	$3.00
Violet, D. M. Ex	2.50
Jasmine, D. M. Ex	1.95
Iris, D. M. Ex	2.75
Red Globe, Riv. Ex., Riv	2.10
Violet, D. M. Ex	2.45
Violet, D. M. Ex	2.40
Jasmine, D. M. Ex	2.05
Gold Buckle, R. H., E. High	2.45
Belt, R. H., E. High	2.00
Echo, S. T., Pasadena	2.40
Arroyo, S. T., Pasadena	2.05
SWEETS—	
Lincoln, A. H. Ex	$1.90
Iris, D. M. Ex	2.60
Violet, D. M. Ex	2.40
Jasmine, D. M. Ex	2.05
Red Globe, Rix. Ex., Riv	2.20
Jasmine, D. M. Ex	2.00
Tallyho, S. B. Rialto	2.25
Big R	2.00
Gold Buckle, R. H. Ex	2.25
Belt, R. H. Ex	1.90
Tallyho, S. B. Ex	2.25
ST. MICHAELS—	
Squirrel, A. H. Ex	$2.85
Palm Tree, A. H. Ex	2.60
Gold Buckle, R. H., E. High	2.80
Carnation, xc, G. & Speich	2.35
VALENCIAS—	
Premium, Benchley F.	$3.55
Superior, sd, Benchley F	3.05
Glendora Heights, fy, A. C. G. Ex	4.10
Glendora Heights, ch, A. C. G. Ex	3.65
Evolution, A. C. G. Ex	3.10
Sunny Heights, R. H. Red	3.45
Iris, D. M. Ex	3.40
Jasmine, D. M. Ex	2.55
Whittier, S. T. Whittier	3.55
Red C, Covina Ex	3.25
Cougar, Covina Ex	2.95
Jasmine, D. M. Ex	2.95
Planet, S. S. Ex	3.40
Mother Colony, S. T. Anaheim	3.00
Green Crown, A. C. G. Ex	2.55
Elephant, or, Elephant Orch	3.30
Elephant 2nds, Elephant Irch	2.70
Bronco, West American Ft. Co	3.80
Carnation, xc, G. & Speich	2.55
Covina Beauties	3.35
Sweet Pea	3.20
Old Mission, fy., Chapman	4.40
Old Mission, ch., Chapman	3.60
Golden Eagle, sd, Chapman	3.10
Corona, National O. Co	3.35
Corona, sd, National O. Co	2.75
LEMONS—	Avge.
Bridal Veil	$4.55
White Cross	4.00

BOSTON, June 5.—Nineteen cars sold. Cool, cloudy. Market unchanged.

NAVELS—	Avge.
Stork, S. A. Ex	$2.30
Lotus, O. K. Ex	3.55
Diamond S, O. K. Ex	2.65
Heart of Gold, A. F., Highland	3.10
Orchard, or, National O. Co	3.75
Hemet Heights	1.55
VALENCIAS—	Avge.
Glendora Heights, xf, A. C. G. Ex	$4.00
Evolution, A. C. G. Ex	3.45
Rose, xf, Redlands O. G. A	3.60
Glendora Heights, xc, A. C. G. Ex	3.75
Stag, A. C. G., Azusa	3.80
LEMONS—	Avge.
Quail, O. K. Ex	$5.40
Pet, S. A. Ex	5.40
Pup, S. A. Ex	4.70
Coyote, O. K. Ex	5.10
Arab, S. A. Ex	4.65
Duck, S. A. Ex	4.20
GRAPEFRUIT—	Avge.
Hibiscus	$2.00
Stock Label	1.25
SEEDLINGS—	Avge.
Violet	$2.25
Rossmoyne	2.30
Girl	2.05
ST. MICHAELS—	Avge.
Kenilworth	$2.60
Kenilworth D	2.95
Sierra Vista	1.40
Rey	3.00
Tunnel	2.75
Rey	3.10
Tunnel	2.75

PITTSBURGH, July 5.—Eighteen cars sold. Lower on oranges, easier on lemons. Warm.

NAVELS—	Avge.
Orchard, or, National O. Co	$3.60
Naralimo, or, Sparr Ft. Co	2.55
Stock Label	2.30
Circus, xc, Sparr Ft. Co	2.05
Our Pride, A. F., Highland	.85
California Orange, Riv. Ex., Riverside	2.30
Standard, sd, National O. Co	2.80
Del Oro, ch, Sparr Ft. Co	2.25
Lotengo, fy, Sparr Ft. Co	2.75
Yankee Doodle, A. F., Highland	2.15
Hawk, S. A. Ex	1.65
LEMONS—	Avge.
Hawk, S. A. Ex	$4.95
Goodness, S. A. Ex	4.80
Hawk, S. A. Ex	4.45
VALENCIAS—	Avge.
Pride of West, Pioneer Ft. Co	$2.65
ST. MICHAELS—	Avge.
Redlands' Best	$2.50
Pride	2.50
Carmencita	2.50
Colombo	2.20
Argonaut	2.50
Sequoia	2.20

CLEVELAND, June 5.—One car navels, two cars lemons, six mixed cars sold. Practically unchanged. Cool, pleasant.

NAVELS—	Avge.
Hawk, S. A. Ex	$1.90
White Ensign, O. K. Ex	2.05
Red Globe, Riv. Ex., Riverside	3.15
Prong Horn, O. K. Ex	2.80
Buck, O. K. Ex	2.00
LEMONS—	Avge.
Festival, S. T., Santa Barbara	$3.70
Blondina, S. T., Santa Barbara	2.85
Asyoulikeit, L. G., F. G. A	5.20
Festival B, S. T., Santa Barbara	2.55
On Honor, Lemon Grove	5.10
SWEETS—	Avge.
Fiesta	$2.25
Billiken	1.85
Prong Horn	2.55
Gold Buckle	3.20
Belt	2.65
Bronco	2.75
Seal	2.55
Camellia	2.15
Mutual	2.00
Blossom	2.10
SEEDLINGS—	Avge.
Fiesta	$2.40
Billiken	1.85
ST. MICHAELS—	Avge.
Fiesta	$2.55
Gold Buckle	3.35
Seal	2.55
ST. MICHAELS—HALVES—	Avge.
Bronco	$1.50
Mutual	1.20
VALENCIAS—	Avge.
Belt	$3.00
John Alden	3.00
GRAPEFRUIT—	Avge.
Gold Buckle	$1.80
BLOODS—	Avge.
Red Globe	$2.70
Blue Globe	2.60

ST. LOUIS, June 5.—Very hot. Market very strong. Nine cars sold.

NAVELS—	Avge.
Parrot, S. A. Ex	$2.25
VALENCIAS—	Avge.
Red C, Covina Ex	$3.05
Avain	3.20
Liberty, fy, Randolph Ft. Co	2.85
Cougar, Covina Ex	3.00
Dixie, ch, Earl Ft. Co	2.85
Dulce, sd, Randolph	2.65
LEMONS—	Avge.
Pet, S. A. Ex	$6.55
Pup, S. A. Ex	5.25
Bridal Veil, vc, Lim. Co	6.60
Circus, xc, Sparr Ft. Co	6.00
Plain	3.25
Arab, S. A. Ex	5.95
Rough Diamond, vc, Limoneira	4.85
White Cross, vc, Lim. Co	5.80
Del Oro, ch, Sparr Ft. Co	5.00

CINCINNATI, June 5.—Muggy, hot. Market declining. Six cars oranges, two lemons sold.

NAVELS—	Avge.
Parrot, S. A. Ex	$2.10
Carlo, S. A. Ex	1.00
Golden, Riv. Ex., Riv	1.55
Hawk, S. A. Ex	1.90
Hawk, S. A. Ex	1.15
Golden Rule, Riv. Ex., Riv	2.05
Crystal, Riv. Ex., Riv	1.25
LEMONS—	Avge.
Pride of Corona, Q. C. Cor	$4.05
Coyote, O. K. Ex	4.20
Corona Beauty, Q. C. Cor	3.60
Blue Jay, O. K. Ex	3.55
SWEETS—	Avge.
Las Palmos	$1.05
Outing	1.60
Cycle	2.10
Parrot	2.45
ST. MICHAELS—	Avge.
Airship	$3.20
Cycle	2.25

TULARE ORANGE.

(Continued from page 698)

would do so if the people of the county wanted them to. Tulare Grange passed resolutions strongly advocating the purchase and preservation of one of the few remaining groves. These resolutions were brought before the county board of trade and presented to the board of supervisors who said they would do as the resolutions requested, if they had a legal right to do so; the district attorney was appealed to and said the law authorizing supervisors to buy grounds for courts and hospitals did not provide for parks, but it might be amended. Senator E. O. Miller, then a member of the state senate, was then appealed to at the next session of the legislature. He formulated the amendment, introduced it and had it passed. The board of supervisors two years ago bought the Mooney Grove. It is central in the county, comprising one hundred acres, has a beautiful creek running through it. The supervisors will eventually add to its beauty and its attractions.

HINDI COTTON IN EGYPT.

That the requirements of the cotton goods industry necessitates the importation of approximately 60,000,000 pounds of Egyptian cotton, costing $16,000,000, is probably unknown to the majority of readers, who read of the enormous crops of cotton produced in our Southern states and learn that during the last seven months all records have been broken and practically $500,000,000 worth of that staple has been exported.

But it was the considerable value of this import that induced the United States Department of Agriculture several years ago to endeavor to develop Egyptian cotton culture in the United States in order to supply our own market with a home-grown product.

Although experiments were made at different points from South Carolina to Texas, as well as in Western Texas, New Mexico, Arizona and Southern California, it was only in the Colorado River region that climatic and other conditions similar to those in the Nile Valley, and suited to the long staple Egyptian cotton, were found. There 600,000 acres of excellent land are, or soon will be, under ditch in the Imperial, Yuma, Salt and Gila Valleys, and one-fifth this acreage could produce the amount of Egyptian cotton annually imported for the use of New England mills.

For several years studies and experiments with the various Egyptian varieties have been undertaken in Southern Arizona, Southeastern California and Egypt, and several bulletins have been issued giving detailed reports of the progress made and success achieved.

Just now the Department has issued another pamphlet (Bulletin 210, Bureau of Plant Industry), reporting the results of a visit to the cotton-growing districts of Egypt in June and July, 1910, of the bionomist of the Department, in which it is shown that the mixture of Hindi cotton is proving to be a serious burden upon the Egyptian cotton industry. Hindi is the name applied in Egypt to an undesirable type of cotton with a short, weak fiber, that injures the high-grade Egyptian varieties by infesting them with hybrids. The introduction of the Egyptian cotton into the United States brings also the problem of the Hindi cotton, and the practicability of establishing a commercial culture of the Egyptian cotton in the United States depends largely upon the elimination of Hindi contamination and other forms of diversity, so that the fiber may be produced in a satisfactory condition of uniformity.

Breeding experiments have shown that it is possible to secure a much higher degree of uniformity in Arizona than now exists in most of the cotton fields of Egypt. If reasonable care be used in maintaining the uniformity of these types, it does not seem that the American-grown Egyptian cotton is likely to suffer any commercial disadvantage on the ground of lack of uniformity, even though the Egyptian habit of hand-sorting is not followed.

The exclusion of the Hindi cotton by an efficient system of selection will enable white varieties to be grown producing longer and stronger fiber than the brown varieties are likely to afford, and will further the development and preservation of uniform strains of Egyptian cotton in the United States.

THE DIMINUTIVE.

At the age of three Janet was an enthusiastic student of entomology. One day she discovered a caterpillar for herself, a very tiny one. "Oh, come here!" she called. "Here's a caterpillar, the cutest little thing! I believe it's a kittenpillar!"—Woman's Home Companion.

A CRUEL DIFFERENCE.

Frost—"What's the difference between a debutante and a suffragette?"

Snow—"About twenty years."—Woman's Home Companion.

A GOOD LAWN MOWER.

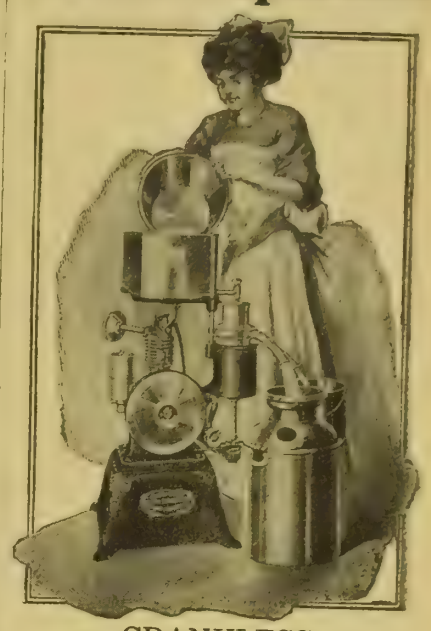
The handsomest feature of California's landscape is a well cared for lawn, and it may also be added that it is one of the most difficult features of California gardens. Our mild climate induces the growth of all kinds of pests, which dispute with blue-grass and clover for possession. Perhaps the worst of these is Bermuda, but the result is worth the effort and every home should be surrounded, or at least have some patch of green. After the soil has been put in the best condition, pests kept down and lawn produced, it is unfortunate to lose its highest value by indifferent clipping. We have seen them grow until they became so tall that the good old-fashioned scythe is brought into use and they are "mowed," but with the modern lawn clipper there is no excuse, for good ones may be had at a moderate cost. These are put up from those which are almost "midgets" up to the "pony," and even the power mower.

One of the best of these mowers is that put up by the Clipper Lawn Mower Co. of Dixon, Ill. They make announcements in another column of their line of machines, and we would advise Cultivator readers to get in touch with them and learn regarding this most desirable addition to the gardening tool. The motto of this concern is to give the people the best they can get for the money.

MODERN IRRIGATION METHODS.

The "K. T." Brown Book, a little 80-page brown-covered booklet, filled with irrigation information, especially pertaining to modern irrigation methods, has been issued by the Kellar-Thomason Manufacturing Co., 1222-1236 E. Twenty-eighth St., Los Angeles. The Kellar-Thomason people are the manufacturers of various forms of irrigation pipes and flumes, and especially of the "K T" valve, which is almost an automatic control for irrigation water. Water is too expensive in California to be wasted, and a little money invested in appliances, if it will only save this valuable water, pays big interest. The method of installing these appliances so as to save irrigation water is shown in text and illustration in this booklet, which is well worth the writing for. Mention The Cultivator and ask for it.

AUTOMATIC
Cream Separator



CRANKLESS
and GEARLESS

Nothing like it has ever before been invented. One size machine for any size dairy. The drudgery of dairying now a thing of the past.

It separates the milk perfectly faster than ten men can milk it.

Start the separator when the milking begins and it being both automatic and continuous in its operation, when the farmer is through milking he is through skimming.

Speed of bowl brought up in 15 seconds and will run for hours without the slightest variation.

It is destined to revolutionize the dairy business.

We are at least FIVE YEARS ahead of all competitors.

ARNOTT & COMPANY
Pacific Coast Agency
LOS ANGELES ... CALIFORNIA

Over 1,000 Gallons
Per Hour

Fairbanks-Morse Eclipse Pumper

$50.00

F. O. B. Factory
Beloit, Wis.

Engine and Pump Jack Complete

Free Catalog No. MH1034

Fairbanks, Morse & Co.
Los Angeles San Francisco

Flour City Gas Engine

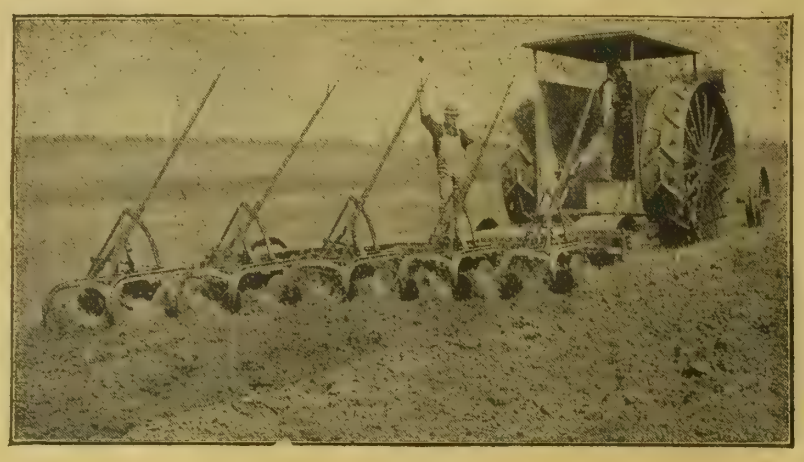
20 H. P., $2000 30 H. P. $2600 40 H. P., $3500

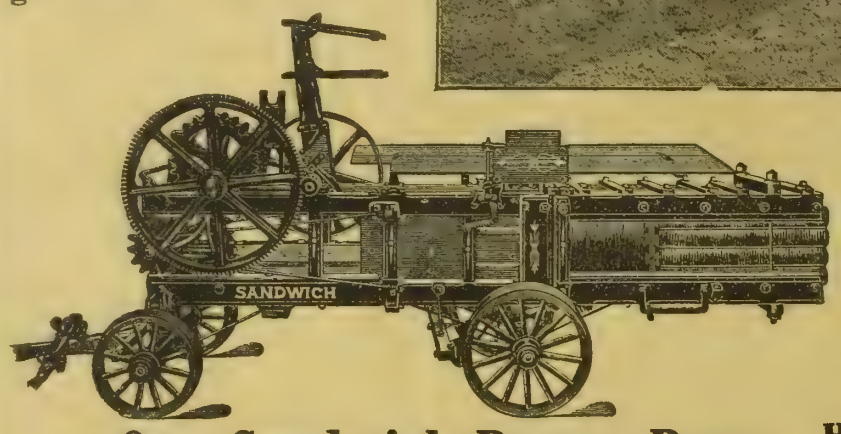
We sell them at Los Angeles at the same price as you buy them East.

We have sold

10

of them and they are doing good work.





Read and Be Convinced:

Los Angeles, Cal., April 24, 1911.

Hawley, King & Co.,
Los Angeles, Cal.

Gentlemen—Replying to your question as to what I am doing with the 40 H. P. "Flour City" Gasoline Engine, will say that I am pulling 12 10-inch Plow Bottoms ten inches deep on my ranch near San Miguel. The ground is dry and very hard and we are using fourteen horses on 4 10-inch bottoms and can not plow over six inches deep with our horse plows.

Yours very truly,
(Signed) PETE VALENZUELA.

Our Sandwich Power Press

Has Records of 65 Tons per Day

Hawley, King & Co.

224-8 So. Los Angeles Street Los Angeles, California

Write for Printed Matter

. . THE . .

"BRIGGS"

Improved Fruit Pitting Machine

Saves Money, Fruit and Worry

By helping you keep up with your crop. The fruit is cut smoothly, entirely around, and not bruised, and the dried product sells equally as well as hand-cut. It does the work of eighteen or twenty hand cutters, doing good work.

2 tons per hour free stone peaches.
1 ton per hour apricots and plums.
It is no experiment and is guaranteed.

Send for circular.

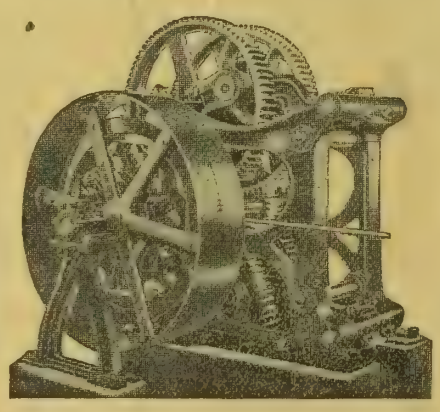
The Briggs-Knight Manufacturing Co.

336 East Second Street

LOS ANGELES, CALIFORNIA

The Smooth Running Pomona Deep Well Pump

Water is King in California, especially in the South, and anyone having crops or orchards depending upon it should not experiment. The POMONA DEEP WELL PUMPS are the standard for reliability and efficiency, and can be depended upon to do their work with less trouble than others. They are manufactured by a company who have the equipment and ability to build their machinery in a first-class manner and to install them satisfactorily to their customers.



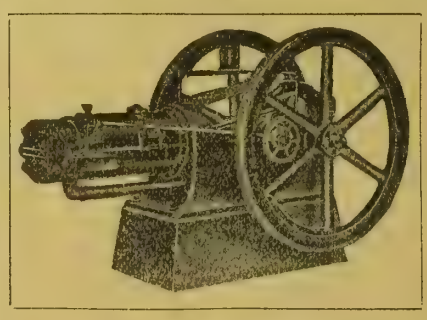
Send for literature and price, or if possible come to Pomona.

POMONA MANUFACTURING CO.

POMONA, CALIFORNIA

Or C. H. Weed, Porterville, Cal.
Agent for the San Joaquin Valley.

WHY NOT BE UP TO DATE



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Our 1911 Catalogue Showing 1912 Construction Can be Had by Writing

The

COMMERCIAL ENGINE CO.

951-953 No. Main St., Los Angeles, Cal.

Koppel Ready-made Railroads

Efficient
Economical
Inexpensive
Indestructible

Agents Wanted

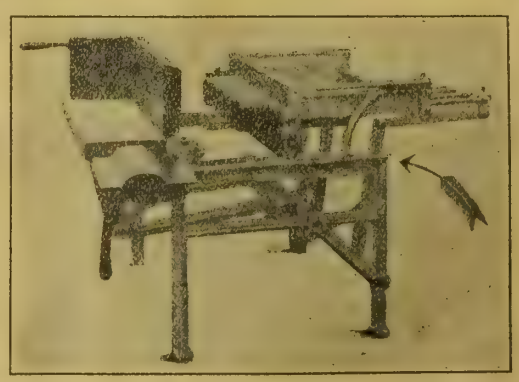
Track laying with a monkey wrench
Steel Tray Cars Portable Track

Write for Pricelist C. C. and Booklet.

Orenstein-Arthur Koppel Company

Chronicle Bldg., San Francisco 120 So. Los Angeles St., Los Angeles

How to Make Concrete Pipe Book Free



Address

T. A. McMurtrie

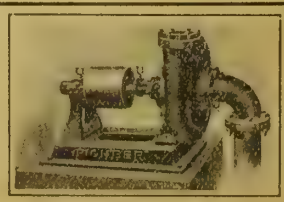
Manufacturer of

Concrete Machinery

Irrigating Pipe Tools
Block Machines
Power Tampers
Mixers

1085 45th St., Oakland, Cal.

Correspondence Solicited



Why Experiment with Inferior Pumps?

Buy a pump built on the Pacific Coast, and adapted to your needs.
Our pumps have been in use and on the market for years, and have stood the test of time.
Buy direct and save freight and jobbers' profits. Live, erecting agents wanted. Our retail prices are less than our competitors' wholesale prices.

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The Big Weekly { Fifty-two issues, each containing from 24 to 32 pages of practical information, } For $1 the Year

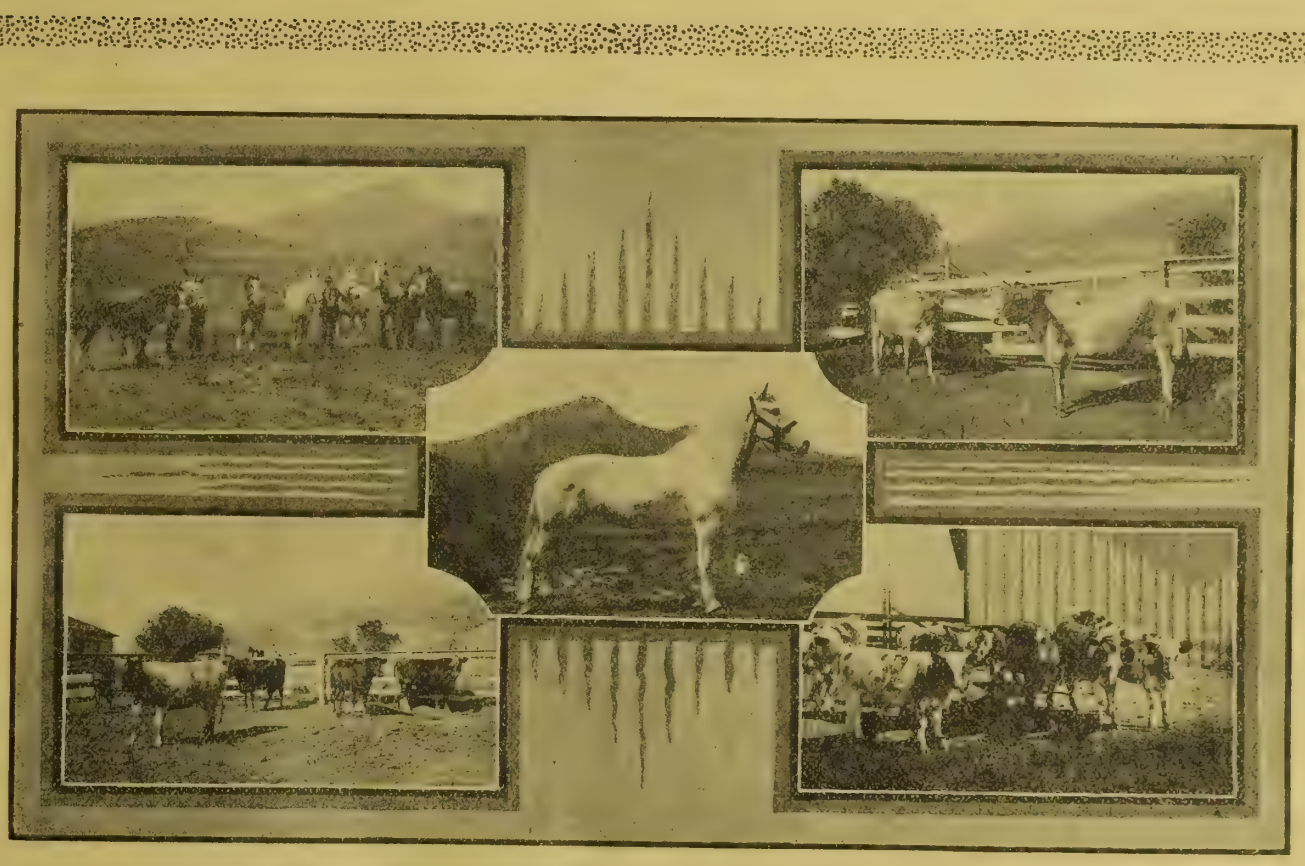
CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch.

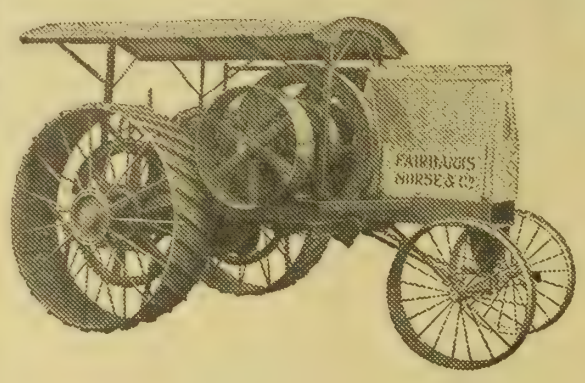
LOS ANGELES JUNE 15, 1911 SAN FRANCISCO

State Polytechnic School at San Luis Obispo

Photos of Some of the School's Stock Which Pupils Use for Judging.
The Lower Pictures Show the Carpenter Shop
and the Sewing Exhibit of the First Year Girls.



"The next trial of importance was up a hill with grades of 25 to 27%—pulling a load that ordinarily required 12 horses—over just about as rough a country as could be imagined. Your 12-25 H. P. Oil Traction Engine went without trouble or worry"



This is the Fairbanks-Morse 12-25 H. P. Oil Traction Engine

For Simplicity, Durability and Easy Handling It Has No Equal

Catalogue LA 37 Sent Upon Request

Our 30-60 Horse Power Oil Traction Engine will be ready for delivery October 1.

Our 2-cylinder, 4-cycle Engine will operate on 3-cent distillate, as good as with the best gasoline.

We are also the manufacturers of

Fairbanks Standard Scales
Electric Lighting Outfits
Hand, Windmill and Cistern Pumps
Hand Trucks and Push Carts
Marine Engines
Power and Hand Sprayers
Pump and Windmill Cylinders
Shafting, Pulleys, Belting, Etc.

FAIRBANKS-MORSE & CO.

425 East Third Street, Los Angeles, Cal.

LAND IN MEXICO

NOW—That the Revolution is over the American Farmer should again take up the business of investigating the only good lands in the reach of the American Markets, that can be had at low prices. Prices that will allow the man of moderate means to own and operate a good sized farm or ranch for himself.

The opportunity is here today

Investigate early and your profits on your increase in the value of the land will be greater. Let us send you West Coast of Mexico literature.

BEN W. McCLOSKEY & CO.

700 Union Trust Building **LOS ANGELES, CAL.**

Cows Give 262 lbs. More Milk Daily

After substituting a part of their regular feed with Proteina, says a leading dairyman. ¶ Unequalled for Cows, Calves and Poultry, and fed at a comparative low cost.

46% PROTEIN - 10% FAT

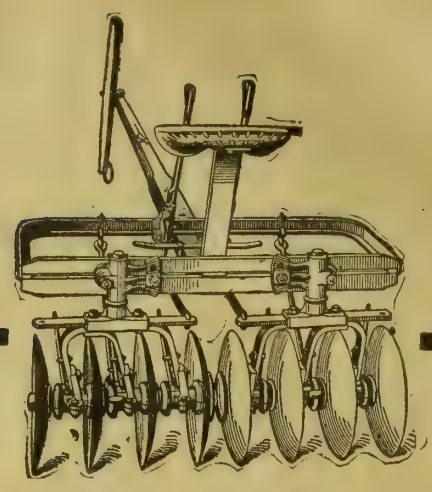
Proteina is concentrated from the Soy Bean and contains 33⅓ more Protein. The U. S. Agricultural Dept. says: "A bushel of Soy beans is at least twice as valuable for feed as a bushel of corn." ¶ POULTRY MEN FIND PROTEINA BETTER THAN BEEF SCRAPS FOR LAYING HENS. Write for signed letters from Poultrymen and Dairymen.

Proteina SOY BEAN OIL MEAL MANUFACTURED BY PACIFIC OIL MILLS SEATTLE

SOLD BY DEALERS ON PACIFIC OIL MILLS, SEATTLE.

Germain Seed & Plant Co., So. California Agents

326-328-330 S. Main St., Los Angeles, Cal.



Cotton King Disk Harrow

This harrow is symmetrical in design and strong enough to withstand the heavy work which a disk harrow encounters in a field. It is equipped with three steel standards, which insures great strength and will not clog when working over freshly-plowed ground or among clods. It will work equally well in any condition of soil, no matter whether the field is sandy or soggy. The gangs respond promptly to the levers so that the driver can easily adjust the disks to work at any desired angle. The frame is high and the disks can be so extended that there will be ample room for passing the plants when using the harrow as a cultivator. The levers do not extend below the tongue where they would interfere with the plants being cultivated. This disk harrow is just what you need. Come and investigate.

ARNOTT & COMPANY
GENERAL AGENTS
LOS ANGELES **CALIFORNIA**

Official Report
7 June, 1911

Merchants National Bank of Los Angeles

Resources		Liabilities	
Loans and Discounts	$4,555,145.88	Capital Stock paid in	$ 200,000.00
U. S. Bonds	250,000.00	Surplus and Undivided Profits	737,650.89
Premium	2,500.00	Circulation	200,000.00
Other Stocks and Bonds	528,644.14	Bond Account	96,000.00
Furniture and Fixtures	70,000.00		
Real Estate	17,029.84		
Due from Banks and U. S. Treasurer $1,626,215.79			
Cash on hand 833,635.66			
	2,459,851.45	DEPOSITS	6,649,520.42
	$7,883,171.31		**$7,883,171.31**

W. H. HOLLIDAY, President. MARCO H. HELLMAN, Vice-Pres.
J. H. RAMBOZ, Cashier.
H. H. MARTIN, Assistant Cashier. O. A. COX, Assistant Cashier.

Comparative Deposits

7 January 1911	**$5,886,479.83**
7 March 1911	**6,458,256.58**
7 June 1911	**6,649,520.42**

W. A. Barker, W. L. Graves, W. H. Holliday, W. L. Valentine, N. Bonfilio, M. A. Hamburger, W. E. Keller, E. P. Bosbyshell, Irving H. Hellman, F. M. Lyon, H. T. Newell, L. C. Brand, D. K. Edwards, Marco H. Hellman, E. T. Stimson

BALE HAY
WITH A
GLADIATOR PRESS
The Newest and Best ¾ Bale Press

Then we have the old reliable **STEEL BEAUTY** making a standard 17x22 bale.

BAKER & HAMILTON
San Francisco **Sacramento** **Los Angeles**

California Cultivator

Vol. XXXVI. No. 24. LOS ANGELES: THURSDAY, JUNE 15, 1911 One Dollar the Year

Is the Horticultural Law Constitutional?

State Horticultural Commissioner J. W. Jeffrey Discusses the Law Empowering County Horticultural Commissioners to Eradicate Pests Affecting Agriculture of This State. The Law is Constitutional and Will be Enforced.

In a late issue of the Cultivator, Prof. C. W. Woodworth discusses the county horticultural law in connection with the effort now being made in Los Angeles County toward the suppression of the peach aphis. If his contention in regard to the constitutionality of the law is correct, the law should either be abandoned or made to conform to constitutional principles; if his contention is not well founded, a discussion of the law as it is may be of some value to your readers. At any rate, the subject of horticultural legislation is of great interest to the people who are in any way connected with the fruit industry, and the questions concerned with it should always have careful consideration.

The foundation of Prof. Woodworth's contention is that the county horticultural law contemplates the eradication of insect pests; eradication being impossible, there is no lawful basis for the application of compulsory treatment that merely lessens the number of pests; eradication is the intent of the law, and also impossible, and there is an axiom that no law can require the impossible. Hence, and for other reasons, the act is unconstitutional. The mere fact that it has been applied, liens filed and collected under these conditions, does not establish its validity. Prof. Woodworth asserts further that the difficulties surrounding the pest question could be largely avoided if the county assumed the financial responsibility of the work. It is probable, also, he says, that it would be better to provide for its continuance under a county ordinance, thus avoiding a fundamental unconstitutionality of the state law which has never been adjudicated but which many have known to exist. With the proper county ordinances, this whole question of constitutionality could be eliminated.

Furthermore, he says, the law has been drawn upon the analogy of quarantine laws governing health officers. "Where property alone, and not life, is at stake, any attempt to create laws permitting the destruction of property without due process of law and without suitable indemnity would certainly not be held to be constitutional if the question came before the courts."

The errors into which Prof. Woodworth has fallen are plain. In the first place, the county horticultural law has been subjected to the most severe test in the supreme court of this state. The briefs which have been submitted in opposition to the law upon every conceivable point by the attorneys employed to defeat it presumably have covered every point of attack. The supreme court of the state after the most thorough consideration has declared this law constitutional, and I am at a loss to know what he refers to as the "fundamental unconstitutionality which many have known to exist." On November 11, 1899, and again on July 5, 1901, the supreme court reviewed every element of this law, sustaining the act in every particular. The latter was the celebrated Riverside case in which the court stated that the constitutionality of the law as a whole had been so well established by a former supreme court decision that it was not necessary to discuss this phase of it further. Specifically these two cases determined the following points: That every provision of the act is germane to the subject matter expressed in its title; that the horticultural commissioner has the power to determine whether any orchard infestation is a nuisance, and that he exercises police and not judicial power in determining and abating it; that a lien filed against property for abating a nuisance of this character is not in the nature of a delinquent tax, but it is to satisfy a just indebtedness to the county and the enforcement of the lien under the horticultural law is not unconstitutional. Furthermore, the court upheld the provisions of the law as to form of notice, as to the methods of giving notice of insect infestation, itemizing the bills for the work, and every other provision called in question by the suit. In denying the validity of every objection raised by the defendants in the Riverside suit the law seems to have been vindicated in every particular. If there had been any basic defects in the act, the score of able lawyers who have fought it in the past would certainly have discovered the fact.

The law neither contemplates nor permits "the destruction of private property without due process of law." It does not destroy property at all but protects and conserves it. This fact is subject to absolute proof before a court, and when a lien is filed the law prescribes specifically that it can be satisfied only after investigation of its merits in court. This provision prevents any invasion of rights and precludes indemnity if the facts of beneficial results can be proved, whether the insect pests are eradicated or not. Again, the horticultural commissioner is liable personally and officially for wrongful acts done under color of his office and is obliged to give bonds in the sum of one thousand dollars to cover all possible delinquencies.

Prof. Woodworth also states that "The health laws stand in striking contrast with the whole body of constitutional laws, finding their only parallel in the acts permitted during actual war." But the supreme court says that the health acts are a part of the constitutional law of the land and hence they cannot be separated for the sake of argument. A police power has been declared as fundamentally constitutional as judicial or legislative power and is in fact only executive power conferred specifically by the law and supported by the highest courts in this interpretation. This power is not in violation of either common or statutory rights. The supreme court of the state has specifically classed the horticultural act in question with the health, retail liquor, street-speaking, drum-beating, food inspection and other police and yet statutory regulations. "All such laws," says the court, "have been judicially held to be valid. They confer the same power upon designated public officers as is given to the horticultural commissioners."

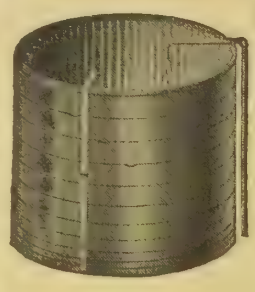
The law first declares the infestations of orchards, trees, plants, lands, etc., by harmful insects and noxious weeds, to be public nuisances. This declaration, standing alone in the law would doubtless be an unconstitutional provision. But the law provides for the inspection of all orchards, plants, premises, etc., in order that the county commissioner may by proper examination determine whether any particular place is a nuisance, and the supreme court has declared that the commissioner may rightfully exercise this discretion in so determining. In carrying into execution any police regulation it must be done in a prompt and summary manner, or at least the power to do so must be given, and the horticultural law does not transcend any right in giving the commissioner power to abate insect nuisances "in a summary manner." But even this strong power is limited by the act itself, as the law provides a day in court for the adjustment of damages or inefficiency in the abating of the nuisance.

This brings us to the point as to whether the law contemplates "the eradication of insect pests." In the Riverside case, the defendants demurred, stating that the cause of action did not set forth whether all or only a part of the defendant's orchard was infested with scale; that the complaint did not indicate to what extent the scale was "eradicated," or that it was eradicated at all. The supreme court overruled all these objections and ordered the lower court to overrule the whole demurrer. The court required no evidence that the scale had been exterminated, and I believe the highest courts in the future, if it is tested, will rule that an earnest, intelligent attempt to abate the cause of an orchard nuisance—to lessen, suspend or stop the progress of an insect pest—is compliance with both the spirit and meaning of the law.

Even should the courts subject the language of the law to strict construction, the word "abate" ocurs oftener than the word "eradicate" and apparently with more importance in its relation to the powers attempted to be conferred by the act, and the word "abate" is used with the most liberal construction throughout the two decisions of the supreme court and also throughout many decisions rendered by the superior courts of the state in relation to the same law. Very few laws are interpreted strictly upon the literal significance of certain words, when the whole purport of the act may be plainly in opposition to the significance of certain of its terms.

As to the proposition of placing the whole subject of insect control under supervisorial ordinances, the attorney general has declared that such ordinances now existing are not legal. In one case a superior court has abrogated one of these county ordinances. Before the supervisorial ordinance could become lawful the present horticultural act would have to be abolished. Even if that could be done, I cannot see how a county ordinance could overcome constitutional difficulties that cannot be avoided by a statutory law.

Our horticultural laws are not perfect by any means, nor will they ever be. The best way, however, to improve them is not by vague criticism. Improvement can only be made by constructive work, by drawing up bills embodying the best principles and the most workable plans. The legislature will readily enact any good bill of this character and the governor as readily give his approval.



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CITRUS CULLS AS FERTILIZER.

By G. Ross Robertson.

Might I add a little—as an amateur and perhaps but a theorist—to the old discussion on the value of citrus culls as fertilizer.

Judging by Professor Colby's investigations, orange culls do not contain enough nitrogen, potash and phosphorus to pay for a mule to haul them into the orchard, let alone paying the wages of a man to spread them as fertilizer. Moreover, Washington authorities warn us against the possibility of introducing too much acid, with a chance of encouraging root rot, or of infesting clean orchards with somebody else's scale-ridden fruit. In spite of this, a novice often thinks that there can surely be no fertilizer that could replace in the soil the "exact materials" necessary to make new fruit, such as the culls of that self-same fruit. He of course forgets that the fruit of the orange, as with most other fruits, is composed of almost nothing but carbon and a very large proportion of water. The water we don't need (if we irrigate properly), and the carbon simply does not get into the tree through the medium of the roots; and the only direct "fertilizer" is a minute fraction of a per cent of nitrogen, phosphorus and potash. The argument is thus rather hard on the cull orange.

In accordance with these experiment station ideas, various packing associations about Redlands are going to considerable expense to haul their culls to the Santa Ana wash dump and other equally harmless places. But to get to the point of this dissertation: it happens that one of these associations has been dumping culls for some time on a near-by piece of land seeded this season to barley hay. The results of this accidental experiment at Mentone seemed to me to be especially interesting. Like much of the valley soil, this hay field is of very light sandy loam, and lacking in humus, as might be expected. The culls had been scattered at random over the area, quite heavily in some places. In every spot where the fruit had lain the effect on the grain was astonishing. Where the application had been too thick, the mower was not able to cut the hay on account of the over-rank growth. Obviously the culls could have been spread over a much wider area, and the results been more moderate, and of more real value.

If orange culls are chemically so nearly worthless as a "direct" fertilizer, does it not seem rational to place more emphasis on the indirect value of the humus that we can derive from them? There are many who are beginning to think that we should pay attention to modes of getting otherwise unavailable materials out of our soil, as well as patronize the nitrate of soda industry; and perhaps orange-cull humus, acid, water and all, can help us at that job.

There will be many who admit that the culls might boost this hay crop, but who will not agree that the cash value of the result is commensurate with the effort of application, etc. Perhaps that is to a degree true; but at any rate is it business sense to pay out a goodly sum of money to hire men to carry culls long distances to a dump where they only cumber the landscape? If you are bound to pay out good cash to move this sort of stuff, why not put it where some future crop may profit by it? Possibly it is not wise to plow them into citrus orchards, but there are certainly other agricultural enterprises where they could be of value. In our open, free aerated California soils, literally reeking with bacteria, it will be some time before we can "sour" the land by the use of such fertilizers.

INCREASING USE OF FERTILIZERS

Soil foods seem to be rapidly gaining in popularity or absolute requirement, or perhaps both, among the agriculturists of the United States. The total value of imported fertilizers, including materials largely though not exclusively used for that purpose, aggregated $40,000,000 in the calendar year 1910, against $10,500,000 in 1900 and $5,500,000 in 1890, according to figures compiled by the Bureau of Statistics of the Department of Commerce and Labor; while other reports covering the production of fertilizers indicate also a large and perhaps equally rapid growth in domestic output of the various materials used for fertilizing purposes. The production of phosphate rock, for example, largely used in the manufacture of artificial fertilizers, has increased, according to reports of the Geological Survey, from $6,500,000 in 1904 to $10,750,000 in 1909; while the Census Office reports the value of fertilizers manufactured in 1890 at $39,000,000, in 1900 at $45,000,000, and in 1905 at $57,000,000, and if the rate of increase just shown with regard to the production of phosphates, a basic material in the manufacture of fertilizers, occurred also in the output of manufactured fertilizers during the period since 1905, the total production in 1910 was probably $70,000,000. Meantime the United States exported last year fertilizers to the value of $10,000,000, making the approximate consumption of soil foods by the farmers of the country about $100,000,000 per annum, omitting consideration in this connection of cotton-seed meal, used in part as fertilizer material, but largely as a food for live stock.

The increase in importation of the more important classes of articles used as fertilizers is indicated by the following figures. Imports of soda nitrate, or Chile saltpetre, have increased from $3,000,000 in 1890 to $5,000,000 in 1900, and to over $16,500,000 in the calendar year 1910. The imports of potash salts of the fertilizer class, chiefly the muriate and sulphate, have increased from $1,00,000 in 1890 to $2,000,000 in 1900, and six and two-third millions in 1910; while imports of phosphates, guano, kainit and other fertilizers have increased from over $1,000,000 in 1890 to $2,000,000 in 1900, and $9,500,000 in 1910.

The commercial sources of the elements chiefly relied upon as soil foods—nitrogen, phoshoric acid and potash—are comparatively few. Nitrate of soda, valuable because of its high content of nitrogen, comes almost exclusively from Chile, from which the imports amount to over 300,000 tons, valued at about $13,000,000 per annum. The potash salts are practically all the product of Germany, the imports therefrom of muriate of potash, valuable by reason of its richness in available potash, ranging from 200,000,000 to 400,000,000 pounds, valued at from $3,000,000 to $5,000,000 per annum. The imported sulphate of potash also comes chiefly from Germany, though smaller amounts are imported from Belgium, Austria-Hungary and Japan. Imported guano comes from a considerable number of countries, though mostly from Peru and Germany, smaller amounts being imported from the United Kingdom, Mexico, Netherlands, the Dutch West Indies, and, in some years, from Uruguay, Venezuela and British possessions in Oceania. Of the imported crude phosphates, Belgium, French Guiana and British Oceania are the chief sources; while of the other imported fertilizers not separately enumerated by the Bureau of Statistics, Germany is the chief source, supplying from 70 to 80 per cent, the remainder being chiefly from the United Kingdom, Canada and Belgium.

Additional evidence of the increased consumption of artificial fertilizers in the United States is contained in the figures of the census, which show that the number of establishments devoted to that purpose has increased from 278 in 1880 to 553 in 1905; the tons of material used, from 727,453 to 3,591,771; and the value of their product, from $20,000,000 in 1880 to $57,000,000 in 1905. The materials used by the domestic fertilizer industry in 1905 included bones, tankage, etc., $5,000,000; phosphate rock, $4,500,000; potash salts, $3,500,000; superphosphates, $3,000,000; cotton seed meal, two and one-third millions; pyrites, $2,000,000;

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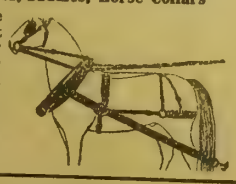

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kainit, nearly $2,000,000; nitrate of soda, $1,750,000; sulphuric acid, $1,000,000; fish, nearly $1,000,000; ammonia sulphate, a little over a half million; and various other articles, such as sulphur, lime, wood ashes, and salt.

ANOTHER BENEFICIAL INSECT.

Regarding the newly imported insect which it is hoped will aid in ridding black scale ridden trees of the pest we have asked Superintendent E. K. Carnes of the State Insectary for a statement, and he writes:

"We made arrangements with Professor Charles Lounsbury, government entomologist, Union of South Africa, who sent us the Scutellista cyanea, to prepare shipments of black scale infested plants that have been parasitized in the half-grown stages by the internal Hymenopterous parasite Aphycus lounsburyi and sent in various ways to the state insectary.

"The control of black scale by parasites in South Africa is complete, and the species we are now trying to establish in California works in conjunction with the Scutellista cyanea. It possesses this advantage over the Scutellista, that it attacks the scale in all its stages up to the egg stage, consequently it has a much wider range of activity, and can work in the inland where we have a more even hatch of the black scale.

"The first shipment received by parcels post came through in good condition. From this lot over five hundred flies have issued. The second shipment is now in San Francisco, passing through the customs department. This lot was shipped in cold storage. Additional shipments will follow throughout the season.

"I have taken a shipment and personally liberated them in the vicinity of Los Angeles on pepper trees, and have made arrangements to have additional colonies placed in various centers.

"This species will not be available for general distribution for some time, as I wish to thoroughly try them out before offering them to the public.

"I might also add that we have imported other species from China and the Philippine Islands for the same purpose. Aphycus lounsburyi works on the black scale in the same manner as Coccophagus lecani works on the soft orange scale with which most of our growers are familiar.

"With regard to what we expect it to do—we know what this species combined with Scutellista has done in South Africa, and are trying to duplicate the work under California conditions, and the policy of the insectary is to bend every effort towards controlling our destructive pests with their natural insect enemies, and to prove what they are capable of doing before making any statement as to what they are going to do."

Irrigation Engineer C. E. Tait, of the Division of Irrigation, Department of Agriculture, writes the Cultivator regarding Bulletin 236, which, as its title would indicate, has to do with irrigation in Pomona Valley. The author says: "Pomona was selected as a typical district in the citrus belt for investigations." Many of the methods and points given in this book apply to all parts of the state. It is a valuable booklet, and should be applied for either to the Division of Irrigation Investigations, Berkeley, or the Department of Agriculture at Washington.

California shipped nearly 8,000 carloads of citrus fruits in the month of March this year, and not only did not glut or break the prices in any market, but in fact increased the price steadily throughout the entire month.

Three things made this possible—ripe fruit, the wonderful advertising campaign carried on by California, and the California Fruit Growers Exchange.—Florida Grower.

Santa Barbara County is working for a permanent highway through the forest reserves and over the Coast Range to Bakersfield. It is hoped the government will join in the work in the interests of fire protection.

The fruit growers of Elsinore Valley, Riverside County, have perfected a co-operative marketing organization with F. C. Lillie President, and A. R. Moore Secretary.

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PACIFIC COAST NURSERYMEN'S ASSOCIATION.

The Pacific Coast Nurserymen's Association will convene next Wednesday morning, June 21st, in Odd Fellows Hall, San Jose, at 10:30. President George C. Roeding of this state will preside. Mr. Roeding and a bunch of San Jose boosters have been working like nailers to get things in shape for this convention, and a big attendance is anticipated from all portions of the Pacific Coast. A special train is to leave Portland on the 18th and nurserymen from all over California are expected to turn out in large numbers. A long list of addresses on topics of interest to nurserymen and orchardists has been prepared and two social afternoons are provided for. At the opening at 10:30 Wednesday, June 21st, the usual mayor's address of welcome and greetings from the Chamber of Commerce with response by P. A. Dix of Utah, together with appointment of committees will fill the morning session. In addition an address will be made by C. J. Atwood of Toppenish, Washington. At the reconvening at 1:30 President Roeding will make his annual address and other features of the afternoon session will be:

Nurserymen and Horticultural Authorities, M. McDonald, President Oregon Nursery Co.; Discussion, Jno. S. Armstrong, Ontario, Cal., and E. P. Watson, Clarkston; Insurrecto Nurserymen, J. W. Jeffery, Horticultural Commissioner California; Discussion, A. McDonald, Orenco, Ore., and Max J. Crow, Gilroy, Cal.; Attitude of Nurserymen Towards Horticultural Laws and Inspectors, S. A. Miller, Milton, Oregon; Discussion, Almon Wheeler, San Jose, C. J. Atwood, Toppenish, Wash.. Question box: Is it practical to save growing nursery stock in the spring months by the use of fuel pots and by smudging? Is it a good practice for nurserymen to publish prices in the papers in which they advertise? Is the crown gall on the apple less frequently found when the trees are budded than when grafted?

Morning Session, June 22:

Thursday morning: Why the Nurseryman should stand in the position of an Educator to the Fruit Growers, Prof. E. J. Wickson, Berkeley, Cal.; Discussion, A. Brownell, Portland, and Ray I. Hartley, Emmett, Ida.; Grading Nursery Stock, C. F. Breithampt, Richland, Wash.; Discussion, O. R. Hayes, Lewiston, and H. A. Lewis, Portland; Plans for Growing and Keeping Nursery Stock, A. McGill, Orenco, Ore.; Discussion, L. R. Cody, Saratoga, and C. F. Breithampt, Richland; Apple Seedlings in the Northwest, A. W. McDonald, Toppenish, Wash.; Discussion, H. S. Galligan, Hood River, Oregon, and Q. Lingham, Puyallup, Wash.; Rural Out of Door Adornment, Johannes Reimers, Stockton, Cal. Question box: What constitutes a nurseryman's agent? What is the best preventive for wooly aphis on apple in nursery trees or seedlings? Should this association act as a protective agency as against adverse legislation in regard to quarantine laws, and how? Half hour informal conference with Luther Burbank.

Thursday afternoon the Nurserymen's Association will be the guests of the Chamber of Commerce on a trip to Congress Springs, Los Gatos, Saratoga and Campbell.

On Thursday evening the protective association will hold its session.

Friday morning session, 9:30 a. m.: The Nurseryman, a Pioneer, P. A. Dix, Roy, Utah; Discussion, W. R. Wood, Exeter, and C. P. Taft, Orange; Pedigreed Stock, Does it Pay? Leonard Coates, Morganhill; Discussion, H. M. Lichey, Sunnyside, Wash. and D. D. Campin, Ceres; Virtues and Faults of Different Kinds of Pear Stock, N. S. Bennett, Medford, Ore.; Discussion, W. S. McClain, Sunnyside and J. A. Pilkington, Portland, Oregon; Wild Flowers of California, Theodore Payne, Los Angeles; Discussion, C. W. Howard, Hemet, and John Vallance, San Francisco; Early Nursery Reminiscences by J. Q. A. Ballow, G. W. Tarleton. To what extent is it possible and practicable to distinguish varieties of trees in the nursery? What should define the line between the reputable and disreputable dealer?

Friday afternoon the attendants are invited by Mr. W. V. Eberly to be the guests of the California Nursery Co., at Niles.

PRECOOLING OF FRUIT.

By A. V. Stubenrauch, Expert Acting in Charge of Field Investigations Bureau Plant Industry.

The "Lodi Sentinel" of April 12th publishes what is presumably a copy of a circular being disseminated by the Pacific Fruit Cooling and Vaporizing Company which contains statements giving the impression that I have recommended the patented process of that company as being the one system of precooling which has been found to work with perfect success. This statement is given as a part of arguments which are said "to be adduced" from statements made in a paper on the precooling of fruit which I prepared for the convention of the Western Fruit Jobbers' Association held at Sacramento, Cal., last February. I am not prepared to say that the use of the statements in the way indicated above was at all intentional on the part of the company, but they have been interpreted as a recommendation from me, and in justice to the work of this bureau and to the fruit interests of California I deem it advisable to correct any misunderstanding or misconceptions which may have resulted from the publication and dissemination of the circular in question.

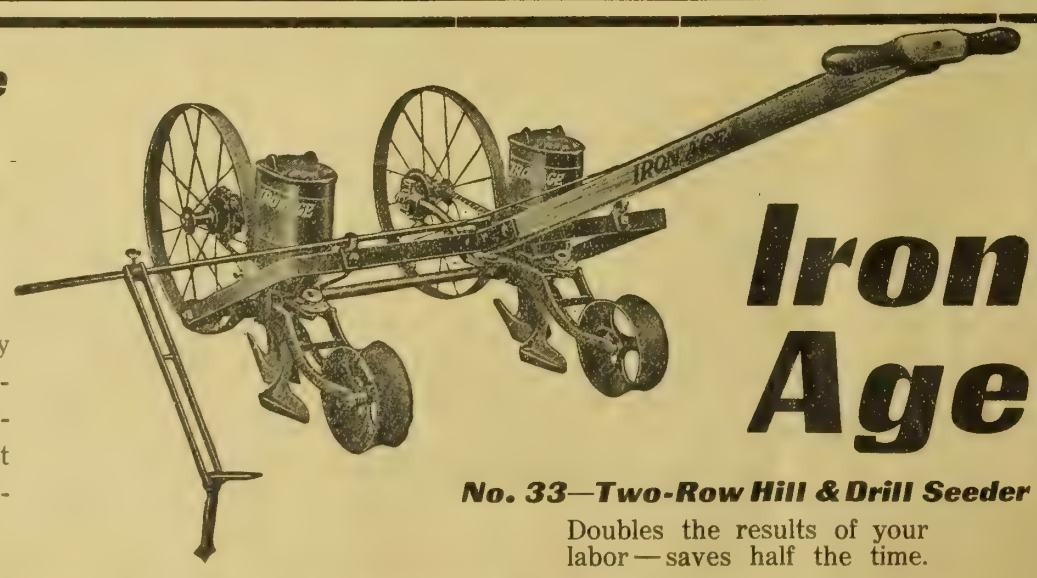
We have not yet gotten to the point in our investigations where it is possible to recommend any particular precooling system as being the one adapted to all conditions, and to recommend any particular patented process is wholly out of the question.

Many problems connected with the precooling of fruit still remain unsolved; in fact, this method of preparing fruit for shipment cannot yet be said to have gone far beyond the experimental stage. The bureau of plant industry investigations are being continued and have in view the working out of the various problems connected with the cooling of fruit, and the data and information gained from these investigations will be made available to the fruit industries as rapidly as consistent and accurate results are obtained.

Among the so-called arguments stated in the circular of the Pacific Fruit Cooling and Vaporizing Company are the following statements:

Iron Age Wheel Garden Tools

are well made, easy to operate, accurate and simple. Illustrated booklet sent free on request.



Iron Age

No. 33—Two-Row Hill & Drill Seeder

Doubles the results of your labor—saves half the time.

Newell Mathews Company

Los Angeles Established 1886 California Stockton

"Green fruit shipped under ice alone cannot arrive on a distant market in a uniform condition.

"The delay incident to any system of precooling after the fruit is loaded into the car nullifies whatever benefit might otherwise accrue.

"Warehouse precooling, while much to be preferred to immediate shipments of fruit under ice alone, or to precooling after loading into the car, is open to the serious objection of expending several days of the short life span of the fruit at this end of the line, whereas if made available at the other end of the line would mean wider distribution and better profits to the producer."

The above statements as submitted are evidently based upon a misconception or misinterpretation of the statements made in my paper and are in consequence erroneous deductions. It would not be safe to say that green fruit cannot be carried in uniform condition under ordinary methods of refrigeration. Under certain conditions, green fruit shipments are being carried safely without precooling, and precooling as such is not a panacea for all of the difficulties encountered in the transportation of green fruits over long distances. The type of handling given the fruit and the promptness with which its temperature is reduced are the most important factors governing the behavior of the products in transit.

The delay mentioned in the second paragraph quoted refers to delay in applying the cooling process and is important with any system of precooling, including one under discussion. Delay as applied to car precooling mentioned in my paper referred to the delay incident to the assembling of cars or to the hauling of the fruit and loading either in cars or in precooling rooms. It is not the delay incident to the limitations of any system itself, but delay in securing prompt reduction of temperature. We have never asserted that it is impracticable to precool after loading in cars, and the argument as above stated is, therefore, wholly erroneous.

In the third paragraph quoted the impression is given that to precool fruit in warehouse rooms requires several days. This is erroneous. Even in the case of oranges, which are wrapped and tightly packed in boxes, and which have proved to be the most difficult fruits to precool which we have had thus far under observation, the time necessary to reduce the initial temperature of the fruit to the desired point in ordinary cold storage rooms not fitted with any special facilities for precooling, was not over 36 hours. Fruits such as peaches, grapes, and others, which are not so closely packed and tightly wrapped, cool more rapidly, and it is safe to say, will not require nearly as long a time as oranges.

Promptness is the most important factor in precooling operations. Any system which requires considerable time between the packing of the fruit and the beginning of the precooling process may nullify any benefit to be obtained so far as condition and carrying quality of the fruit are concerned. After the temperature of the fruit is lowered to the point where decay is checked and ripening arrested, time ceases to be an important factor within certain limitations. If this were not true, the extension of the marketing area of fruits by precooling would not be practicable.

IMPORTING PLANTS FROM PEST INFESTED COUNTRIES.

The desire to introduce new plants which may be of value to individual and to state is laudable, and has been the means of the bringing to California of some of our most valuable producers. It has also been the means of bringing some pests which have cost thousands or even millions. This pest introduction may be prevented by the plant introducer if he will but have a thought. Inquiry coming to us as to bringing plants from the British West Indies, we wrote the State Horticultural Commissioner and the secretary, Mr. O. E. Bremner writes:

I will say in regard to the quarantine on seeds and plants that it at present includes only the states of Florida and Louisiana, and at the time it was made was supposed to include all the sections in the United States where the whitefly was known to exist. Since that time a new whitefly, the aleyrodes howardii, has come into prominence in the West India Islands. I have received specimens from Cuba and it is a much worse pest than A. citri.

In regard to the British West Indies, we know absolutely nothing, and have no way of finding out in regard to the insect pests and diseases. We do know, though, that there are many citrus pests existing in Tahiti and Cuba, besides the whitefly, and it is reasonable to suppose that the other islands of these groups contain these pests as well. With these facts before us, it is well to be very careful what we admit from these sections. For instance, we have as you know a boat plying between the Marquesas Islands and San Francisco every month, and although a few entomologists have visited the islands our knowledge is extremely meager.

We have taken very many detrimental insects, particularly to citrus culture, in quarantine, and never allow any plants or fruit to come ashore from these islands.

While I do not believe there would be a great deal of danger from the importation of seeds, particularly orange seed from this Island of Antigua, it would in my estimation be very poor policy to admit anything of the plant nature. Taking this view of the matter, we have always sought to discourage foreign importations, and particularly those from countries where the fauna is not known at all.

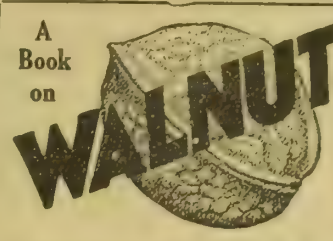
Technically speaking, the seeds and plants could be introduced, but for the good of the country and the fruit industry in California, we should discourage any such undertaking.

UP IN MERCED COUNTY.

The peach crop in the Atwater district of Merced County will net handsome returns to orchard owners this year. There is probably no district in the state where peaches bear as well year in and year out as in the sandy loam soil of Merced County. This year, when the crop in some other parts of the state has been reduced or completely spoiled by frost, Atwater orchards show a good yield. The soil in this district is especially adapted to peach growing. Trees bear in three years and several orchards,

(Continued on Page 727.)

A Book on WALNUTS And How to Grow Them



The only book ever written devoted exclusively to the walnut. Gives instructions for planting and propagating compiled from results of twenty years experience in walnut growing. The grafting process as depicted with photographs is applicable to all trees. Prepaid, $1.00.

JOS. M. ANDERSON, 416 J Street
Sacramento, California

STAR PORTABLE DRILLING MACHINES

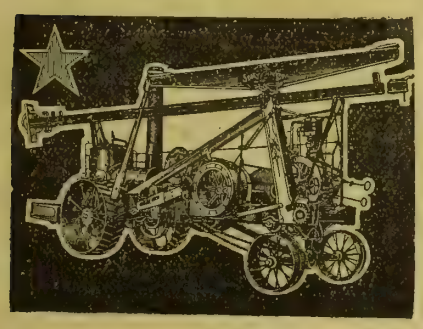
The Cost of Drilling

Can never be measured by the *first-cost* of the machine; too much depends upon the *after-cost* for repairs, etc., on so many machines whose makers claim they are *just as good as the*

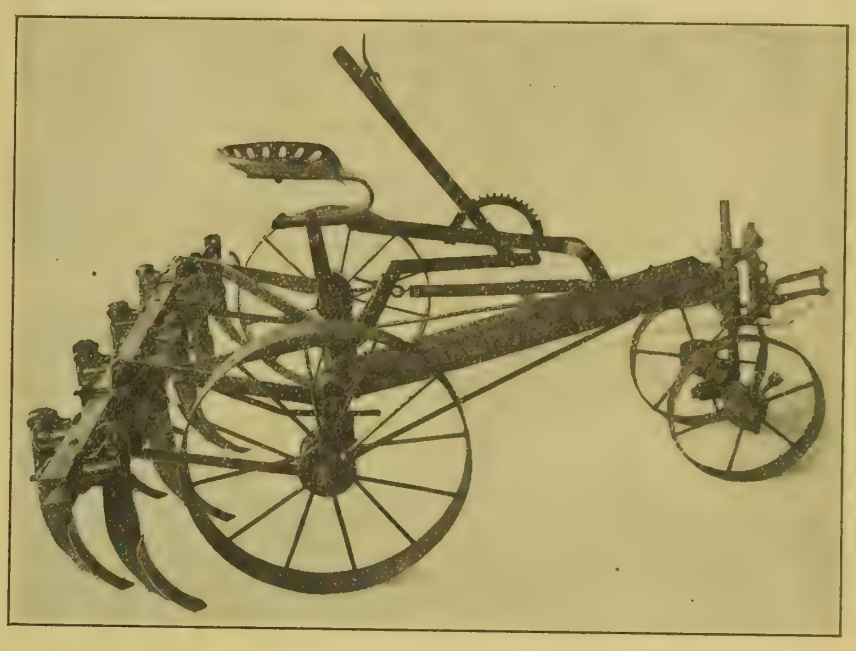
Star Portable Drilling Machines

The material, workmanship, principle and general efficiency in construction of Star Drilling Machines, guarantees you against senseless repair bills and useless losses. That is one feature. Let us tell you more about them. All about the Star Drilling Machines, Engines, Cordage, etc.

STAR DRILLING MACHINE CO.
225 Palmer St., Akron, Ohio.
Branch Office Los Angeles, Cal.



The Arnott Improved Orchard Cultivator



WE are pleased to be able to announce that prompt shipments can now be made of the **New Arnott Cultivator** as shown above. This has been for years the most popular cultivator in the Southwest and with the **New Fore Truck** it is way in advance of any other orchard tool.

Sold by Leading Dealers everywhere, or write us direct if your dealer cannot supply you.

ARNOTT & CO., 112-118 South Los Angeles St., LOS ANGELES, CAL.

EXCLUSIVE MANUFACTURERS

Alfalfa Farms

San Joaquin Valley

3000 acres of irrigated alfalfa and fruit land in 20 acre tracts. On the Santa Fe Main line. Station on the land. In the heart of a proven district.

Merced Colony No. 2

Deep, rich, sandy loam soil; can be worked every day in the year. Abundant water from a long established irrigation system.

Write today for particulars.

Send this to us.

Co-operative Land & Trust Company
595 Market St., San Francisco
Please send particulars on Merced Colony No. 2
Address .....
Name .....

WHY you should have

A Likfreshing Plant

BECAUSE you can easily and cheaply convert your perishable fruits and vegetables into staples.

LIKFRESHED products are superior in every way—less loss of weight and food contents—less sulphur required. Superior flavor and keeping qualities—"Just Like Fresh." Cost of installing plant is nominal. Expense of operating is less than sun drying. For other reasons and full particulars, write or call. Be sure to look into this matter this season, as it will prove a money maker for you.

The California Likfresh Co.
THE WANN COMPANY, Selling Agents
303 Union Savings Bank Building, Oakland, Cal.
References—Wellman Robbins Mercantile Co., Oakland, Cal.
First National Bank, Berkeley, Cal.

BUY THE LOWEST COST ENGINE MADE. Lowest fuel cost; lowest up-keep cost; easiest on the machine it operates, delivering steadier power than any other gasoline engine, adapting it especially for operating farm machinery, with better results and least waste of grain. Lowest fuel cost for it runs on Gasoline, Kerosene, Distillate, Gas or Alcohol and has perfect lubrication. Lowest cost because it delivers greatest available power per horse. A slow speed, high duty engine. Starts easier and quicker than any other engine, occupies less space, is less cumbersome, with less vibration, therefore adapting it for either stationary, portable or traction use. IT IS THE POWER CONTRACTOR'S FAVORITE ENGINE. No engine made has so wide a range of use. YOU WILL MAKE A MISTAKE IF YOU DO NOT WRITE US FOR INFORMATION. 1½ H. P. to 5½ H. P. single cylinder. 6 to 20 H. P. two cylinder. 30 to 50 H. P. four cylinder. State your requirements and get our advise.
THE TEMPLE PUMP CO., Manufacturers, care of David Rutherford, 1396 Harrison St., Oakland, Cal.

Those Pigs

will fatten faster and grow into dollars quicker on our Alfalfa Farms in the Sacramento Valley than they would in any of the Eastern States.

Here is what Mr. Spencer did:

Mr. Spencer, an Iowa farmer who had been baffled by Iowa weather and whose family needed a change of climate, bought 40 acres of this Sacramento Valley land, the same kind we are offering to those who wish to come with us. He put 18 acres of it into alfalfa and bought $300 worth of hogs. The second season he marketed $1,700 worth of hogs and had $1,500 worth left. He increased his alfalfa patch and raised $5,000 worth of hogs the third year on the farm.

Marketing hogs is a simple matter in the Sacramento Valley. They may be sold on the land or they may be driven to the bank of the Sacramento River and there loaded on barges to be floated to San Francisco. By this plan they arrive in fine condition. They sell at 6 to 8 cents a pound live weight. It is entirely feasible to pasture quite a number of hogs to the acre during the summer and still cut the alfalfa for hay.

With these possibilities you will realize that in acreage

"Twenty's Plenty—Forty's a Fortune"

Hog raising is one of the most profitable industries in the Sacramento Valley owing to the bountiful yield of alfalfa, the mild winters and the long growing season.

The markets are waiting for your products—your success depends on your efforts, with no limit to the results you may accomplish. If you'll work, you win. You can purchase one of these small farms on very liberal terms.

$15 DOWN THAT'S ALL **$11 A YEAR** THAT'S EASY

The Sacramento Valley Irrigation Company will sell you from 20 to 80 acres of their great project for $125 an acre, $15 down and the balance spread over 10 years. If you want to meet opportunity face to face, write today for full information.

H. L. HOLLISTER & CO.
Willows, Cal.

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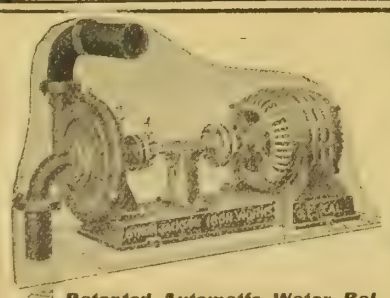


A GOOD COMBINATION

Electrical motors and centrifugal pumps make an ideal combination for irrigation work. A Byron Jackson pump, direct connected to an electrical motor is self operating, and requires no attention.

Write for booklet—It tells you how.

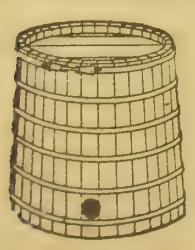
Byron Jackson Iron Works, Inc.

357-361 Market, St., San Francisco

Patented Automatic Water Balance Irrigation Pump, direct connected to electrical motor self operating, ideal, will require no attention.

212 N. Los Angeles St. LOS ANGELES

WORKS Carlton Station West Berkeley, Cal.



Tanks Tanks

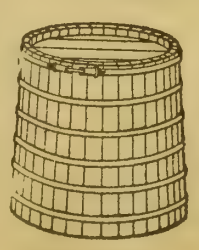
WINDELER'S PLANING MILL AND COOPERAGE

GEO. WINDELER, Prop.

Water Tanks, Wine Tanks made from carefully selected stock by careful and experienced workmen. "Tanks that are well made last a long time." It will pay you to get my prices before buying.

Geo. Windeler

144-154 Berry St., San Francisco, Cal.



Wine Tank *Water Tank*

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

BREEDING AND FEEDING THE DAIRY HEIFER.

Professor J. M. Truman, of the Connecticut Agricultural College, in an address before the Guernsey Club of Boston, made use of these words:

"In selecting breeding stock the law of ancestral heredity must be constantly kept in mind. Remember that the sire and dam, the grandsires and grandams exert a much more powerful influence over the offspring than do the more remote ancestors. The best information available assigns heredity values as follows: Fifty per cent of the characteristics of the offspring, or 50 per cent of the offspring of any one combination will, on the average, be like the immediate parents. This allows 25 per cent to each individual. The four grandparents are responsible for 25 per cent of the characteristics of the offspring, making each one of this generation responsible for 6¼ per cent.

With all due respect to Professor Truman for his really valuable address, we must confess that the above calculation appears more mathematical than actual or philosophical. No provision is made for two things: (1) The individual prepotency of either sire or dam and especially the sire. (2) The well known and peculiar transmission of feminine qualities through the sire, the old saying dating back to a period "whereof the memory of man runneth not to the contrary," that daughters do take from their father; sons from their mother. Every breeder of adequate observation sees these two forces of heredity constantly playing a controlling part in heredity.

We have had cows in our own herd whose prepotency was so strong that it always overcame the more desirable prepotency of the sire. Again, we have had cows who would not breed (nick) favorably with certain bulls but would do so readily with others. The calves in the first case would show an anaemic, lifeless character; in the latter case they would be strong and vigorous. In all these cases the power of hereditary transmission was greatly modified, so that the mathematical proportions of Professor Truman's formula did not apply.

Particularly does the theory not apply to the conditions mentioned under division two. The superior prepotency of the bull in the creation of feminine traits finds no definition or provision in Professor Truman's statement.

Farmers are counselled constantly to pay more attention to the selection of a bull than to that of cows, if it is cows they want to produce. We are convinced that this is correct. But if it is a bull they want then they should pay the greatest attention to the character of the mother. Therefore, if this theory be correct, we can readily see that the bull does not transmit his qualities in equal proportion to male and female offspring.

At the head of the Hoard's Dairyman herd is a bull that is double grandson of the famous Guernsey bull, Masher's Sequel. A son of Masher's Sequel (Galaxy's Sequel) was bred to a daughter of his sire, the cow, Lavinia, thus brother and sister were bred together. We reasoned that this combination would greatly increase the prepotency of our bull in the qualities for which Masher's Sequel was justly celebrated, and the quality of his get so far has justified our judgment, although none of his daughters have as yet come into motherhood. What we were after was to secure a greatly increased and controlling prepotency of the Masher's Sequel kind to nick with other very desirable lines of blood we had established. The formula would not stand in this case just 50 per cent of both sire and dam but by reason of increased potency due to his breeding we estimate the get of this bull will inherit nearly 75 per cent of the quality of his grandsire. So in other cases, while the offspring may have the blood elements of sire and dam in equal amounts, the super-potency of one or the other may determine the form, color and quality of the resulting offspring.

The wise breeder of cows always keps his eye on the sire. The wise breeder of bulls traces back for a long line of high producing mothers. This law of descent, whereby the motherhood quality passes down through the male line and masculine quality through the female line, is a very interesting one to study and creates very largely the wide range of variation that exists.—Hoard's Dairyman.

MILKING.

The way in which a cow is milked often has a great deal to do with keeping up the milk production for a definite length of time. If by thorough and proper milking a cow can be made to give more milk during the period of lactation than if the work is done less carefully it will certainly pay not to slight this part of the work. The extra milk secured will represent a clear profit aside from the little extra work involved, and a very small quantity of milk left in the udder at each milking will soon total up to a value of several dollars. So the milking should have the same important place as any other farm work.

At first sight milking appears to be a very simple matter, but the truth is that milking is a fine art. Many seem to think that almost anybody can milk, which is far from true, or at least it is not always advisable to have anybody and everybody do the milking. There is all the difference in the world in milkers. One who understands the work and enjoys it can, when in practice, milk a cow in far less time and do more thorough work than those who perform the work mechanically and with no object beyond getting it done. The difference in the amount of milk obtained from the same cow in the hands of different milkers has been noted by many. A milker who is gentle in his movements is pretty certain to get all the milk; while a milker whose movements are rough is quite likely to lessen materially the milk flow.

A frequent change of milkers is a mistake, even in instances where two or more members of a family do the milking and each person understands the work to about the same degree. A cow gets used to a certain milker and if a change is made she probably will not give down her milk so well nor can the new milker milk her so easily or thoroughly as the milker to whom the cow is accustomed.

A cow should always be milked in the same manner, at the same speed and at the same time of day. Changes in these matters will tend to irritate and excite her. When a cow becomes accustomed to being milked at a certain time of day, she knows when that time arrives and expects and wants to be milked then. If disappointed, she will probably give less and poorer milk than if milked at her regular milking period.—Successful Farming.

BIOLOGY OF TEXAS FEVER TICK.

In order that eradication of the cattle tick from the states below the quarantine line may be the more intelligently and successfully carried out it is necessary that it should be based upon the most accurate knowledge possible of the life history, habits, etc., of the tick.

With the view of supplying possibly useful additional data relative to the biology of the tick, the Zoological Division of the Bureau of Animal Industry and the veterinary department of the Alabama polytechnic institute have conducted a series of investigations upon the life history of the tick, its habits, and the manner in which it is affected by climatic and other environmental conditions; and this data has just been published by the Department as Bureau of Animal Industry Bulletin No. 130.

The work carried on during the past

GOMBAULT'S
CAUSTIC BALSAM

A safe, speedy and positive cure for

Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a HUMAN REMEDY for Rheumatism, Sprains, Sore Throat, etc., it is invaluable.

Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio.

No Hoof-No Horse

Statistics show that 80 per cent of all horses are lame, and that 80 per cent of the lameness is caused by hard and contracted feet. Especially is the dry season in this section very hard on hoofs. As a hoof softener, toughener, nourisher and grower theer is nothing equal to

ESHELMAN'S WOOL FAT HOOF HEALER.

A horse's hoof is from 60 to 70 per cent water. Grease and water will not mix. There is no grease about Wool Fat. It mixes readily with water, is very penetrating, and while a great medicine of itself, it also acts as a vehicle to carry to the afflicted parts the other medicinal properties of the HEALER. It gives natural stimulation and nourishment to the hoof. There is nothing that can compare with it for this purpose, nor as a remedy for tender, brittle, hard and contracted hoofs, split hoofs, quarter cracks, mud fever, scratches, corns, cracked heels, grease heels, and for all kinds of sores and cuts anywhere on any stock. It will surprise you with its power as a healer and restorer. It is not a new remedy, but has been on the market in the East for many years, where it has given the greatest satisfaction.

4 oz. package, 25c; 12 oz., 50c; 32 oz., $1.00; 5 lb. pail, $2.00; 10 lb. pail, $3.50. It is easy of application. Send for Folder with many testimonials of big horsemen, vets and others. Or better accept our

TRIAL OFFER.

We will send you a 2 lb. can; use it 15 days, and if satisfactory send us $1.00. If not, write us to that effect, and you need pay nothing. We take all the risk; you just try it. Send for it today.

Tompkins & Co.
111, 113, 115 Winston St.,
Los Angeles, Cal.

CUTTER'S
Anthrax
and
Blackleg
VACCINES

Are given the preference by 80% of California Stockmen because they give better results than others do.

Write for prices, testimonials and our NEW booklet on Anthrax and Blackleg.

The Cutter Laboratory
Berkeley, California

ABSORBINE

Cures Strained Puffy Ankles, Lymphangitis, Poll Evil, Fistula, Sores, Wire Cuts, Bruises and Swellings, Lameness, and Allays Pain Quickly without Blistering, removing the hair, or laying the horse up. Pleasant to use. $2.00 per bottle at dealers or delivered. Horse Book 5 D free.

ABSORBINE, JR., (mankind, $1.00 bottle.) For Strains, Gout, Varicose Veins, Varicocele, Hydrocele, Prostatitis, kills pain.

W. F. YOUNG, P. D. F., 244 Temple St., Springfield, Mass.

For sale by Langley & Michaels, San Francisco, Calif.; Woodward, Clark & Co., Portland, Ore.; F. W. Braun Co., Brunswig Drug Co., Western Wholesale Drug Co., Los Angeles, Calif., Kirk, Cleary & Co., Sacramento, Calif.; Pacific Drug Co., Seattle, Wash.; Spokane Drug Co., Spokane, Wash.

The Whiting Jersey Stock Farm Co.

Is making the very best strains of blood fresh from the island of Jersey a specialty. Whiting Jersey Stock Farm Co. Heber, Cal

Kind hearts are more than coronets.
—Tennyson.

six years by the Bureau of Animal Industry in co-operation with the state authorities has shown that the eradication of the cattle tick from the infected states is entirely feasible, that its disastrous effect upon the cattle industry of the South can be prevented.

The usual host of this tick is the cow or ox, frequently, however, horses, mules, deer, and sometimes sheep serve as hosts, and must be considered in plans of eradication. Hence, experiments were made with ticks on some of these animals and also upon rabbits, cats, dogs, and man. But none of these, with the possible exception of deer are susceptible to tick fever, consequently they suffer from the tick as a simple parasite and not as a transmitter of disease.

Only a part of the development of the tick takes place on the host; the rest of the development occurs on the pasture occupied by the host. Therefore, studies were conducted both on the pasture, and the animals in the affected locality, and under conditions as nearly as possible like those in open fields, in laboratory investigations, tests, and experiments. These are described in detail, the results given, and conclusions stated.

As all information which would assist in removing the greatest barrier to live stock raising in the South, should prove of value to the future development and prosperity of the country now below the quarantine line, so also, is it of interest to the dealers and consumers of beef and beef-products in all parts of the country.

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Bunch or Ulcer.

A horse, eight years old has a bunch on the inner surface of the hock joint. The place scabs over but the scab has come off from time to time during the past year and the bunch has grown out a little more each time.—Subscriber, Pasadena, Cal.

This, in all probability is a bursattee sore. When the scab falls off again dry the raw surface by applying absorbent cotton for a few moments, then rub a little powdered bichloride of mercury into the raw surface only, taking care not to allow the powder to come into contact with the healthy skin at the edge. After about four days a part of the bunch may be lifted out. Repeat till the middle is level or below a level with the surrounding skin. Then apply with the end of a feather just enough formaldehyde to wet the entire raw surface. —F. G. M.

Inflamed Udder.

A mare has an inflamed udder. Some time after the colt was weaned it nursed again and brought the mare to her milk, and a caked bag is the result. It swelled and broke in several places. Advise treatment.—Subscriber, Princeton.

Inject hydrogen peroxide diluted with a equal quantity of water which has been previously boiled and cooled. Dilute the amount required for one injection just before using. Treat the wounds once daily. A soft rubber infant rectal syringe with a hard rubber pipe is a cheap and efficient instrument for this purpose. Dissolve two ounces of potassium iodide in a half pint of water and give one tablespoonful of the solution in the feed twice daily.—F. G. M.

Lump Jaw.

A fine heifer has a large lump on her jaw which I am told is lump jaw. Kindly prescribe.—Subscriber, Calexico.

Lump jaw of cattle is caused by a fungus or mold growing in the flesh or bone. Have your druggist dissolve two ounces of potassium iodide in one pint of water and give the cow two ounces of this solution once daily in a pint of water as a drench. Skip five or six days and repeat the course. Also paint the lump with tincture of iodine three days in succession every week.—F. G. M.

Pigs Diseased.

During the past two years my young pigs when about two months old, have contracted a disease with the symptom of weakness in the back and after lingering a while, die. The disease never affects the old pigs. Thinking the trouble a disease of the breed, I sold all and bought a new lot. The pigs from the new sows are now about two months old and several of them are afflicted with the disease.—Subscriber, Modesto.

The fact that the disease has appeared among the first pigs of the purchased sows indicates an infection existing in the soil, and since the young pigs only are affected, the sows are immune from a previous attack or because of age—probably the former. Open the next pig which dies and remove the large intestine with a portion of the small intestine. Rip this gut open and wash the inner surface—if ulcers or round, brownish raised patches are present the disease is hog cholera. If this condition does not exist, examine the kidneys for worms. —F. G. M.

A REPENTANT HORSE TRADER.

A curious case was that of Robert Caple, whose death occurred not long ago at Clayville, near Utica. He was a successful horse dealer, and made a fortune at his trade. Then (about twenty years ago) we are told that he joined the Roman church and decided to give away all he possessed. But he did not do this at random. He began by reimbursing everybody of whom he thought that he had gotten the better in horse trades. He went from place to place seeking out the men with whom he had dealt. In Watertown he found one man whom he thought he had worsted to the extent of $175 in a single trade. There and in other places he paid men money who firmly believed that they got the better of him in their transactions—and perhaps they had. When he had paid back all that he could be conceivably accused of owing, he gave away the rest of his fortune to the poor. Families in Utica and all through the Sauquoit Valley were remembered in the distribution of goods and money, until Mr. Caple was reduced to poverty. Friends in Clayville built him a modest cabin, and here for the last fifteen years he lived, prayed and fasted, leaving his home each day to visit the sick, to carry food to the poor, and to beg his own meals and clothing.—Country Gentleman.

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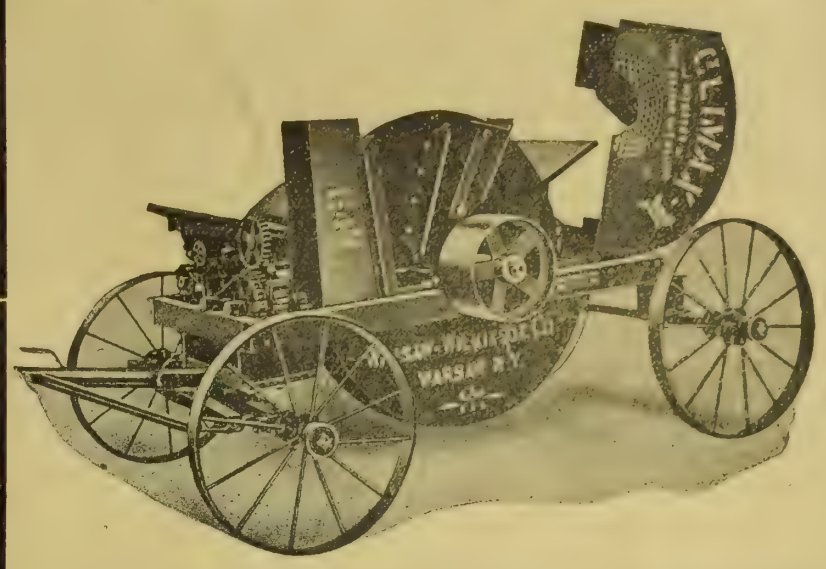

In the Climax Pneumatic Ensilage Cutter both the cutting and elevating are done by a large wheel which carries the knives on one side and the elevating fans on the other. Both the cutting and elevating, therefore, are done at one operation, in much simpler manner and with an expenditure of much less power than in those machines where the elevating device is a fan attachment added to the cutter.

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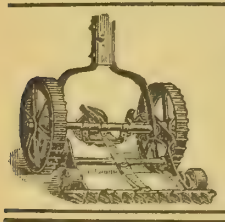

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The Ornamental Garden

GOPHER PROOF PLANTS.

By Dr. F. Franceschi.

Many are the blessings bestowed upon this privileged land of California, and the longer one lives here, the better he can appreciate them. But a few troubles there are also, and, from the gardening standpoint, gophers are certainly the worst, and it is a meager consolation for us to know that we have them in common with less favored states.

In city gardens, generally of moderate size, and wherever human habitations and cats are thick enough, gophers will not give much trouble, and their appearance in a "yard" will be detected before they have made irreparable damages. Not so in the outskirts of towns, or in the open country, where the grounds devoted to gardening are generally extensive, and where the greatest vigilance is often fruitless, for the reason that gophers, never seen above the ground during the daytime, are known to travel considerable distances during the night, and to burrow again in any fresh place that appeals to them. In such large places, poison, traps and cats are certainly to be recommended, but may prove insufficient in many cases, and it is obvious to look for more radical remedies. Since I started planting at our place at Montarioso, seven years ago, I have gained much experience concerning gophers and their behavior with different plants, and I think that a condensed summary of my own observations may prove of practical use to many readers of the Cultivator.

Montarioso comprises the highest point of the Mission "Ridge" (825 feet elevation), and although within the Santa Barbara city limits, is entirely surrounded by pastures or by chaparral, the nearest houses on the south being half a mile away, while north, west and east there are no houses for many miles. In such conditions the native fauna is most interesting, and we have trapped here everything, except bears and mountain lions. Ground squirrels and gophers were swarming on the place at first; their number was considerably reduced, mainly of the first named, but I soon perceived the impossibility of getting entirely rid of them, on account of their nocturnal incursions, and brought my attention to study what plants, if any, were really immune from the attacks of gophers. At the beginning I had planted a very large number of bulbs, and I believe they were the daintiest morsels for gophers and squirrels, as in a short time many species had entirely disappeared, but I discovered also that a few had not been touched, and their list has been increasing during these seven years. It includes now many genera of amaryllidaceae, which have a true "bulb," namely, Amaryllis belladona, the "belladona lily"; all species of hippeastrum, "scarlet lilies," Chlidanthus fragrans; all species of crinum, clivia nobilis, all species of hymenocallis, "spider lilies," and of pancratium, "sea lilies," Sprekelia formosissima, "Jacobean lily"; Sternbergia lutea, and all species of zephyranthes, "fairy lilies." Narcissus orientalis, "Chinese sacred lily," is eminently immune, while other more valuable species or varieties of narcissus are not. All species of amaryllidaceae, with no true bulb, and more or less fleshy roots, like agave, fourcroya, beschorneria, are instead very particularly relished by gophers.

Among the nearly related liliaceae, all species of aloes are immune; also agapanthus, "lily of the Nile"; all species of tritoma or kniphofia "red poker plants"; all species of scilla, the native "amole" or "soap root," Chlorogalum pomeridianum, while all true lilies and all species of yucca and dracaena are greedily devoured.

Alpinia nutans and all species of hedychium, "ginger plants," are immune. Among the extensive order of iridaceae, antholyza, aristea, herbertia, libertia, montbretia are certainly immune, and probably also some species of iris.

In comparison I have found a much smaller number of immunes among dicotyledonous plants. Still, we have the order apocynaceae, which comprises a great number of beautiful flowering shrubs or climbers, like nerium, "oleander," allamanda, carissa, cryptolepis, mandevilla, thevetia, and vinca, all of them immune. Also the immense and multiform order of euphorbiaceae, "spurge family," among which I will mention all species of euphorbia, poinsettia included, ricinus, "castor oil plant," aleurites, stillingia, and probably others.

It appears that the bulbs or roots of all above enumerated plants contain some acrid or poisonous juice disliked by gophers and other rodents, which leave them alone. This offers the suggestion that some particularly valuable plant may be efficiently protected by "ringing" it with a double or triple row of immune bulbs, which will also be very ornamental when coming in bloom at their season. I shall be particularly glad to hear from anybody of any addition to the above list of "gopher proof plants."

SHRUBS.

Before setting out perennials, their habit ought to be thoroughly understood. By habit, I mean the size to which they grow, their season of flowering, and whatever peculiarities may be theirs, for plants have their peculiarities the same as persons. If we know the height of a plant at maturity, we can tell how much space it requires to display its attractiveness to advantage, and whether it belongs in the background or in the front row. And if we know their flowering periods we can so distribute them that there will be flowers somewhere in the collection throughout the greater part of the season. If we do not familiarize ourselves with the habits of the plants we set out we are pretty sure to make serious mistakes in their location, and this we cannot afford to do because of their permanent character. Be sure where a plant belongs before you put it into the ground. The catalogues of the florists are so explicit about these matters nowadays that the amateur gardener can learn all that it is necessary to know about the plants she makes use of by studying them carefully.

Here naturally comes up the question of how to plant them—singly or in groups? If the grounds are limited, and a considerable variety is desired, of course single specimens will have to be depended on to a great extent, but where there is plenty of room, I would always advise grouping them, because a mass is much more effective when in full bloom than the single plant can ever be.

The question where to plant them will come up for consideration. I would keep them to the sides of the lot, or the rear of the house. Never scatter them over the lawn. If you have a row of shrubs along the boundaries of the home grounds, work your perennials in among them. This can be done with charming effect. I consider a combination of shrubs and hardy plants much more pleasing than a planting in which each kind is kept by itself. The illustration shows what fine effects are secured by making use of shrubs as a background for the perennials. But no two grounds are alike, and the woman who sets out to make a collection of these plants will have to decide the question of location for herself in most instances.—Country Gentleman.

AN AFTERTHOUGHT.

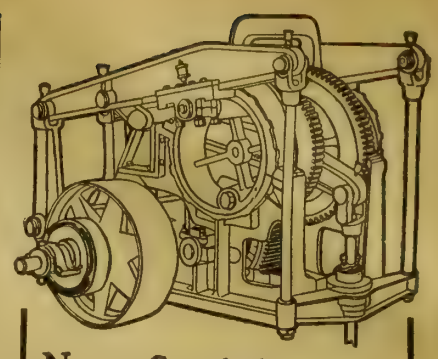
She used to be a pensive maid,
But now, upon my life,
Since we are married, I'm afraid
She's an ex-pensive wife.
—Woman's Home Companion.

THE WORST.

Willie—"What's the most ferocious animal in the circus, papa?"

Pa—"The calliope, my son."—Woman's Home Companion.

If poor relatives had their way, they would not have a rich uncle very long.



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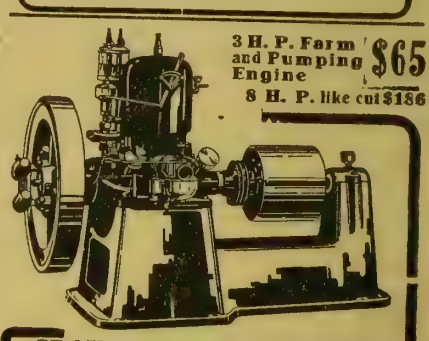

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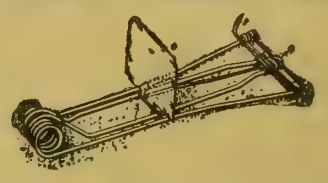

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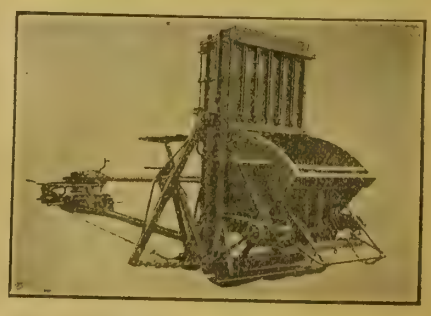

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General Agriculture

THE LATEST AS TO PARCELS POST.

By Edward Berwick, President Postal Progress League of California.

There are always "things doing" in the matter of up-to-date universal parcels post. Unfortunately, it is not the United States that is doing them. We take a back seat and mumble out excuses for not doing things on account of our long distances. From England to Abyssinia is no mean journey, yet the British postoffice has recently announced an Abyssinian rate of 4s. 6d. ($1.08) for eleven pounds, while the United States postoffice still charges $1.76 for eleven pounds in three parcels, from New York to Brooklyn.

At the same time the American express companies carry for the British postoffice all parcels up to eleven pounds in weight from New York to any point in the United States at a flat rate of 24 cents each. American citizens are charged $2.35 on an eleven-pound package from Pacific Grove to New York by express, and cannot send an eleven-pound package at all by merchandise mail. It would have to be made into three parcels, and these would be charged $1.76.

Great Britain sends eleven pounds two thousand miles to Indo-China for 72 cents, and we pay 64 cents for four pounds from San Francisco to Oakland, less than ten miles.

Canada has a list of far-away lands with which her merchants can keep in touch by means of a low-priced parcels post, that enumerates some 240 countries. Her postoffice shows an annual profit of $800,000.

New Zealand has a similar list, covering about seventy pages (including rules and regulations) in the New Zealand Postal and Telegraph Guide for 1911.

The United States Postal Guide enumerates only about forty of these distant places as on our parcels post list. To about all of these, save France, our citizens can forward eleven-pound packages at the rate of 12 cents a pound, or 4 cents a pound less than it costs to the nearest village!

Why is this? Because foreign rates are made by the President and Postmaster General, while the making of domestic rates is in the hands of Congress, and Congress is largely influenced by other interests than the interests of the people. Is it not time the people more vigorously instructed representatives and senators as to their wishes?

SUGAR BEETS AND SUGAR BEET CULTURE.

The above is the title of a little book of seventy-six pages, which wastes no space in unduly wide margins, neither in blank leaves, containing the history of the sugar beet and beet sugar. It refers to the fact that less than two decades ago there was practically no beet sugar industry in the United States; less than twelve years ago there were no factories in Michigan; prior to 1899 there was not a single sugar mill in Colorado; the first factory in the United States was established at Alvarado, California, in 1870, later reorganized and now owned by the Alameda Sugar Company and still in operation. Many interesting facts on the industry are given, and much of a cultural nature is also added. The question "Do sugar beets exhaust the soil?" is discussed in a few pages, and their yield and analysis are given to show that it is not much harder on soil than many other crops. In fact, it is usually considered one of the most exhausting plants as to potash, and yet, compared to tobacco, the sugar beet takes but 70 pounds of potash, while tobacco requires 200, and even clover hay takes 88 pounds, while barley requires 57. The question as to whether the sugar beet has reached its limit also is given considerable attention. An extensive discussion of the by-products is given in an appendix. In this the tops, the pulp, molasses, lime cake and other waste materials are treated. It is published by the Beet Sugar Gazette Company of Chicago.

PAINTS AND PAINTING.

Of the various classes of paints—as tar, varnish or resin, and oil paints—the last are the most extensively used, and in the majority of cases afford the best protection.

The wearing quality of a paint, and its protecting power, are due more to the pigment than to the oil. With a pigment ground in oil, the finer the pigment, the longer it will wear; but it will dry more slowly. A layer of paint is about three times as thick as a layer of linseed oil; hence, for this and other reasons, a paint affords better protection than oil.

Paint should be applied only to a clean and dry surface. Moisture under a paint causes it to blister when exposed to the sun; also, moisture between coats has the same effect. On old painted surfaces, the paint should be removed or rubbed down smooth before applying new paint. In some cases a careful removal of blisters is sufficient, but the surface should be free from dust and dirt. In case of the removal of paint by a solution of caustic alkali, the surface must be thoroughly washed to remove traces of alkali, and carefully dried before painting.

Iron or steel surfaces should be carefully cleaned, by means of a steel wire brush and emery paper, to insure the removal of all rust before painting.

Paint generally should be applied with a good round brush, and well rubbed out. The rubbing out serves to remove any bubbles of air, also the film of air found on all surfaces; and it insures a thorough incorporation of the paint with the surface, thus affording better protection. The rusting of farm machinery is no doubt largely due to the fact that it is "painted" by the dipping process. Air bubbles cause openings in the paint film, moisture enters and rusting begins; also, the paint not being cemented to the surface by being well brushed out, is easily removed mechanically.

In the case of ready-mixed paints, it is generally found that the pigment has largely settled to the bottom of the can. In preparing the paint for use, the liquid portion—oil and dryer—is poured off into a clean can; the pigment and the small amount of the oil remaining in the bottom are thoroughly worked up and mixed, by means of a strong, short stick. When the pigment is thoroughly loosened from bottom and sides of the can, the fluid portion removed is added from time to time, until the paint is uniformly mixed. Paint should be kept in cans having air-tight covers. After using, brushes should be cleaned with benzine or turpentine, and should not be left in the paint.—G. W. Walker, Minnesota University Farm.

Mills for the manufacture of alfalfa foods have been and are being established, and it is reasonable to assume that the use of these foods will become quite general in cities and districts remote from the alfalfa regions. Whether or not the actual feeding value is appreciably increased, or the nutritive constituents made more thoroughly available, is as yet not determined by sufficient tests, nor has it been determined by any station test that any factory food preparation is more economical than alfalfa hay, where the hay can be obtained well cured and with a reasonable proportion of its leaves. It is altogether probable, however, that alfalfa meal will be more economical in distant cities than baled hay. If these preparations of alfalfa prove to be satisfactory to consumers in distant markets, it will lead to the multiplication of mills in the alfalfa regions, thereby decreasing the cost of transportation and giving the grower a wider and probably a better market. The use of the meal or the food preparations is likely to prove most especially valuable for dairy cows and poultry.—From Coburn's "The Book of Alfalfa."

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Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:
THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,269 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres. and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, June 15, 1911

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The next annual meeting of the American Association of Farmers Institute Workers will be held at Columbus, Ohio, November 13-5. At the same time there will be a meeting of the Association of American Agricultural Clubs and Experiment Stations. Farmers institute workers the country over will gather for instruction at this meeting.

POOR KIDS.

We trust the coming Fourth of July will be one in which sanity shall obtain. There has been such a demand for a sane Fourth for the past few years that there should be little difficulty in depriving Young America of what he has always considerd necessary to a Glorious Fourth. We must confess to a little feeling of pity for the youngsters. We have in hand from an Eastern magazine a suggested program for the day. It begins at 7 o'clock in the morning with "cannon balls," which, it is carefully explained, are oranges stacked on the table with a tiny flag in each. At 9 there is a "call to knapsacks," which prove to be boxes of "Gee whiz" popcorn. This we presume has already been carefully popped to remove all danger of injury. At 10 "bullets" are issued. These are nice little marbles. At 11 the youngsters are called into the house for writing notes home. Each is given a small box of notepaper and requested to write a note to Grandma. At 12 there is a call to "mess," dinner served on the lawn. At 2 "new uniforms" are issued. This is dress parade, fresh dresses and suits and a nice walk with Father. At 3:30 comes "canteen and hardtack," which is lemonade and Holland rusks. At 7 comes "picket duty," another walk, with ice cream at the end. At 9 "blankets and lights out."

We admit there have been practices permitted under the name of Fourth of July which were almost criminal and which have caused awful suffering. These should not be tolerated. But we hope the reaction will not go to the extreme of a mush and milk celebration which will only disgust the youngsters. There is opportunity for sanity on both sides of the question.

COTTON.

The area of cotton this year in the United States is greater than last year. To be exact, taking the figures from the last circular of the crop reporting board, it is 104.7 per cent of last year's area, or expressed in acreage, 35,004,000. The condition of the crop on May 25th was 87.8 of normal, as compared with 82 per cent in 1910 and 80.9, average for the past ten years. Texas is by long odds the biggest cotton state, having this year 10,868,000 acres planted. Georgia comes second with over 5,000,000. California is at the bottom of the list of 14 cotton producing states with her little 12,000 acres. However, watch California grow. We say this with confidence because in the columns given over to "Percentage compared with 1910" we stand 123. The state which makes the next best showing of increase in acreage is Oklahoma with 116, but the most of the cotton growing states show from 103 to 105.

Another feature in California's favor is that she shows the highest percentage in condition of crop. This is 95 per cent of normal while most of the other states run in the neighborhood of 83 per cent. This is the percentage of the greatest producer, Texas. Some others run as low as 76 per cent.

NOVEL EXPERIMENT STATION.

Of all the sugar factories in this state only one is maintaining an agricultural experiment station; this is the one at Spreckels in Monterey County. We may say in passing that this sugar factory is the largest handling sugar beets in the world. The management, recognizing the need of more intelligent planning and care in the raising of this crop, some years ago secured from the State University a young man who began experiments and gave suggestions to the growers. Later Mr. R. L. Adams took the work in charge and for several years he has been making practical experiments in the culture of sugar beets. These laws led to the determination of valuable factors which have aided the beet growers of the Pajaro and Salinas Valleys. A story of a little of this work and of a unique beet growers institute will be a feature of next week's Cultivator.

GRASP THE OPPORTUNITY.

Editor Matthews of the Covina Argus waxes wise on graduation day and inspired by seeing the youngsters taking their start in life in his community, which is largely a citrus growing section, gives the following advice:

"The ranch is worth considering, boys. When you get through with studies at the Covina high school, some of you go on farther to the colleges and state university, which is a high and laudable ambition. Some of you will turn your eyes at once to business. Perhaps you will look everywhere without seeing the opportunity that lies directly in this immediate vicinity.

"The orange grower must be an intelligent man, far above the ordinary tiller of the soil, or he will fail. Intelligent men from the East are coming in here every day, and their alert, trained minds grasp the opportunity. They see what is needed to make the orange business a successful business. It has taken long years of careful study on the part of the California rancher to arrive at a point where he understands the fundamentals of orange growing. It stands to reason that the Easterner is not going to grasp it in a year, or two years.

"Then, the man who is going to succeed, the man who has the best opportunity to succeed in this high class of farming, is the one who has lived amid oranges, heard orange talk all his life, and has worked and participated in the orange business. There isn't any better chance in the state for the young man graduating from high school than that of getting busy at once in the business of growing oranges in the Covina valley. The parents who are in a position to start the young man in business will not make a mistake if they start him right here in the Covina valley, where he will already have his life experience in the raising of citrus fruits.

"A boy's inclinations, his desires, his aims and ambitions may lead him to other paths. If he is absolutely determined to go elsewhere for his livelihood, it is his own affair. But to the ones who have made no decision, there is this suggestion to offer—become a scientific tiller of the soil; there is wealth, honor and reputation in it. 'Back to the farm' is a cry that is growing in volume, and those who do go back are going armed with education, intelligence, and a desire to make farming a business, and furthermore, a paying business. Stay in Covina, and grasp the opportunity that looks so good to so many people that they come three thousand miles to take advantage of it."

CEREAL INVESTIGATIONS.

The $15,000 appropriation made by the recent state legisalture has been referred to by several papers as a desirable departure from former methods, but this is merely a continuance of what has been doing for several years along agronomy lines under the direction of G. W. Shaw of the State University. Prof. Shaw has developed some remarkably promising results in wheat production, likewise barley and alfalfa. These investigations may lead to greatly increased acreage of the crops investigated. The state especially needs improved wheats, and some which Prof. Shaw has already distributed to farmers promise practically a doubling of the state's output.

One example of the advantages of parcels post is given on another page in the communication of Mr. Carnes of the State Insectary. He is receiving from Africa through international parcels post packages containing a new beneficial insect. As noted by Mr. Carnes, these are being bred out and will later be distributed to the orange growers of the state whose trees are infested with black scale. And here comes in the anomaly; it will cost more per pound to send these insects to the nearest postoffice to Sacramento, where the insectary is located, than it did to ship them from South Africa. Inconsistent, even funny!

On the first page of this issue may be seen a statement by State Horticultural Commissioner J. W. Jeffrey in which he maintains that the law under which the present county horticultural commissions are acting is sufficiently strong and has been upheld by successful operation for many years. The law must be sustained, or, as Mr. Jeffrey says, wiped off, and one which can be put in its place. California's productive interests are too important to allow an ineffective or inoperative law to endanger them.

The committee appointed by the recent citrus growers convention at San Bernardino to look into developing a standard for pedigreed nursery stock recently met at Riverside and discussed the question. No report is yet made. The committee consists of Mr. A. D. Shammel of the Bureau of Plant Industry; Carroll B. Smith of Redlands, J. H. Norton and Fred M. Reed of Riverside, and Mr. Vail of Santa Paula.

Charges have been filed and an attack is being made upon Willis L. Moore, Chief of the Weather Bureau. It is being pressed by Mr. James Berry, former Chief of Division, who tendered his resignation nearly a year ago.

The Secretary of State of California reports 1836 new registrations of motor vehicles during one month. The automobile is increasing in popularity every day.

Great plans are being made for the convention of the Pacific Coast Nurserymens Association which will open in San Jose next Wednesday morning. A special train is being made up from Portland, and nurserymen of this state, as well as many orchardists, will be in the Santa Clara Valley city to welcome the northern members on their arrival. Headquarters will be at the St. James Hotel.

It is estimated that the National Educational Association which will hold its 49th annual convention in San Francisco beginning July 8th, will bring to the state over 50,000 visitors. It is reported that over 400 "car parties" have been formed. In honor of the first woman president of the association, Mrs. Young of Chicago, the reception committee has been formed in San Francisco entirely of lady members.

The Northern Pacific railway is in line to encourage apple growers of the Northwest in its offer of $500 in gold for the best exhibit made at the American Land and Irrigation Exposition to be held at Madison Square Gardens, New York, next November. This should inspire Washington and Oregon apple growers to produce some fine fruit this season.

Agricultural News Notes of the Pacific Coast

Northern California

An alfalfa meal mill is assured at Biggs Junction.

Oroville's big Water Carnival is to be pulled off next week, the 16th and 17th.

The grain crop at Perkins, Sacramento County, gives prospect of a fine harvest.

Ranchers at Willows, Glenn County, are going in for alfalfa, blooded cattle and fine hogs.

With some cars of cherries selling well up towards $6000 cherry people are highly elated.

Market fishermen along the Sacramento River near Chico are making big hauls of salmon.

Placerville, Eldorado County, says that the Bartlett pear crop now promises to be the best ever.

Shipment of a thousand bales of hops has just been made from Wheatland, Yuba County, to London, Eng.

The Sebastopol Berry Growers have secured the establishment of an early morning berry train from that city.

Fruit buyers in Alameda County are offering $60 a ton for apricots with a few contracts for choice fruit at $65.

The Cannery picnic at Gridley, Butte County, was attended by over 8000 people and everybody had a good time.

The Sebastopol reorganized Grange is working to bring the next state Grange meeting to that thriving little city.

The Fruit Growers Association at Lincoln, Placer County, will ship this year through the Newcastle Association.

The Ukiah Farmers Club has secured an offer from the Winery Association of $15 a ton for a period of five years.

Poultrymen of Ukiah, Mendocino County, have organized and will affiliate with the Santa Rosa Poultry Association.

The pear crop in portions of the Sacramento Valley is reported practically destroyed by thrips. The loss will be about 400 cars.

From present indications the grape crop in the Sacramento Valley will be greater than any previous year and satisfactory prices are promised.

Winters, Yolo County, is sending out daily shipments of apricots. On account of the cold weather no carload shipments have yet gone forward.

Large acreage of river bottom lands just south of Marysville, Yuba County, is being cleared preparatory to the commencing of gardening on a large scale.

The state board of prison directors has fixed upon six cents as the price of jute bags; this is a low price and made possible because of purchases made when raw material was much cheaper than at present.

Members of the Live Oak, Sutter County, Almond Growers Association are planning to put up a new warehouse next season to take care of the big crop raised in Live Oak and Pennington sections.

The country about Yuba City, Sutter County, is seeing some lively bidding for peaches these days. Phillips and Tuscans have been contracted in small lots for $40. The larger growers are holding off for $50.

Central California

Many grain and grass fires are reported over the San Joaquin Valley.

Santa Clara Valley estimates the apricot output at about 50 per cent of normal.

Harvesters have started operations in Lakeside and Corcoran sections of Kings County.

Delano, Kern County, is showing a good grain crop this year and good sales are being made.

Merced capitalists are interesting themselves in the possibilities of rice growing in their county.

Some Kings county growers estimate the coming apricot crop at about 40 per cent of normal.

A Porterville man has produced a seedless blackberry that is said to be a remarkably large and juicy fruit.

The Pacific Coast Trotting Horse Breeders Association will hold a big meet at Salinas the week of July 30.

Mt. Campbell orange growers are expecting an unusually large crop of fruit. Many new orchards have been set out this year.

The big cannery at Selma, Fresno County, is installing machinery and will be ready to take care of the peach crop this season.

Last fall the shipments of cattle from the district around Porterville exceeded in value the oranges sent out by about $50,000.

The Santa Clara County prune crop this year is estimated by the Farmers Union to be between 73,000,000 and 76,000,000 pounds dry.

The supervisors of Tulare County have agreed to appropriate $10,000 to be devoted to a campaign against tuberculosis in cattle and hogs.

Exeter, Tulare County, reports shipment last week of 50,000 young tobacco plants to Dinuba and fully as many more to other nearby sections.

Hanford business men are considering ways and means of preparation for the Kings County Fair, date for which has been set September 25-28.

About 60,000 bags of grain will be this year's output from Ducor, Tulare County. Buying is already begun and the first delivery of crops will start this week.

The million dollar plant of the Pacific Sugar Company at Corcoran has been purchased by Los Angeles capitalists and it is expected that it will be in operation next year.

There has been noticeable activity of late in fig planting in Merced and Stanislaus Counties. Some three thousand young trees have been planted in the last three months, mostly Calimyrnas, White Adriatics and Blacks.

The Morgan Hill, Santa Clara County, Farmers Union has filed articles of incorporation. The directors for the first year are: Zard Bagwill, E. A. Brizee, George R. Lynch, Thomas W. Baird and J. H. Harkness, all of Morgan Hill.

Col. Hersey of San Jose estimates that Santa Clara County will show this year over 250,000,000 pounds of green prunes. He also says that 10,000 pickers will be required to harvest the crop and with teamsters and other laborers employed, over 25,000 men will be required.

Southern California

Bee men of San Bernardino County are all smiles over the prospect of a bumper crop of honey.

The first ripe grapes are being shipped out of El Centro, Imperial County. The variety is Persian 23.

Valley Vista, Riverside County, bee men claim that the spraying of fruit trees causes the death of many of their bees.

"Lima Bean Day" is the latest. A mass meeting of Ventura County growers will be called to consider boosting the proposition.

Growers of Ventura County estimate this year's lima bean planting will cover 30,000 acres. 16,000 acres will be put into sugar beets.

The total shipments of lima beans from Oxnard, Ventura County, amount to over 10,000,000 pounds for the first four months of this year.

The American Beet Sugar Company will start its Oxnard plant late in July. The acreage of beets will be somewhat smaller than last year.

The Palo Verde Cotton Growers Association has just received its charter of incorporation. The cotton crop is making very satisfactory progress.

The plant of the Pacific Packers Supply at Redlands was burned last week for the third time. The fire is supposed to be of incendiary origin.

Shipments of lima beans are being made from Coachella, Riverside County, the first time they have been raised on a large commercial scale there.

The latest Packing Company to be organized in the Redlands district is the Gold Banner Association. It will be a mutual concern and 600 cars have already been signed for the new house.

An interesting experiment is being made in tree surgery by the Park Commissioners at Riverside. The diseased portions of large pepper trees have been cut away and the cavities filled in with cement.

The Hemet Bee Keepers at a recent meeting selected the following directors to have entire control of the output of the members: Chas. Sims, J. A. St. Johns, W. H. Densmore, W. B. Tripp and C. J. Davidson.

The Citrus Standardization Committee recently appointed by the State Horticultural Commission will probably call a mass meeting soon of all growers in the orange belt to discuss best plans for eliminating defective fruit.

The first co-operative marketing association of Etiwanda, San Bernardino County, is the Etiwanda Grape Growers Association which will deal almost exclusively with the marketing of green grapes, mostly table grapes shipped to the Eastern markets.

The Hemet Deciduous Fruit Growers Association at its last meeting decided to sell its fruit green. Three hundred tons of apricots have already been contracted at $40 a ton. The fruit will be about a month late in ripening.

Cattle raisers are in arms over Senate Bill 541 which prohibits the importation of neat cattle for dairy or breeding purposes except accompanied by veterinarian's certificate that they have been examined and subjected to tuberculin test.

The Coast

The timber industry of the Inland Empire brings yearly wages aggregating $14,000,000.

Irrigation by whirling sprinklers is to be carried out on an extensive scale in Grant County, Washington.

Farmers in Cascade County, Montana, are delighted with prospects of the biggest apple crop ever.

Pullman, Washington, is receiving large shipments of cherries and strawberries from the Snake River section.

Nearly 500 head of horses have been shipped from Pendleton, Oregon, the last week, most of them going to Canada.

Although the season has been very backward, growers of Hermiston, Oregon, are now sending out shipments of strawberries.

At Angeline, Washington, the cool weather has prevented rapid growth of grain but it is rooting deeply and promises big crop.

North Powder, Oregon, has been chosen as a site for a big new packing plant to handle live-stock. It will employ 1500 people.

During the last week of May 2,975,000 pounds of this season's wool clip was sold by Montana sheep men at an average figure just under 18c.

The spring wheat yield in Baker County, Oregon, will be a bumper one. There are 7500 acres planted this year, trebling the acreage of a year ago.

Yuma cotton raisers are pleased over the development of a valuable strain of Egyptian cotton, having very large bolls of superior length and quality.

The first cutting of alfalfa on the Umatilla project in Oregon began the 1st of June and promises to be the best since the project was opened in 1908.

Ranchers around Davenport, Washington, have started in thinning their heavily loaded peach trees to keep limbs from breaking before the crop is ripe.

The Arizona ranges are pretty well cleaned up and only heifers are left. Over a half million dollars are in the banks to the credit of the various stock men.

Students from the State College of Agriculture at Coleman, Wash., will go into the Snake River orchards to help in harvesting the fruit as soon as school closes.

Fruit growers of Polk County, Oregon, will hold an apple show during the early part of November. Cash prizes will be awarded for twenty varieties of apples.

After this year the landowners in the Klamath Reclamation project who are not receiving water will not have to pay any of the expense of maintaining the Water Users Association.

Sheep men at Baker, Oregon, are appealing for lower assessment of sheep, maintaining that while they can sell flocks at but little over two dollars a head they are assessed six dollars.

The first public wool sale at Pendleton, Oregon, late in May resulted in the transfer of $50,000 pounds which is said to be the smallest sale ever made in that city; prices ranged from 10⅛ to 14⅛.

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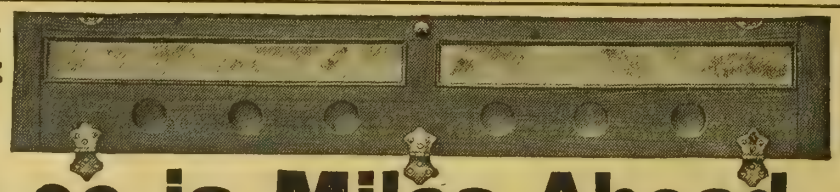

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PACIFIC COAST MUST PRODUCE MORE.

By H. L. Whiting, Walla Walla.

So much attention has been paid to the fruit industry and wheat raising in the Northwest that many things have been overlooked, and first among the missing can possibly be numbered the poultry industry. Had it not been for an enterprising Commercial Club secretary in one of the larger coast cities, possibly the present startling conditions would not have come to light for some time. The city in question, it was found, imported 2,000,000 dozen eggs during the year 1910, most of these coming from the Chicago markets, while dressed poultry shipped in amounted up into the hundreds of thousands of dollars. This led to a general inquiry, and now that the dust of research has finally cleared it is found that, in all, 15,000,000 dozens were shipped to the Northwest from east of the Rocky Mountains. Where conditions are so ideal for the raising of chickens, and where everything else is so plentiful, such conditions hardly seem possible, but the estimates are conservative, and the facts of the case are that were it not for the Eastern poultryman the rich and prosperous Northwest would go hungry for hen fruit and only the well-to-do would be able to have the product served on their table.

The lack of chickens in the Northwest is not because of unsuited climatic conditions or soil defects or the presence of any dreaded disease, but merely because the man who owns hundreds or even thousands of acres of wheat land will not "monkey" with what he terms "peanut business," while the individual working on the ten-acre tract specializes either in apples, pears, peaches, cherries or some other fruit or vegetable, and does not take time to enther encourage or care for his dozen or so "scrubs."

The Walla Walla Poultry Association has awakened to the vast amount of money awaiting the experienced poultryman who embarks into the business, and is now carrying on a campaign in this section, trying to encourage the raising of good chickens both for eggs and table use.

Figures gathered in the city of Walla Walla alone show that the 20,000 people living within the city limits pay $1.25 per capita annually for eggs shipped in from outside points.

For the past twenty-four years, according to the local United States Weather Bureau, there has been an average of 282 clear days out of each 365, while the thermometer seldom registers zero weather. Last winter the coldest was seven degrees above zero, but eggs went to 70 cents per dozen and remained there during January and February. Those who owned chickens made handsome profits, but the supply was not equal to the demand.

As a result of these continued experiences, H. S. Buffum, of Walla Walla, has gone into the business for eggs alone. At present he has 1,000 birds. So far he has had great success and will enlarge as he can.

There are, however, a mere handful who have introduced "good poultry" in this section of the state, and these men, missionaries they might be termed, are working hard to make Walla Walla the Petaluma of the Northwest.

SEX OF EGGS.

There is no known way of determining the sex of the chick by the appearance of the egg. The theory of foretelling the sex of the future chicken by the formation of the egg is centuries old. In the writings of Horace, long eggs are mentioned as certain to produce males. The position of the air cell has also been supposed to indicate the sex. Several well-known writers of recent years have expressed the belief that long eggs or those having wrinkled ends would produce males and that the smooth, round ones would hatch pullets. There is absolutely no foundation for this belief, as may be easily ascertained by making a few test hatches.

Several English writers, and more than one American, attribute the control of sex to the condition of the male bird, and they apparently base their theory on good ground. Briefly, it is to the effect that when the male is full of vigor early in the season cockerels are likely to predominate in the chicks from his pen. Later in the season, as the male's strength and vigor (sexually) decreases, the number of pullets in his progeny increases. However, when the male bird apparently remains equally healthy, strong and vigorous throughout the entire season, it is a common thing to have a majority of cockerels early in the season, while later on pullets predominate.

From the same flock, with as vigorous males as could be obtained, the writer has had nearly two-thirds cockerels early in the season, while later, in June and July hatches, from 90 to 100 pullets have been obtained from a hatch of 150 chicks. This, however, does not prove or disprove the theory, and it is highly probable that other elements, which we do not understand or appreciate, enter into the question of control of sex in the offspring. It is a well-known fact that usually the generative organs of the male undergo considerable change at different seasons and the testes of the cock are usually largest and best developed at the height of the breeding season, which generally is in April.

There are many theories and methods proposed for the regulation of the sex of chicks, but thus far none seem to prove dependable when put to the test. It is a fact well known that some families are prone to produce females and others equally prone to produce males. This will apply to some breeding birds and some matings, and this may prove the true solution of the control of sex in so far as we can regulate it. If you have a male bird or a particular mating that gives you a larger percentage of the

desired sex in the chicks, you will do well to continue breeding it or from the same line as long as you can successfully, and take whatever sex of chicks you get with as good grace as possible. It is not probable that anyone will discover any infallible rule for the control of the sex of future chicks, either by selection of eggs or by handling and management of the breeding stock.—Am. Poultry Journal.

DECOMPOSITION IN DRAWN AND UNDRAWN MARKET POULTRY.

The results of the investigations into the comparative rate of decomposition of drawn and undrawn market poultry made by the U. S. Department of Agriculture during the season 1909-1910 have just been published in Chemistry Circular 70. The conditions of the experiment were strictly commercial, as the fowls were killed and dressed by the regular employes of a poultry packing house, were shipped in the usual one-dozen to the box package in a car lot of dressed poultry, were received by a wholesaler and handled with his stock, and went to the retailer when he purchased fowls from the same car lot, remaining in his shop for the period which the market happened to require for their sale.

The shipments extended over a period of six months, from January to June, inclusive, and the haul was about 1700 miles, requiring on the average 7½ days. The birds were mature hens, large and fairly fat, and the method of killing was by bleeding through the mouth and puncturing the brain through the skull just below the eye. The carcasses were dressed according to methods known respectively as "full drawn," "wire drawn," "Boston drawn," and some undrawn, all being dry picked, and the evisceration was conducted with sufficient care to render washing unnecessary.

The routine of dressing, packing and shipping, and general handling in these experiments is far above the average. In fact, if all market poultry should be handled so well, the problem of decay would become insignificant.

The investigations which are described in detail in the pamphlet demonstrate (1) undrawn poultry decomposes more slowly than does poultry which has been either wholly or partly eviscerated; (2) "full drawn" poultry; completely eviscerated with head and feet removed decomposes the most rapidly; (3) "Boston drawn" and "wire drawn" stand midway between the undrawn and "full drawn" in speed of decomposition, the "wire drawn," which is most like the undrawn, being usually the better; and (4) that these deductions apply to dry picked, dry chilled, dry packed, unwashed fowls, which have been marketed with what would be called promptness.

The effect of different methods of dressing in case of delayed marketing is now under investigation.

"An ounce of prevention is worth a pound of cure." This is as true in the poultry business as in any other. To prevent lice and mites getting a foothold in your poultry house, build it right. Have all of the interior fixtures removable. Keep everything as clean as possible, for the red mite will breed much better in dirty and filthy surroundings than where all is light and clean. To exterminate all kinds of vermin, nothing is superior to kerosene oil. Spray it into every crack and crevice in the house. Spraying is always much better than application with a brush, for it will penetrate farther and more thoroughly, so therefore, when using liquids, always work with a sprayer in preference to a brush.

The almost universal practice now is to disinfect eggs before incubating. This because the eggs pass through the cloaca, which also gives passage to the droppings, and are thus apt to receive any germs of disease from the droppings, which, in the warm, moist air of the incubator, may develop to the damage of the chick. Eggs can be disinfected with 95 per cent pure alcohol or with a solution of any of the preparations of tar or creosol. Dip them in and place on a cloth to dry. Do not put them on the tray wet, or the chances are they may stick to the tray and lose a bit of shell.

There are a hundred and one accidents lying in wait for the early chick, and the only way to head them off is to take every precaution now to have things in readiness for these early hatches. Have the coops clean and free from projections which might wound a chick. We once found a chick impaled on a projecting nailhead. Use fine litter; a long straw may choke a chick. Use very small-mouthed watering vessels. We lost a chick three weeks old by drowning in a pint fruit jar of water. Don't water the hen in a vessel a chick could drown in. The little creatures jump higher than one would think possible.—Wallace's.

There are at least five ways in which actual co-operation can take place in the poultry business. First, the co-operative marketing of eggs, the formation of egg centers for collection, grading, marketing, etc. Second, the establishment of central killing and packing houses. Third, the development of home markets. Fourth, the establishment of central hatching stations where mammoth incubators could do the hatching for the neighborhood. Fifth, the co-operative buying of feed.

Give the hens full range of the barn, stables and other farm buildings during the day, where they will have comfortable, dry shelter and will be able to glean much feed that would otherwise go to waste. Confine them in their own house at night so they will not become a nuisance in the other buildings.

Don't forget to have plenty of windows in the poultry house. Sunlight and fresh air are two things that all domestic animals need for health and good production.

Change the rations of your fowls occasionally to improve their appetites and keep them in healthful condition. Fowls do not thrive upon one food alone.

Baby Chicks

Gardena Hatchery, Gardena, Cal.

(Egg capacity 100,000)

Largest in So. California.

After May 1st we reduce prices on our **Baby Chicks.** Any one still in the market will do well to write for prices, as we can furnish them at a low figure. We guarantee a full count of **live** chicks at your Express office.

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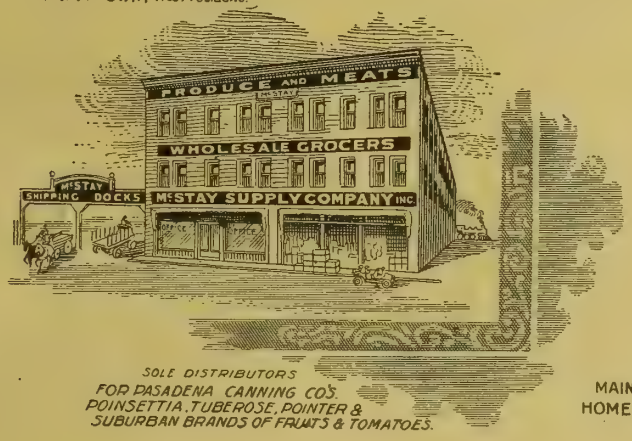

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LOS ANGELES, U.S.A

California Cultivator,
Los Angeles, Calif.

June 12, 1911.

Gentlemen:

We take this opportunity of thanking you for the several flattering mentions you have made in recent issues of your paper relative to the fight we are making on behalf of the consumer buying his supplies at wholesale.

In this connection would say that we are being flooded with orders and inquiries from your thousands of readers, and have received many flattering letters from these people expressing their satisfaction with our goods and the saving they made on their purchases.

We are firm believers in the policy of producer to the consumer, thereby eliminating middlemen's profits and putting everyday necessities in the hands of the consumer at wholesale or less than wholesale prices.

It is unnecessary to say that we are receiving most liberal support at the hands of the general public, who recognize that our guarantee of satisfaction is bona-fide in every sense of the word.

You can advise your readers that we will have a full page of bargains in next week's Cultivator" that will save them from "30 to 40 per cent" after paying freight.

Thanking you again for courtesies, we are, Yours very truly,

P. S.—Tell your friends to send for our catalogue.

McSTAY SUPPLY CO.

Money Making Little Liners

In this department we will insert your advertisement under a classified head for 1½ cents per word per issue. No ad accepted for less than 25 cents. Our classified columns are the clearing house for our many thousand readers.

LIVE STOCK

For Sale—Registered Berkshire pigs, old enough to wean. Their sire is out of a daughter of Star Masterpiece 102,000 and sired by Master Prince 95,656, he a son of Masterpiece 77,000, the sire of Star Masterpiece 102,000 that sold for $5,500. Dams are of Masterpiece breeding, others out of sows of Longfellow breeding and sired by Robin Masterpiece 3rd 142,363, stock not closely related. Also two registered Jersey bull calves, sired by Brown Lassie's Advocate 80,045, he a grandson of Diploma's Brown Lassie 166,688, second in classes A and B, World's Fair butter test, St. Louis, 1904, and out of high testing dams. Write for price and pedigrees if you mean business. Money refunded if stock is not as represented. G. C. Dickson, National City, Cal.

Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon, 66619, 2 years old. Dark gray. Dam weighs a ton. Liberty 74310. Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old. Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

For Sale—Two Fine Registered Jersey Bulls. One is son of Brown Bessie's Twelfth Son and St. Lambert Dam. The other is Golden Fern, Sultanne, St. Lambert blood. Perfect forms. Price and pedigrees on application. Tribble Bros., Elk Grove, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 103 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

Three Holstein Friesian Bulls, splendid young animals for sale, well marked and subject to registry. Write at once to Geo. G. Roeding, Fresno, Cal.

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Local Representative Wanted — Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, L 448 Marden Building, Washington, D. C.

Wanted—Quick buyer for best equipped apiary in Southern Arizona. Will net not less than $600 per year. Healthy bees. Free from pests. R. E. Athey, Benson, Ariz.

Wanted—Man for experimental field work who is a high-school graduate and familiar with field work. Citrus Experiment Station, Riverside, Cal.

Wanted—A chance to estimate on your cement pipe line. Edw. P. Burnham, Hemet, Cal.

DAIRY SUPPLIES

Have You a Cow?—Have you a creamery? Have you a cheese factory? Write us. Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

GUY F. KELSEY & CO.
Full line of dairy supplies. Come in, phone or write. Generous sample of Prosperity Washing Powder given on request. 106 East Eighth St., Los Angeles, Cal. Phone Main 7496.

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Splendid Values, Lowest Prices. Liberal credit given by our retail department. See us without fail before buying. Catalogues mailed to out-of-town customers. A personal call will show you that we have the best and largest stock in the southwest. We are now doing the largest wholesale business and intend to build up our new retail department. Arnott & Co., established 1892, 112-118 S. Los Angeles St., Los Angeles.

TREES

For Sale—About 3000 each of Washington Navels and Valencias, 1 to 2 ft. high, at 35c each. Also several thousand each of Washington Navels and Valencias, 2 ft. high and upwards, branched, at 50c each. All the above are 1-yr.-old buds; guaranteed clean, healthy, vigorous trees. Carroll B. Smith, Box 9, Redlands, Cal.

One thousand one and two-two Eureka Lemons, two thousand two-year Valencias, sweet and sour orange seed bed trees, five hundred camphor trees. Southland Nurseries, F. H. Disbrow, Prop., R. D. 1, Pasadena.

For Sale—2500 Valencias; 1000 W. Navels; 500 Eureka Lemons, one year and first-class stock, one-half to seven-eighths inch. Will make attractive price for immediate delivery. Phone Home 2062. C. W. Wilhite, Glendora, Cal.

For Sale—1000 Washington Navel Orange trees; also Budded Loquats, Guavas and a full line of ornamental plants and roses. Orange County Ornamental Nursery, Fullerton, Cal.

For First-Class Valencia and Navel Orange trees and Eureka lemons, see A. G. Snow, Oxnard, Cal.

Fine line of Navels—Valencias and Eureka lemons for delivery spring of 1911. Contract now and get the first choice. The King Citrus Nurseries, Whittier, Cal.

FARM LANDS FOR SALE.

Twenty Acres, near Dinuba, Tulare County, quarter mile from Southern Pacific, within three miles of three towns; all dry. Accredited high school, telephone, rural delivery. First-class soil, level and under irrigation in best and cheapest irrigation district in this state. Water right with land. Produced 14 tons dried peaches and 11 tons raisins in 1910. Fully equipped for fruit drying with transfer car and steel track throughout. Everything in first-class shape. Price $7,000. For terms address owner, Chas. F. Collins, Dinuba, Cal.

For Sale—320 acres in Fresno County, all in fence and cross-fenced. Thirty acres best orange land in state, the rest cattle ranch. Plenty of standing oak timber. One acre in oranges, mostly bearing; one-half acre in other fruit; eight acres vines, half Thompsons, half Malagas, two years old, will bring a good big crop this year. Plenty of water can be gotten. Also big house, barn and other buildings. Call or address A. Schloenvogt, Reedley, Fresno Co., Cal. Price $4,500.

For Sale or Trade—230 acres Oregon land in the famous "Rogue River Valley;" fine fruit land, 40 acres cleared, balance in timber; located ten miles from Central Point. A good two-story farm house, large barn. Fenced with 17-wire "Page Fence." Schoolhouse on corner. Would exchange for Los Angeles country or city property, to value of $8,000 or $10,000. Price $65 per acre. Address J. H. Grace, Central Point, Ore. P. O. Box 203.

For Sale—A 20-acre farm for $20 cash and $20 a month; possession now; $90 to $125 per acre; your crops pay for the land. Rich, level land for alfalfa, oranges, almonds, grapes, cows, chickens; abundance of ditch water, for irrigation, for $1 an acre a year. Where else can you get this? In Oakdale Colony, near good town and railroad station. Climate delightful. T. Wiesendanger, 207 S. Broadway, Los Angeles, Cal.

200 Acres Good Level Land—13 A. orchard; shade trees; 12-room house; 2 barns; windmill and tank house; fruit houses; cream separator; engine; etc. Price $21,000.
12 A. orchard home, good house, 4 rooms and bath, barn, fruit houses, windmill, equipment; complete place. $3600.
Yolo & Solano Counties. Wyatt & Wilson, Winters, Cal.

Another Bargain—80 acres of fine level land, sandy loam, no hardpan or alkali. Altitude 2500 ft. Very healthy. Will grow anything; no irrigation required. See the crops growing here in Santa Barbara Co. Owner needs money, so $20 per acre takes it; ½ cash, balance 3 yrs., 10 per cent. No trades. Wm. Mantz, Maricopa, Cal.

For Sale—One of the best dairy and farm ranches in Southern California. Over 100 acres fine alfalfa and 250 inches of water insured—insured. Will take some trade in smaller ranch or residence property, mortgage and some money. It will pay to look this up. 800 Trust & Savings Bldg., Los Angeles, Cal.

For Sale—20 acres 2½ miles northwest from Garden Grove, Orange Co., Cal. Good house, barn, ½ pumping plant, 90 in. flow of water. 12 acres alfalfa, 5 acres beans, 1 acre out to oranges. First class orange, lemon and alfalfa land. Sandy loam soil. For price and terms write H. H. Reeves, Santa Ana, Cal.

$2,500 Cash—7¾ acres sub-irrigated land, one-half mile from Ceres. Three acres alfalfa, family orchard, grapes, berries and garden. Small house, barn, chicken houses and yards and good deep well and engine. Address W. W. Kennedy, Ceres, Cal.

Sub-irrigated Valley Ranches near the sea. Good locations for citrus, walnut and lima beans. Good water. Also citrus land in Reedley, covers best location in the state for lemons and English walnuts. John T. Bramhall, care of Cultivator office.

For Sale—Near Lancaster, Cal., bargains in improved and unimproved land. Also relinquishments for sale or trade. Some homestead land. A. S. Burnham, Box 451, Lancaster, Cal.

Apple Orchards—Large and small, in the only apple producing section in California. The greatest section west of Missouri River. Write for booklet. Geo. W. Sill & Co., Watsonville, Cal.

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Ahuacate (Alligator Pears, Avocados), Persea Gratissima. New crop is now coming from Mexico. None better for stock. $4.50 per 100; $40 per 1000. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

NURSERY STOCK

1000 W. Navels, clean, thrifty, 1-year stock with fibrous roots, $50 to $75 per 100 to close them out. Armstrong Nurseries, Ontario, Cal.

For Sale—First class Eureka Lemon trees. Inquire D. N. Findlay, 218 Orange St., Redlands, Cal.

DUCKS

For Sale—Mammoth Pekin and Indian Runner Duck eggs, No. 1 stock, 75c per 12; $5.00 per 100. White Plymouth Rock and S. C. Rhode Island Red eggs, $1.00 per 15; $5.00 per 100. Fine, vigorous, farm-raised breeding stock; eggs high in fertility. A. E. Nelson, El Monte, Cal.

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Wild Plant Improvement Gardens, Santa Ana, California. Newton B. Pierce, proprietor. Rare choice ornamentals and new fruits from all lands.

Tropical and Semi-Tropical Fruits and Ornamentals. Headquarters in California. Montarioso Nursery, Santa Barbara, Cal. Descriptive, illustrated price list free.

Ferns for growing on Adiantum pedatum 5c, Pteris serrulata 3c, Aspidium tsusimense 3½c and 5c. Terms cash. Ballou's Nursery, Pasadena, Cal.

FARM LANDS WANTED.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 12 Palace Bldg., Minneapolis, Minn.

POULTRY

The Standard Poultry Yards. Back again with my first love. I have just received from the best White Leghorn breeders in the East 200 selected heavy-weight Knapp and Wyckoff trap nested White Leghorns, not one scoring less than 91 and up to 96 points. I am now prepared to furnish baby chicks and eggs together with my Cook and Kellerstrass White Orpingtons. I feel sure I have the best on the Coast. C. A. Loud, Prop., 3944 Cleveland Ave., San Diego, Cal

All We Know is Rhode Island Red Chickens. But we know them so well that our baby chix, $15 a 100, are the best on earth. There! Pure blood, good strains, well mated by expert breeders. I. X. L. Poultry Yards, 587 Mission St., Santa Cruz, Cal.

How to Make Money—Mrs. A. Basley's New Poultry Book is just out. It is without exception the most wonderfully complete manual on the subject of successful poultry management ever written. The secret of how to raise every turkey hatched and the "Basley Formulas," now published for the first time, are worth many times the price of the book. The "Western Poultry Book" is a practical book by a practical woman. Price $1.00. Address Mrs. A. Basley, Box 77, Venice, Cal.

The Goodacre Strains—Just the time to get our Quality Reds, our special offer on eggs from choice matings of $3.00 per 15 or $5 00 per 30 is hard to equal; our commercial day-old chicks we now offer in 100 lots at $12.00; our Reds have been constant winners the past three years in our Coast shows. We can sell you choice eggs, Buff Orpingtons, Anconas and White Runner Ducks. Write us today. Goodacre Bros., Compton, Cal.

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At Los Angeles Show, 1911, every first premium and two silver cups; two specials for best male and female. Eggs at half price, $2.50 per setting. C. C. Bonnell, 2919 Brighton Ave., Los Angeles, Cal.

Baby Chicks from my pure-bred stock S. C. White Leghorns, carefully selected for laying and standard qualities. $9.00 per 100, $85.00 per 1000. Eggs for hatching $5.00 per 100. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

R. I. Reds—Much time may be saved in producing heavy layers by buying eggs from a breeder who has established a record by specializing in heavy laying stock. Eggs, hundred $5.00, finely pointed; 15, $3.00. "The Luedkes," Anaheim, Route 1.

Rose Comb R. I. Reds—Eggs one-half price balance of season. A few breeders for sale. Young stock later. Mating list on request. W. H. Pickering, 984 E. 55th St., Los Angeles, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. Allaway & Layton Co., 607 E. Third St., Los Angeles, Cal.

White Leghorns—Buff Orpingtons. Bred for beauty and great egg production. Grand lot of both old and young stock for sale. Prices reasonable. Write your wants. Model Poultry Farm, Box H, Irvington, Cal.

Blue Andalusians—Beautiful and odd. Not too late to hatch if you have green feed. Eggs $2 per 14, $8 per 120. Two trios at $5 each. Have bred them 11 years. L. A. Wilson, Winters, Cal.

Rhode Island Reds—Eggs for hatching from high grade stock. Also some very choice cockerels, cheap considering quality. Write for prices. Frank Greenleaf, Greenleaf St., Santa Ana, Cal.

Day-Old Chicks and Eggs Only—Barred Rock; good laying strain. The Fairmount Hatchery, 29B, Rural No. 1, Santa Cruz, Cal

Orland Hatchery—White Leghorn chix, $8.50 per 100. $80.00 per 1,000. Brown Leghorn chix, $8.50 per 100. P. L. Simpson, Orland, Cal.

Hicks Jubilee Hatchery, now booking orders. Write us your wants. We use eggs from first-class stock only. Try us. W. J. Hicks, Petaluma, Cal.

White Orpington and White Wyandotte eggs for hatching. Send for list of winnings. Arthur W. Huskins, 713 Waterloo St., Los Angeles, Cal.

Barred Plymouth Rocks—The kind that "Win and Lay." Eggs and stock for sale. C. H. Vodden, Los Gatos, Cal.

Rose Comb Black Minorcas, nine years line bred. Stock and eggs in season. Eleanore Minorca Farm, R. D. 1, Los Angeles, Cal.

TURKEYS.

Mammoth White Holland Turkey eggs, $3.50 per 13 eggs, after May 26. A. H. Blakely, Ontario, Cal.

MISCELLANEOUS

Free—"Investing for Profit" Magazine. Send me your name and I will mail you this magazine absolutely free. Before you invest a dollar anywhere get this magazine—it is worth $10 a copy to any man who intends to invest $5 or more per month. Tells how $1.000 can grow to $22,000; how to judge different classes of investments, the real power of your money. This magazine for six months free if you write today. H. L. Barber, Publisher, R. 430, 28 W. Jackson Boulevard, Chicago, Ill.

Eight Big Family Games, 12 cents, consisting of Checkers, Chess, Dominoes, New Game of Authors, Fox and Geese, Nine Men Morris, Spanish Prison, Game of Flirtation, all for 12 cents. Eureka Supply Co., 427 Pacific Building, San Francisco, Cal.

Ranchers—If you grow anything that can be canned, we will supply everything but the labor and product and will pay you the highest market price for it. Write or call Growers Home Canning Co., 222 Exchange Bldg., Los Angeles.

H. Eckart, General Contractor, Bridges and Buildings, Reinforced Concrete Water and Oil Reservoirs, 256 Wilcox Building, Los Angeles. Phones A2443 or Alhambra 25812.

Imported Carneaux—The great squab pigeon. A limited number of mated pairs at $3.00 per pair. Chas. N. Taylor, Artesia, Cal.

Soda Water made at home. Three of the best recipes for summer beverages, 25c. Frank Laughlin, Moorpark, Cal.

MACHINERY

For Sale—Second-hand windmills, gasoline and steam engines, pumping outfits. Wagons, buggies, 10 sets harness taken in trade by us and must be sold. These are snaps. Disc, gang, walking, riding and side hill plows; slip, Fresno and wheel scrapers; 2 headers, 2 balers, seed sowers, spike tooth and disc harrow, mowers, rake, fanning mill, dry washer, disc cultivator, reaper, blower, anvil, eveners; road grader, road roller, Hurst two-horse sprayer, mining hoist, sundries.

WINDMILL OUTFITS.
12 ft. steel aermotor, tower, 10,000 gal. tank, tank stand, pump complete, $150 f. o. b.; also 8, 10, 12 and 14 ft. steel windmills, at half the price of new.

ENGINES.
5 H. P. White & Middleton engine, jack and head, pipe, 3 ft. Ames draw-valve cylinder, outfit complete and in fine shape, $225 on cars Los Angeles; also 6 H. P. engine and No. 3 vertical centrifugal pump, all complete at $175 f. o. b.

TANKS, TANKS, TANKS.
50 gallons to 50,000. Special price on 30,000 gallon. 3000 gallon tanks, cost $48.50 new, at $29. Why buy new material when we save you half and guarantee all material? Get others' prices; see us last. Demmitt Company, upstairs, 120 N. Main St., Los Angeles, Cal.

For Sale—Complete pumping plants, new and second-hand. Electric and gas engine driven. All sizes. Send us your details for our recommendations, irrigating appliances and pipe molds. We can save you money on your installations. H. U. Roeding & Co., Foxcroft Bldg., San Francisco, Cal.

For Sale—11 H. P. White & Middleton engine. Also 9 H. P. Foos. Overstocked on these sizes and will sell cheap. Both engines thoroughly overhauled and fully guaranteed. Baillie & Brandt Co., 943 N. Main St., Los Angeles, Cal.

For Sale—15 H. P. Fairbanks-Morse gas engine in perfect condition. Price low. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

FOR RENT

For Rent—Twenty-five acres of the best early, nearly frostless land on Signal Hill. Three acres blackberries, two acres asparagus, glass house, etc. Plenty of water. Best local market, good wholesale trade. H. H. Hart, Box 304a, R. D. 1, Long Beach, Cal. Sunset Main 2042.

Imperial Valley Fruit Ranch to Let—160 acres in early table grapes, apricots, alfalfa and cotton; 2 miles from county seat. Tenant must have experience, and $3000 capital to furnish labor. Address Horticultural Dept., Box 2, El Centro, Cal.

HORTICULTURAL PRINTING

Catalogues for the seed and nursery trade, the live stock and poultry industries, are a specialty with us. Two thousand illustrations to select from. Write for prices and samples. The Kruckeberg Press, 237 Franklin St., Los Angeles.

A GENTLE METHOD.

Little Edward had been visiting his uncle's ranch, where they were very much bothered by rats. When he came back, he started to school, where he received the information which he gave his grandmother one day. He said:

"Grandma, do you know how to get rid of rats?"

"No, Edward. How?"

"Why, a soft answer turneth away rats."—Woman's Home Companion for May.

THE SECRET.

Though it's hard to drive a hen, 'tis true,
It can be done if you're
Composed, and know the thing to do
Is just go slow but shoo 'er.

"How is it that your hens are so prolific?"

"I feed them on layer cake."—Lippincott's.

Sooner or later the chronic kicker will kick himself out.

A PROGRESSIVE MOVE.

The Trumbull Seed Company outgrew its quarters and last week moved into its new store at 257-259 Market St., San Francisco.

The enviable reputation enjoyed by this firm is the result of handling only reliable seeds and treating its customers in the best possible manner.

Seeds will be sold wholesale and retail. Special attention will be given to grass seed and green manuring crops. Besides seeds, the firm will handle Coulson's Standard Poultry Foods, bee supplies, sulphur, lime, and commercial fertilizers, together with spraying implements and supplies, insecticides, germicides, etc. The various departments will make it a most complete store.

A new catalogue will be issued later in the year, and you can register your name now and receive a copy as soon as it comes from the press.

MERCED COLONY.

Merced Colony No. 2, a tract near Atwater which is being colonized by the Co-operative Land and Trust Company of San Francisco, will have a large acreage in peaches within the next year. Following is a list of sales made in Merced Colony No. 2 during the week: John L. Winters, Alameda County, lot 45; Henry Wohlgemuth, Los Angeles, lot 127A; J. J. Ratzlaff, Los Angeles, lot 127B; A. E. Weingartner, Iowa, lot 63; A. O. Cooperrider, Santa Clara County, south half lot 36; J. O. Storey, Santa Clara County, lot 107.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Capacity of Barrel.

How many gallons of water in a barrel?—Subscriber, Dinuba.

The wine barrel contains 31½ gallons. This applies to all liquids in the United States, unless it is petroleum, barrel for which contains 42 gallons.

Centrifugal Lift.

How high will a centrifugal pump force water?—Subscriber, Dinuba.

In theory the suction lift is 33 feet, but in practice nature does not "abhor a vacuum" to that extent, and the pump is usually placed down as near to the water as possible. The lift or force above the pump depends upon the power used, for with plenty of power it is almost unlimited.

Boring Beetles.

I am sending beetles which are boring into the twigs or canes of prunes and apple trees and grape vines, weakening them so that they often break off.—Subscriber, Fulton.

These are the same as beetles sent us a couple of months ago from Riverside and reported from there as boring into orange tree twigs. They were referred to Prof. Baker of Pomona College and he answered that they were Polycaon belonging to the ptinidae. They are common in California and have never been reported to be of economic importance. We will be glad to have our subscribers keep us informed regarding this pest. The beetles are narrow bodied and about three-eights of an inch in length; one of the specimens sent us approaches a half inch. They make a clean, small hole in the hardwood of the twigs.

Fertilizer for Orange Tree.

I have young Washington Navel tree growing fairly well which I would like to stimulate and have grow as fast as possible. What is the best kind of commercial fertilizer and what amount should be used? How should it be applied?—Inquirer, Reedley.

Our inquirer must bear in mind that there is a limit to the growth of a tree and sometimes extra forcing results in gum disease or other troubles, but within reason it is desirable. We would first get the ground in the best of physical condition. If stable manure is at hand, spade it in and work the soil up loose and mellow. At this season of the year if stable manure is not available, then one pound of nitrate of soda well distributed for some distance about the tree will increase immediate growth. Any complete commercial fertilizer made up by a reputable house will answer the purpose and may be applied at this season. It should be spaded in or spread on the surface after irrigation and then worked into the soil. Above all, keep the ground mellow and in condition so that the sun will keep it warm. The two things necessary to best condition of roots of orange trees are air and warmth in the soil.

Draining Heavy Land.

I have land which in wet seasons runs together and the water stands in low places. I have been told that if this land were subsoiled to a depth of 12 or 14 inches that it would absorb the rain water. What should I do in the case?—Subscriber, Colusa.

Whether subsoiling this land would be beneficial or not can only be known by an examination of it. If the soil is a shallow one over hardpan with a good mellow subsoil below, opening it up by subsoiling might be sufficient to pass the water through to the better soil underneath, but we do not think 12 or 14-inch plowing would do that. If the hardpan is deep or thicker than could be handled by the use of a regular subsoiler plow, then it is probable the use of dynamite to break it up would be advisable. Powder mill people are holding demonstrations to show advantages of subsoiling with dynamite and within the next few months it is probable we will know more about it. If subsoiling would not work in this case then it is probable the only recourse would be to tile draining. Such land should be wonderfully benefited by tiling, but as noted above, owners of such lands should inform themselves more fully as to the under surface conditions. In the absence of a regular soil testing tube, the ordinary post hole digger with possibly an extension on the handle will help to give this information. Go down four or five feet or more and learn what is in your soil.

Bowel Trouble of Little Chicks.

A subscriber at Santa Ana asks what to do for bowel trouble in little chicks.

Discover the cause and remove it. The usual causes of bowel trouble in little chicks are taking cold, and lice. They take cold from overcrowding at night and coming out in the morning in a perspiration, while the lice or mites reduce the vitality. If our inquirer had mentioned whether the chicks were hen hatched or incubator chicks and whether they are brooder chicks or raised by a hen it would be easier to guess at the cause of this trouble. Give the chicks rice boiled in milk, adding a tablespoonful of ground cinnamon to each pint of milk. Also chop up onions, at least one good-sized onion every day for a dozen chicks, and mix it with the food. Give all the lettuce they will eat, and follow our rules of feeding chickfeed.—A. B.

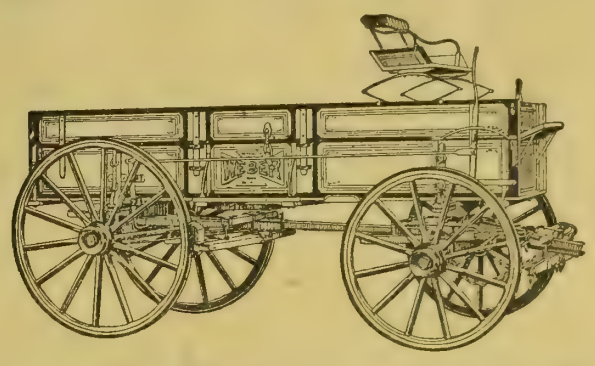
Lizard Trap.

For the benefit of the bee keeper who has had trouble with lizards I may suggest a trap which has been quite effective. It consists of a five-gallon coal oil can with the top cut out. Over the top is tied a piece of paper in which cross slits are cut so that the lizards walking above it will drop to the bottom of the can. The can is sunk in the ground with the top nearly level with the ground near the place where the lizards pass. The sides being perpendicular and smooth, once in, the lizard is unable to crawl out. The bait is placed at various points on the paper.—Harold B. True, Lancaster.

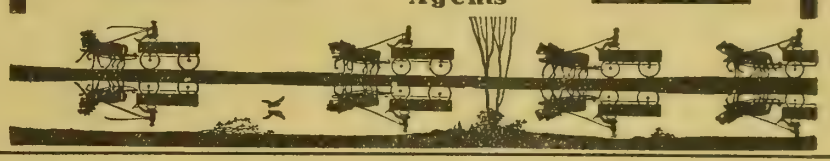
Mr. True does not state what he uses for bait, which we think would be important.—Ed.

WEBER WAGONS

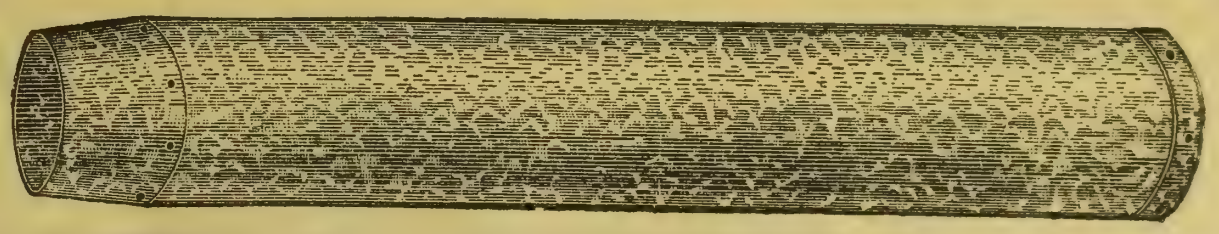
It was in 1845 that the first Weber wagon was built. From that day to this every effort has been made to build them the way the farmer wants them. Think of it—sixty-three years of steady advancement. It is no wonder that they are known as "King of all." Every element of excellence in wagon construction is embodied in the Weber. The best quality of material is used; it is properly constructed, and attractively finished.



Arnott & Co. General Agents Los Angeles



SAVE YOUR TIME WATER and GRADING BY IRRIGATING WITH AMERICAN SURFACE IRRIGATION PIPE



The PIPE RECOMMENDED BY ALL USERS. It is the ONLY SCIENTIFICALLY CONSTRUCTED SURFACE IRRIGATION PIPE on the market. THERE'S NO ROUND SEAMS TO LEAK, retard the flow of water or weaken the pipe. This pipe is easily handled and cheaper than flumes. It will last a life-time. For irrigating alfalfa it is the only pipe to use. We make RIVETED PIPE AND TANKS. Write for Illustrated Catalogue, also SPECIAL IRRIGATION FOLDER which may mean much to you.

American Steel Pipe & Tank Co., General Offices 342-43 Pacific Electric Bldg., Los Angeles, Calif.

WATER PIPE

Merchant Pipe for Steam, Gas, Water

10,000 feet	¼-inch	Standard, at	1c per foot
10,000 feet	⅜-inch	Standard, at	1c per foot
25,000 feet	½-inch	Standard, at	2c per foot
20,000 feet	¾-inch	Standard, at	3c per foot
36,000 feet	1-inch	Standard, at	4c per foot
20,000 feet	1¼-inch	Standard, at	5c per foot
30,000 feet	1½-inch	Standard, at	6c per foot
50,000 feet	2-inch	Standard, at	8½c per foot
10,000 feet	2½-inch	Standard, at	14c per foot
15,600 feet	3-inch	Standard, at	17c per foot
15,000 feet	3½-inch	Standard, at	19c per foot
20,000 feet	4-inch	Standard, at	24c per foot
30,000 feet	5-inch	Standard, at	40c per foot
20,000 feet	6-inch	Standard, at	45c per foot

Oil Well Casings

1,000 feet	10-inch	Diamond B. X. 40-lb. Special Casing, good as new	$1.00 per foot
1,000 feet	11⅝-inch	Casing, at	$1.00 per foot
1,000 feet	9⅝-inch	Casing, at	75c per foot
2,000 feet	7⅝-inch	Casing, at	45c per foot
0,000 feet	5⅝-inch	Casing, at	32c per foot
30,000 feet	4-inch	Casing, at	19c per foot
30,000 feet	3½-inch	Casing, at	16c per foot
20,000 feet	3¼-inch	Casing, at	15c per foot
25,000 feet	3-inch	Casing, at	14c per foot
50,000 feet	2-inch	Casing, at	6½c per foot

WATER PIPE—Riveted Dipped Pipe

10,000 feet	24-inch	Riveted Pipe, dipped, good as new.. 30c
10,000 feet	12-inch	Riveted Pipe, dipped, good as new, 10-guage 35c
20,000 feet	10-inch	Riveted Pipe, dipped, good as new, 12-guage 35c
10,000 feet	8-inch	Riveted Pipe, dipped, good as new, 16-guage 25c
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20,000 feet of 14, 12, 10, 8, 6, 4-inch damaged Riveted Pipe, used for drain and culvert pipes for under streets, at reduced prices.		

Telephone and Telegraph Poles

20,000 feet 3, 3½, 4-inch Pipe, cut to 16, 18 or 20-foot joints, for telephone poles, fitted up with cross-arms for that purpose.

We are offering special prices to save handling this pipe. We will fill your order on any amount or size of pipe. Small orders will secure the same attention as large ones. We carry a full line of pipe fittings at reduced prices. Mail orders promptly filled. Check or money orders received. Call and examine this pipe at our plant.

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Take Santa Fe Ave. or Huntington Park car at 7th and Broadway. Get off at Bay St.

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Irrigation and Forestry

GROWING AUTOMOBILES BY IRRIGATION.

In 1726 Dean Swift wrote: "He that maketh two blades of grass grow where only one grew before is greater than he that destroyeth a city." If he were writing today he could truly say that "he that maketh two blades of grass grow where none grew before shall bring the city to his farm and burn up the road in his automobile."

Whatever else irrigation in California has been productive of, it has certainly raised amongst the farmers a crop of automobiles, and if the steady procession of horseless vehicles to country districts continues, the hitching-post will soon be as much a thing of the past as the "old oaken bucket."

While the beginning of irrigation by gravity flow dates back to the dawn of history and the greatest of landmarks of early civilization are the remains of ancient irrigation systems, it is only within the memory of the present generation that the practice of irrigation has advanced to where it is a distinct branch of engineering science.

All over the western country where large irrigation systems have been installed, water from the mountains being impounded by dams or pumped from rivers, vast tracts of arid land have been turned into fertile farms; but it is rather to the individual pumping plant that the automobile manufacturer owes so much of his trade.

Irrigated farms justly command a high price and the transforming of the desert into such has called forth the original investment of so much capital that the work has been done by large corporations, and the farms are being sold with the water already on them and a practical guarantee of profitable operation.

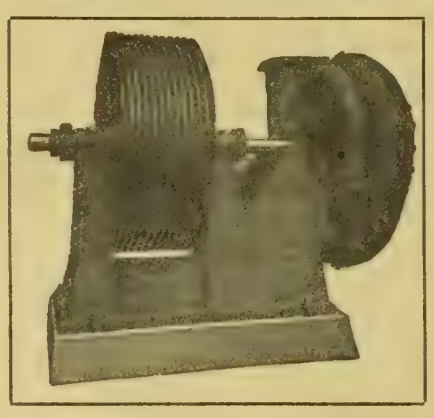
The farmer who took up land years ago and eked out a precarious existence is the man who owes to irrigation the comforts of life and the freedom from the never-ending worry as to Nature's pranks. In place of the dilapidated, unpainted ranch house of the old days, we see everywhere the comfortable bungalow with wide porches and modern plumbing, and in many cases an individual lighting plant. The tumble-down barn has disappeared and in its place the neat garage through its open door discloses the hall-mark of prosperity—the automobile.

That the use of the machine has revolutionized country life can not be gainsaid. What matter now if the nearest neighbor is ten miles or more away? What was before a formidable journey and one that was more often than not put off to save the horses, can now be accomplished in a few minutes. Social calls and evening gatherings are possible without the necessity of taking lunch along or staying all night, and the weekly pilgrimage to town is now a few minutes run in the automobile and can be taken daily. Surely irrigation has not only changed the face of the land, but the life of the land owners as well.

If we want to see more of the actual agent that has made all this possible, it is generally necessary to go back from the roadway a little further than our glimpse of the bungalow and garage requires. Undoubtedly today in spite of the comparatively cheap electric power that covers the country with a network of wires, the gasoline engine is by far the most popular power for pumping.

Strangely enough the common use of the automobile bought from the proceeds of the pump driven by a gasoline engine, has in itself increased tremendously the successful operation and consequently the growth of sales of stationary gasoline engines. The days of the professional gasoline engine "trouble-man" are numbered and the old chestnut of the dealer in gaso-

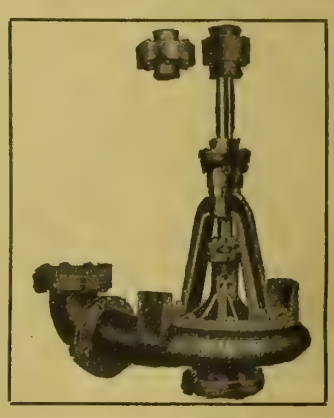
We Give It to You Free of Charge

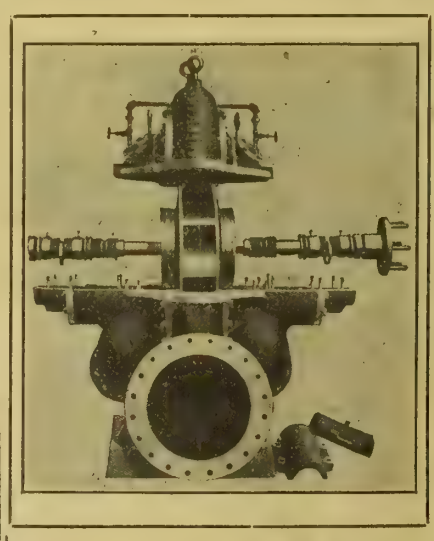


If we offered to furnish you a pump for nothing you would be willing to pay a reasonable amount for expert advice as to the type of pump which would be best for you to take, because you would be saving money

Pumps Cost Money---Expert Advice Costs Money

You need **both**—we will give you **one**
Free of Charge





Pumps That Save Money

A **properly designed, well built, carefully finished** pump—be it reciprocating, or centrifugal, for suction or deep well work, vertical or horizontal, single acting or double acting, single suction or double suction—

Will Save Money Every Day

it is used, over an improperly designed, cheaply built or badly finished pump of the same type. But however good a pump it may be, unless it is the **right type** of pump for your service it may still be an **expensive machine** for you.

American Pumping Machinery

Advice That Saves Money

Eminent financiers and broad-minded business men know the

Value of Expert Advice

and employ it whenever they are considering a new undertaking. They know that though it **costs** they **save money** by employing it. We pay for this expert knowledge and are increasing our supply every day we stay in the business of furnishing pumps.

We Offer It to You for Nothing

We Have Pumps for Every Purpose--Let Us Tell You which to Use

Send us **today** details of your **pumping problem** and an **expert** whose business it is to figure out the **best** and **most economical way** of lifting water will give you his personal advice. **It will cost you nothing. It may save you many a dollar.**

American Pump Co., 341 South Los Angeles St., **Los Angeles**

line engines, that he had to send a man a hundred miles to find out that his customer needed gasoline to make his engine run, will be heard no more. Not only has the knowledge of the practical working of a gasoline engine necessary for rightly running an automobile made every automobile owner a "trouble-man" himself, but the development of the engine itself and the improvements made in connection with it have been so great that the old feeling of satisfaction when an engine ran at all has given way to a feeling of surprise if it does not run.

Wherever conditions will permit, the centrifugal pump is the one used for irrigating purposes, and just as in the case of the gas engine the increased use of this type of pumping machinery has returned in improvements which have placed the centrifugal pump in the front rank for efficiency, although there is still a prevailing opinion that the centrifugal pump is only suitable for low-head work and at great power expense. It is no uncommon thing to have a centrifugal pump pumping from six, eight and even ten wells and set down in a pit lifting the water from 50 to 100 feet altogether.

"Agricultural engineer" is a new profession and many a dollar has been saved by the cautious farmer who has consulted one of these experts before installing the automobile producing machinery. The government, too, maintains a corps of experts who are constantly compiling statistics covering the subject of irrigation, and are only too glad to test out and report upon irrigating plants anywhere in the country. Some of the engineering concerns who have made a specialty of the sale and installation of irrigating machinery have in their employ experts whose advice can be safely relied upon.

There is no reason why the farmer who wants to raise an automobile by irrigation should make any mistake or take any chance in the kind of machinery to which he looks for so remarkable a crop.

NEW POWER SITE WITHDRAWALS

Three new power site withdrawals of public lands were made during the month of April, based on the field work of the United States Geological Survey. The land included in the withdrawals aggregates 97,889 acres.

There were also restored to entry portions of former withdrawals, found upon examination not to be necessary to the protection of government power sites.

The policy of the government, as stated by the director of the Geological Survey, in the matter of the classification of the public lands, is, first, to withdraw such areas as may be considered necessary from the standpoint of the federal government in the protection and conservation of its mineral and water resources; second, to make such withdrawals as accurately as possible, on the basis of the data or information available; and, third, to make further investigations and secure additional data in order to restore if possible any areas not absolutely necessary to the protection of the people's interest. In many cases the restorations represent the actual demand, in the form of petitions, for the use of the land for other purposes than those for which the withdrawal was made, and if full investigation shows this land to be most valuable for the use contemplated by the applicant, then the principle of relative worth becomes the deciding factor. This is simply carrying into practice the broad scheme of the classification of the public lands so as to secure their devotion to the highest and most beneficial use.

A cement ditch having a capacity of 900 miner's inches is being constructed to carry water from the Whitewater River to lands above Banning.

Are You an Expert?

If you are, every point that we claim for

Z-S Engines

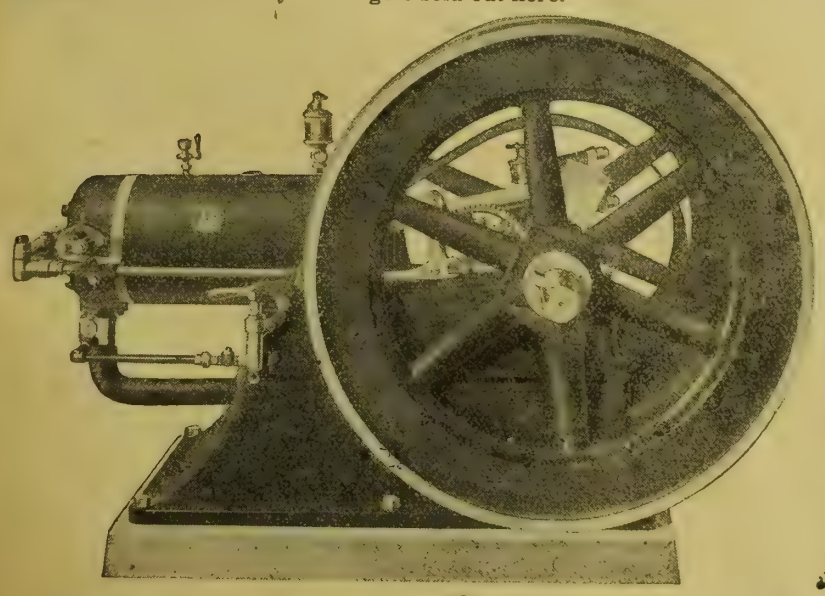
will appeal to you as of ***vital importance,*** and you will realize that the man who designed an engine combining practically all the essential features and many unique improvements, and at the same time preserved the three essentials,

Simplicity Reliability Economy

knows ***what a gas engine should be.*** Paul F. Schryer convinced us, after we had been dealing in other gas engines for years, that from many standpoints he had produced the

Most Desirable Engine on the Market

Let us tell you what, as experts, appealed to us and caused us to add our ***guarantee*** to his of every Z-S Engine sold out here.



Vital Points

Design ***Horizontal,*** of course, because it's stronger; because the piston is more thoroughly and evenly oiled, and because it runs with less vibration and gives more power than a vertical. ***Frame*** is long and deep, has heavy bed ledges to support cyclinder (which should ***never*** be bolted on to the end of the bed and overhang, nor should it be cast in one piece with bed). Notice the 30 degree bearing boxes.

Crankshaft Forged without joint or weld from a solid piece of best steel—nothing else will do—no cast steel or malleable iron—and it must be finished all over, showing there are no flaws which paint can hide.

Cylinder separate from the bed but thoroughly supported by it. Large water circulating passages. Compare the bore and stroke of ***Z-S*** cylinders with other engines.

Igniter is "make and break," set in the cylinder head, as are both exhaust and admission valves. Head can be easily removed and valves reground right in place in it. ***Igniter points can be cleaned from outside without removing.***

Large Valve Area Valves are of the poppet type, 25% larger than commonly used. This means ***longer life, more power, less gasoline.***

Speed Controller is hit and miss with governor weights in the fly wheel. All ***Z-S*** Engines above 2 H. P. have ***speed changing device*** operating directly on the governor and enabling you to increase or decrease speed of the engine one-third from standard while running and without danger.

Fly Wheels are especially heavy in the rim, and this accounts largely for the ***perfect balance and smooth running*** of ***Z-S*** Engines.

These are some of the ***POINTS*** that sold us

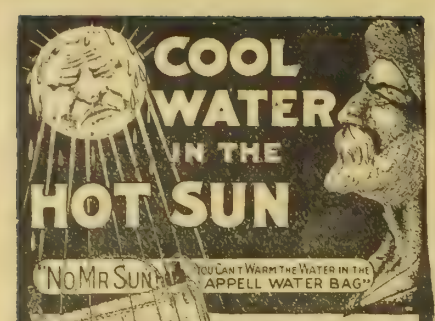
Z-S Engines

If you want them in detail write us today for Paul Schryer's book:

"How to Choose a Gas Engine"

Sole Districutors Z-S Engines California Hydraulic Engineering & Supply Co.

Main Office: 70 Fremont St., San Francisco **Branches: Oakland and Los Angeles**



APPELL'S South African WATER BAG

Keeps water cool 48 hours or longer, in sun or shade: great boon to prospectors, surveyors, sportsmen, stockmen, farmers, teamsters, anyone exposed to dry or warm weather. Used by U. S. Gov't. Strong, light, easy to carry. Guaranteed

Take no Substitute

This Letter Typifies the Attitude of All Users

Gentlemen: Elkhart, Indiana.

While in Nevada recently I had occasion to drink out of one of your South African Water Bags. Water from the bag certainly tastes good on the desert. We used one of your 2½ gallon bags and *the water remained cool all day, even though the temperature was over 100 in the shade*, and in the morning I found the water sparkling and as cold as ice water. It certainly is a boon to those living in the arid regions.

Yours Sincerely, W. E. WIDER

FOR SALE BY DEALERS EVERY WHERE

Made by
Adam Appell Water Bag Co., Portland, Or.

Save for the Home at the Home Savings

Your Money Grows Here

You draw out more than you put in when you become a savings depositor at this Home Bank. Your profit is definite, sure, constant. Every year is a prosperous one. Begin now. Keep your surplus funds at work.

We Pay

3% Interest on Minimum Monthly Balances of $300 or More, Account Subject to Checking.

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the most efficient all round Heating appliances for Stoves, Ranges, Boilers, Water-Heaters, and especially Hot Air Furnaces of all kinds. Brooder House and Heating Stoves. Send for Free Circulars.

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All Kinds of Oil Storage Tanks.

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The only Woman's College on the Pacific Coast. Chartered 1885. Ideal climate. Entrance and graduation requirements equivalent to those of Standford and University of California. Well equipped laboratories. Grounds comprise one hundred and fifty acres. Special care for health, out door life. Pres. Luella Clay Carson, A. M., Litt. D., LL. D. For catalogue address Secretary, Mills College P. O., Calif

DAISY FLY KILLER

placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Can't spill or tip over, will not soil or injure anything. Guaranteed effective. Of all dealers or sent prepaid for 20c.
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BEES HOW TO MAKE THEM PAY. The pleasures, the work and the profits of bee keeping are fully covered in "*Gleanings in Bee Culture*." 6 months trial subscription 25 cents. Write for book on Bees and free catalog—both free.
THE A. I. ROOT COMPANY, Box 49, Medina, Ohio

When writing advertisers, mention Cultivator.

Household Department

"SUCH AS I HAVE."

The little maid sat in the high-backed pew,
And raised to the pulpit her eyes of blue;
And the prayers were long, and the sermon grand,
And oh, it was hard to understand!
But the beautiful text sank deep in her heart,
Which the preacher made of his sermon a part;
"Silver and gold have I none," read he;
"But such as I have give I to thee."
And the good old preacher looked down and smiled.
At the earnest gaze of the little child.

The dear little maid carried home the word,
Determined to use it as chance might afford.
She saw her mother unceasingly
Toil for the needs of the family,
So she cheerily helped, the long day through,
And did with her heart what her hands found to do.
"'Silver and gold have I none,' said she,
"'But such as I have give I to thee.'"
And the joyful mother tenderly smiled
As she bent to kiss her little child.

On her way to school tired, I know,
She plucked the blooms by the wayside born;
"My teacher is often tired, I know,
For we're sometimes naughty, and sometimes slow;
Perhaps these may help to lighten her task,"
And she laid the flowers on her teacher's desk.
"'Silver and gold have I none,'" said she,
"'But such as I have give I to thee.'"
And the weary teacher looked up and smiled
And she took the gift of the little child.

As she played with her sisters on the grass,
She saw a dusty traveler pass.
"Poor man," she said, "He's tired, I think,
I'll go and get him a nice, cool drink."
And she hastened to fetch her little cup,
And dip the sparkling nectar up.
"'Silver and gold have I none,'" said she,
"'But such as I have give I to thee.'"
And the thirsty, dusty traveler smiled,
As he took the cup from the little child.

Sweet and innocent, clad in white,
She knelt by her little bed at night.
With a childish trust she longed to bring
Some gift to her Savior and her King.
"So much from thee every day I receive;
But my heart is all that I have to give.
"'Silver and gold have I none,'" said she,
"'But such as I have give I to thee.'"
And our Father looked down and tenderly smiled
As he took the gift of the little child.
—Elizabeth Rosser in the Watchman.

HOW THE QUESTION WAS SETTLED.

Katharine Atherton Grimes.

"How is Fred doing in school this winter?" asked Farmer Grey of Mr. Hall, the teacher, whom he had overtaken on his way home from school.

"Fred is doing well—extra well, I may say," replied Mr. Hall. "In fact, I have never had many pupils who have advanced so rapidly."

"I am glad to hear it," said Mr. Grey, heartily. "It means a great deal to his mother and me to see our only son making a success of things that he undertakes. Of course he is young yet—only fifteen—but one can tell a good deal about the stuff a boy is made of, even at that age."

"That is true enough," replied the teacher. "I have been wanting to see you for some little time to ask what line of training you wished him to be given especial work in. It is quite time some definite plans were being made for his future."

"Just what I told Mother last night. By the way, I am coming back by way of your boarding place, so just jump in, and we can talk as we go along."

Mr. Hall climbed into the buggy, and the two men drove away, talking earnestly about the prospects of the bright lad in whose future both were so deeply interested.

"Fred would make a brilliant lawyer," said Mr. Hall, in the course of the conversation. "His mind is remarkably clear, and he is quick to see and profit by any point that comes under his observation. He has a solid sense of honor, that would insure him against the common, claptrack practices, and would eventually make him a power in legal circles, for, in spite of all that is said, it is the right kind of men that tell there, as elsewhere. I should strongly urge that profession, as it so often proves a stepping stone to great things. But it is, of course, not the only one open to a young man of Fred's ability."

Mr. Grey shook his head doubtfully. "I do not know what to think," he said, slowly. "His mother has set her heart upon his being a merchant of some kind. You know her brother is the head of the Allen Mercantile Company, at Tuxedo, and could, and would, give the boy an excellent chance to learn the business from the bottom up."

"He would undoubtedly succeed there, too," acquiesced Mr. Hall. "The same qualities that make a fine lawyer would tell equally well in that occupation. In fact, with the proper training, I sincerely believe Fred could make a success of any business requiring brains and energy, providing he has a taste for it."

"I will talk with the boy, and see what his own inclinations are," said Mr. Grey, finally as he stopped to let the teacher out at his boarding place. "He has a right to decide for himself. I would not force any line of action upon him, against his own preferences. My own judgment might easily be at fault, even with my own son."

"I do not think you stated what you would yourself like him to be," said Mr. Hall.

"Me? Oh, if I could have my own wish, I would rather see him just a plain farmer than anything else. To my mind no profession is nobler, or offers greater opportunities to a young man with 'brains and energy,' as you remarked a while ago. But I realize that I may perhaps be prejudiced in favor of a calling that appeals strongly to myself, yet might prove a sad misfit for my boy."

The teacher watched him thoughtfully as he drove down the road.

"I wonder if it would be a 'misfit,' after all," he mused. "Brains, energy and honor are needed on the farm as much as elsewhere. The leading farmers of the time to come will be the men who can command these qualifications in the greatest degree. The chances for financial success are just as good on the farm as anywhere else, if anything, it offers the lesser risk of failure. Fred has the further advantage of having been brought up by a practical farmer on a well-managed farm. He has had example as well as precept to learn from. On the whole, I believe it would be the best thing for him to stick to his father's calling.

"I believe I will talk with the boy a little myself. I should have done so before, but I had an idea that Mr. and Mrs. Grey, like most parents of exceptionally bright sons, would have some great ambition for their boy that would take him out of their own walk in life. I should like to know what Fred himself will say, when they mention the subject to him. He is quite capable of making his own choice."

Fred Grey came to school a little earlier than usual the next morning. Mr. Hall heard the clear, musical whistle coming, far down the road. He watched the tall, well-knit young figure swinging toward him, and noted with pleasure the open, honest face, and the dark eyes with the dawn of manhood beginning to make keen glints in them. The teacher felt that his own interest in the lad was, perhaps, excessive, yet could not wonder at it.

"Good morning, sir," said the pleasant young voice, which had a little new note of suppressed excitement in it. "I have great news to tell you this morning. That is why I am so early. I could not wait," he added, with a laugh.

"I guessed as much," said the teacher, almost as excited as the lad. "Come in and tell me all about it."

"Father is going to give me a deed of the south forty tomorrow," cried Fred jubilantly. "Isn't that the best ever? If I make a success of that, when I am twenty-one he promised to give me the forty joining it. I am going to pay my way through the Agricultural College with the proceeds of my crops. Father says you are to come home with me tonight to help me make my plans."

"Then you are not to be a lawyer,

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Copy of this book can be had at Southern Pacific office, Los Angeles.

or a merchant, or any 'big gun' of that sort " asked Mr. Hall, with a little smile.

"I should say not!" replied the boy emphatically. "Father said something about that, too, I believe, but I did not pay much attetnion. I have never thought of being anything but the best kind of a farmer, just like dad."

"You will be," said Mr. Hall, decidedly. "You are the right sort for that very thing."—Successful Farming.

PAPER PLASTER AND HOW TO USE IT.

"Paper plaster is one of the most useful and durable mediums for decoration," says Woman's Home Companion for March. "It may be used on small or large surfaces, and even in unskilled hands charming results may be produced with it.

"Take old newspapers and tear them into very small pieces. Put a mass of them in a tub of water and allow them to soak over night. In the morning put the whole mass through the meat-chopper. Wet it again so as to make it pliable like plaster. Practice modeling the paper into different shapes while it is in this state, but remember, of course, that it will not be permanently cohesive. After you have learned to handle the pulp mix it with a little glue. It will remain soft for some days and can be molded without haste, but as time goes on, the molded plaster will become hard.

"Old glass bottles may be covered with the plaster and decorated in any way that you may fancy. Well-shaped jars may be decorated with designs of fruit or flowers. When the pulp dries, it takes on an attractive bronzy color without treatment of any sort. Soft brown or green dyes may be worked in with the plaster, however, and produce charming effects.

"Glove or handkerchief cases may be made from ordinary wooden boxes. For a handkerchief case, cover a cigar-box with the paper pulp, working in some simple and appropriate design, pinching it and modeling into shape. For this purpose use a narrow paper-knife and make the more delicate touches with the flattened end of an orange stick. Pad and line the inside of the box with silk.

"Very pretty bas-relief effects may be made with the plaster. It may be used in executing low-relief wall designs for borders or friezes. If you wish a conventional design or figure, cut as many patterns of the same design as you will need for the space to be covered. Paste these securely on the surface to be decorated and mold the pulp over them. Keeping the pulp neatly within the lines will insure accuracy and uniformity. When the design is modeled the pulp may be colored with water-colors dabbed on with a sponge or with a large soft brush.

FROM DAY TO DAY—A RECIPE.

Wouldst thou be wretched?
'Tis an easy way;
Think but of self and self alone, all day;
Think of thy pain, thy grief, thy loss, thy care—
All that thou hast to do, or feel, or bear.
Think of thy good, thy pleasure, or thy gain,
Think only of thyself—'twill not be vain.
Wouldst thou be happy? Take an easy way;
Think of those round thee—live for them all day.
Think of their pain, their loss, their grief, their care,
All that they have to do, or feel, or bear.
Think of their pleasure, of their good, their gain;
Think of those round thee—it will not be vain.

—Credit Losts.

RUBE!

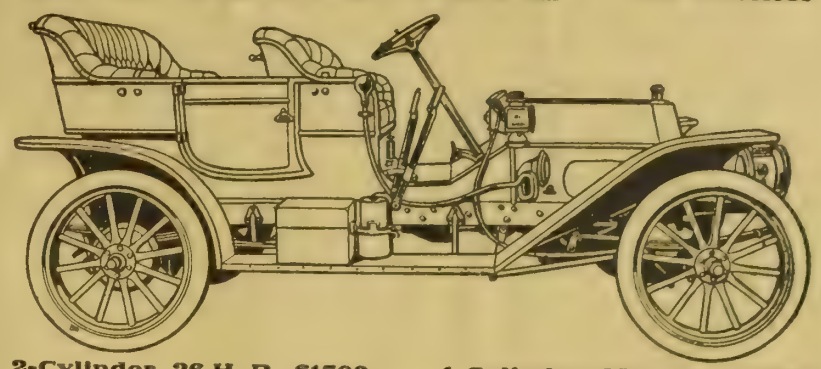
Hotel Proprietor—"What's all this ringing about?"

Guest—"I dunno. I've lost my collar button an' I'm trying to dig this little one out of the wall."—Judge.

When boiling anything needing constant stirring, a large glass marble placed in the kettle is far better than a spoon. The boiling keeps the marble moving, and prevents burning.

It makes the mind very free when we give up wishing, and only think of bearing what is laid upon us, and doing what is given us to do.—George Eliot.

DUROCAR The Car for the Farmer



2-Cylinder, 26 H. P., $1500 4-Cylinder, 35 H. P., $1750

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REPORT OF THE CONDITION OF

The First National Bank of Los Angeles

AT CLOSE OF BUSINESS JUNE 8, 1911

RESOURCES:

Loans and Discounts		$12,926,432.26
Overdrafts, Secured and Unsecured		12,238.31
U. S. Bonds to Secure Circulation		1,250,000.00
Bonds to Secure U. S. Deposits		305,000.00
U. S. Bonds on Hand		4,900.00
Premiums on U. S. Bonds		None
Bonds Securities, etc. (bonds only)		1,053,700.00
Due from National Banks (not reserve agents)	$ 608,048.66	
Due from State Banks and Bankers	777,817.46	
Due from Approved Reserve Agents	1,336,577.86	
Checks and Other Cash Items	136,771.92	
Exchange for Clearing House	402,722.06	
Notes of Other National Banks	163,707.00	
Fractional Paper Currency, Nickels and Cents	13,429.82	
Lawful Money Reserve in Bank, viz.:		
Specie	1,725,634.00	
Legal Tender Notes	288,975.00	
Cash and Sight Exchange,		**$5,453,683.78**
Redemption Fund with U. S. Treasurer		62,500.00
Customers' Liability Under Letters of Credit		158,638.70
TOTAL,		**$21,227,093.05**

LIABILITIES:

Capital Stock Paid In		$ 1,500,000.00
Surplus Fund		300,000.00
Undivided Profits Less Expenses and Taxes Paid		2,025,927.32
National Bank Notes Outstanding		905,000.00
Due to Other National Banks	$ 2,022,682.36	
Due to State Banks and Bankers	1,106,133.68	
Due to Trust and Savings Banks	1,069,423.59	
Dividends Unpaid	2,865.00	
Individual Deposits Subject to Check	11,296,156.26	
Demand Certificates of Deposit	133,458.59	
Certified Checks	51,767.76	
Cashier's Checks Outstanding	327,754.19	
U. S. Deposits	300,622.64	
Letters of Credit	163,024.70	
Total Deposits,		**$16,473,888.77**
Reserved for Taxes		22,276.96
TOTAL,		**$21,227,093.05**

STATE OF CALIFORNIA,
County of Los Angeles—ss.

I, J. M. Elliott, President of the above named bank, do solemnly swear that the above statement is true to the best of my knowledge and belief.

J. M. ELLIOTT, President.

Subscribed and sworn before me this 9th day of June, 1911.

Correct—Attest: W. N. HAMAKER, Notary Public.

W. C. PATTERSON, JNO. P. BURKE, JOHN S. CRAVENS, J. C. DRAKE, M. H. FLINT, F. Q. STORY, Directors.

*No Real Estate. No Furniture and Fixtures. No Premium on U. S. Bonds.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June, 14, 1911.

We believe the following from a Los Angeles daily paper is overstated and we do not reprint it to endorse it, but that such merit as it does possess may be a warning against the sending of poor stock to market. The paper says:

"In former years Los Angeles was the logical outlet for fruits and vegetables of Imperial and Coachella Valleys. Since the eastern markets have been discovered, the Southern farmers and packers have come to regard the local market as a mere dumping ground for any overripe, undersized rot they may have on hand and that may possibly pay more than the express charges, all amount over being profit. This season so far has been the worst ever experienced and the wholesalers are finally beginning to arise against the prevailing condition of affairs. Yesterday several carloads of the poorest cantaloupes that have ever been seen on this market were shipped in. They were soft, shipped in un-refrigerated cars, were poorly packed and in order to move them, they were sold for as little as $1 per standard crate. This rebounds upon the market for good stock. It kills the demand for fancy melons and at the same time forced the prices lower than they should be. The same is true of tomatoes. Some of those arriving yesterday morning were of such poor stock that they were sent straight to the garbage incinerator, while it was necessary to repack nearly every crate of Imperial Valley tomatoes that came in. It is in the interest of the grower as well as the wholesaler to pack only good stock for the reason that it keeps prices up here as well as in the East and the sooner he realizes that fact he will be better off. The same thing may be said of some local farmers. Sweet corn at the present time is a glaring example of mismanaged gardening. Day after day big shipments of corn arrive. Half of it or more should be left on the stalks for another week, being so green that it does at best only for horse feed or chicken feed. All of this green corn is shipped in with the hope of getting the prevailing high prices but instead most of the shippers do not get even the shipping cost and at the same time they keep the market up fearfully high, on really fancy stock."

Butter.

Butter receipts are about 60,000 pounds daily, demand good, market firm at last week's quotations.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	.23
Firsts	.22
Ladies	.18
Country	.15
Eastern	.21

Cheese.

Local Anchor	.17
Oregon, Daisy	.16@17
Northern	.15
Domestic Swiss	.18
Imported Swiss	.30@32

Eggs and Poultry.

Receipts of eggs have been very light for several days and a firm market prevails. Less than 300 cases are received daily, some days as low as 200 cases.

Paying price f. o. b. Los Angeles is:

Local Ranch, candled	.26
Case count buying price	.22
Northern and Imperial	.20@24
Northern	.19@23
Eastern	.21

Dealers pay for live poultry f. o. b.:

Hens, per lb	.13@15
Roosters	.8
Broilers	.18
Fryers	.20@22
Roasters	.19@20
Turkeys	.20@23
Ducks	.14@15
Geese	.15
Guinea hens, doz	.4.00
Squabs, doz	.2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	.7@7¼
Prime steers	.6
Heifers	.6
Calves, per lb	.6½
Sheep, ewes, per head, shorn	.4.75
Lambs, per head	.3.75@4.25
Wethers, shorn	.5.00@5.50

Potatoes.

Wholesale prices are:

Highlands	.2.75
Oregon	.2.75
Sweets, yellow, lug	.3.50
Sweets, red	.3.00
New potatoes, lugs	.75@85
New Local, cwt	.2.25@2.35
Texas Early Triumph	.2.25@2.50

Onions.

Wholesale quotations:

Imperial, crates	.2.00
Silverskins, ctl.	.3.00
Bermudas, crate	.2.00
Garlic	.8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	.35@65
Asparagus, lb	.4@6
Beets, doz. bunches	.20@25
Bell peppers, lb.	.35
Beans, lb	.4@6
Beans, wax	.4@6
Green chilis	.25@30
Cucumbers, Texas, crate	.20@75
Cabbage, sack	.1.15@1.30
Celery, doz	.75@1.00
Carrots, doz	.20@25
Corn, lug	.60@1.00
Horseradish, lb	.12½
Onions, green, doz bunches	.10@15
Kolrabi, doz bunches	.40
Leeks, doz	.35@40
Lettuce, crate	.75@85
Mushrooms, basket	.3.50@4.00
Oyster plant, doz	.35@40
Okra	.4@5
Peas, lb	.4@6
Parsley, doz bunches	.20@25
Parsnips, doz bunches	.20@25
Radishes, doz bunches	.15@20
Rhubarb, Strawberry	.1.30@1.50
Spinach, doz	.15@20
Squash, summer	.35@40
Spearmint, doz	.25@30
Tomatoes, Mexican, crate	.1.00@1.50
Turnips, doz	.30@35
Watercress, doz	.25@30

Citrus Fruits.

Valencias	.2.50@2.75
Navels	.2.75
Grapefruit	.1.75@3.25
Lemons	.1.75@5.25
Limes, hundred	.1.25

Fresh Fruits.

Wholesale prices on the market are:

Apricots, crate	.1.75@2.00
Alligator pears	.3.00@4.00
Pearmains	.2.75
Currants	.8@10
Cantaloupes, ponies	.2.00@2.25
Cantaloupes, standard	.2.75@3.00
Cherries, black, box	.1.40@1.50
Cherries, black, bulk, lb	.10@12
Cherries, white, bulk, lb	.7@9
Grapes, Sweetwaters	.1.50@2.00
Bananas	.4@4½
Loquats, lb	.4@6
Loganberries	.7@8
Peaches, lug	.1.35@1.65
Pineapples	.7@8
Dewberries	.4@5
Blackberries	.6@8
Raspberries	.7@8
Gooseberries, lb	.5@7
Strawberries	.4@6
Watermelons, lb	.1½@2½

Dried Fruits.

Wholesale prices are:

Apricots	.14@16
Evaporated Apples, fancy, lb	.13½@14
Figs, box	.1.85@2.25
Peaches	.9@10
Nectarines	.10
Pears	.13@14
Prunes	.11@14
Plums	.10@11

Beans Dried.

Wholesale quotations:

Limas	.6.25@6.50
Black eyes	.6.50
Pinks	.6.25
Lady Washington	.4.25
Small white	.4.00
Mexican reds	.5.00@5.25
Garvanzas	.4.50
Bayous	.4.50
Lentils	.6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	.17@18
Chestnuts	.10@12
Almonds, IXL, lb	.16@17
Pecans, polished	.15@17
Peanuts, Eastern	.7½@8
Peanuts, California	.6½

Honey.

Wholesale quotations:

Extracted water white	.9
Extracted light amber	.8
Comb water white	.18@19
Light amber	.15
Beeswax	.30

Hay.

Buying prices f. o. b. cars Los Angeles are:

No. 1 old barley hay	.12.00@13.00
Barley hay	.11.00@12.00
Wheat hay	.12.00@13.00
Tame oat	.15.00@16.00
Alfalfa	.11.50@12.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	.1.80
Corn	.1.65@1.75
Kaffir	.1.75
Millet	.3.25
Popcorn	.4.00@4.25
Egyptian corn	.1.65
White oats	.1.80
Rye seed	.1.90
Seed barley	.1.50
Broom corn	.1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	.1.10
Cracked corn	.1.70
Cracked wheat	.1.95
Shorts	.1.90
Bran	.1.65
Oil cake meal	.2.50
Feed meal	.1.75
Rolled barley	.1.50

San Francisco Market

SAN FRANCISCO, June 13, 1911.

Butter.

Butter has been down and up again and is now holding at 22 cents for extra. Market firm at present quotations.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	.22½
Prime firsts	.21
California firsts	.20½
No. 1 Packing	.17½
Seconds	.20

Cheese.

Cal. flats	.10@11½
Cal. Y. America, fy, new	.12½@13½
Oregon, fancy	.13½

Eggs and Poultry.

Eggs dropped immediately after last quotations, losing 2 cents, one point of which was regained on Monday.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	.21
Prime firsts	.19½
Firsts	.19
Seconds	.17
Eastern seconds	.15
Select pullets	.17½
Hens, doz	.4.50@10.00
Fryers, doz	.5.50@6.50
Ducks	.5.50@8.00
Broilers	.2.00@4.00
Roosters, doz	.4.00@10.00
Geese	.2.00@2.50
Pigeons	.1.75@2.50
Squabs	.2.00@2.50
Rabbits, doz	.2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	.4@5½
Cows and heifers	.3.50@4.65
Calves, lb	.5@6½
Hogs	.5@7
Wethers, No. 1, unshorn	.4½@4¾
Milk lambs	.5
Ewes, No. 1, unshorn	.4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

Salinas Burbanks, cwt	.2.85@3.00
Oregon Burbanks, cwt	.2.60@2.85
New potatoes, cwt	.2.00@2.75
Early Rose	.1.75@2.25
Texas Triumphs	.3.00
Eastern	.2.15@2.25

Onions.

Australian	.2.75@3.00
New green, box	.50@65
Red, new, sack	.1.75@2.00
Bermuda, seed	.2.00
Silverskins	.2.00
Garlic, lb, new	.3@5

Vegetables.

Wholesale quotations:

Asparagus, box	.85@1.50
Beans, string and wax	.5@7
Bell peppers	.10@15
Carrots	.60@75
Cucumbers, box	.1.25@1.60
Corn, doz	.50@60
Celery, crate	.1.50@2.50
Chili peppers, lb	.12½
Cauliflower, doz	.75@1.00
Egg plant, lb	.10@12½
Lettuce, crate	.75@2.00
Okra, lb	.10@12½
Peas, sack	.2.00@2.50
Rhubarb	.1.00@1.50
Summer squash, lug	.1.75@2.25
Tomatoes, crate	.85@1.50
Turnips	.60@75

Citrus Fruits.

Navels, new	.1.25@3.00
Valencias	.2.00@3.00
Grapefruit	.75@3.00
Lemons	.2.00@5.00
Limes, Mexican	.5.00@5.50
Tangerines, halves	.1.25@1.50

Fresh Fruits.

Apricots, crate	.1.00@1.50
Alligator pears, doz	.75@1.00
Apples, box	.1.90@2.25
Apples, new, green, 20-lb box	.75
Cantaloupes, ponies	.2.00@2.25
Cantaloupes, standard	.2.75@3.00
Cherries, white, lb	.4@5½
Cherries, black, lb	.5@7
Cherries, Black	.65@90
Cherries, Royal Anne	.65@85
Currants, drawer	.90@1.15
Peaches, box	.75@1.25
Cherry plums, lug	.1.25@1.50
Currants, chest	.7.00@8.00
Bananas, Hawaiian	.75@1.75
Loganberries, chest	.4.00@6.00
Gooseberries, drawer	.65@75
Blackberries, chest	.7.50@10.00
Raspberries, basket	.10@12½
Strawberries, Southern, crate	.75@1.00
Strawberries, Lgwths, chest	.7.00@9.00
Malindas, chest	.4.00@5.50
Pineapples, Hawaiian	.2.50@3.50

Dried Fruits.

DRIED FRUITS—1911 crop, f. o. b., carload lots, per lb.—Apples, 12@13½c; Apricots, 1 4@17c; Peaches, 8@9½c; Prunes, bulk basis, 4½@4¾c; per lb, 4@8c, with a premium of ½@1c on large sizes; Figs, 4½@5c for white; Pears, nominal.

RAISINS—1911 crop: Seeded, per pkg—Fancy, No. 16, 7½c; Choice, No. 16, 7@7¼c; Loose Muscatels, in 50-lb boxes—Standard, 4-crown, 6c; do, 3-crown, 5¾c; do 2-crown, 5½c. Seedless—Muscatels, 5c; Sultanas, 5¾c; Thompsons, 6@6¼c.

Nuts.

Walnuts, No. 1 soft shell	.16@16½
Walnuts, No. 1 hard shell	.14½
Almonds, '10, N P U	.15@16
Almonds, 10 Nonp	.14½
Almonds, '10 I X L	.15@16
Almonds, Peerless	.12½
Pecans	.14@17
Chestnuts, California	.6@8
Peanuts	.5@5½

Beans Dried.

Limas	.6.25@6.40
Pink	.4.75@5.00
Black eyes	.6.50@6.75
Small white	.3.25@3.45
Large white	.3.00@3.40
Kidneys	.5.50@6.00
Garbanzos	.2.50@3.25
Bayou	.4.40@4.50
Horse beans	.3.50@4.00
Red Mexicans	.5.00@5.25
Cranberry	.3.75@4.00

Hops.

Hops, coast, 1910	.19@23
Hops, 1911 contracts	.21@26
Hops, Oregon, 1911	.22@25

Honey.

Water white, comb, '10	.15
Dark comb	.12½
Extracted white, '11	.9@10
Extracted dark	.6½
Beeswax, lb	.24@30

Hay.

Receipts of hay for the past week have been 2776 tons. The market is being almost totally supplied with old crop, the only new crop arriving being an occasional boatload of first-cutting alfalfa, which is not thoroughly cured, and is being placed at about $6.00 to $6.50 per ton. The quality of this new alfalfa is very good; in fact, the best we have seen in some years. We understand the alfalfa acreage is very large. If all other grades of hay of the coming crop prove as good in quality as the first of the alfalfa seems to be, we will no doubt have hay of excellent quality to handle throughout the year.

Reports from the country continue favorable to larger crops of hay than have been anticipated. Sections which heretofore reported an exceedingly light crop are now reporting everything being cut for hay. We are now looking for almost a normal crop of hay throughout the state. The cool weather conditions have also helped the grain yield.

We quote the wholesale prices in round lots on today's market as follows, viz:

Fancy wheat hay	.13.50@14.50
No. 1 wheat or wheat & oat	.11.00@12.00
No. 2 wheat or wheat & oat	.10.00@11.00
Choice tame oat	.10.00@12.50
Other tame oat	.8.50@10.50
Wild oat	.9.00@10.00
Stock hay	.6.00@8.00
Alfalfa	.9.00@10.50
Straw, bale	.40@50

Grain.

Barley, fancy	.1.36¼
Barley, good to choice	.1.32½@1.35
Barley, poor to fair	.1.27½@1.30
Oats, white	.1.50@1.60
Rye, new crop	.1.45@1.47½
Mustard, brown	.5½
Alfalfa seed	.5½
Millet	.2¾@3½
Flaxseed	.5@5½
Broom corn seed, ton	.25.00

Feed Stuff.

Alfalfa meal	.17.00@17.50
Bran, ton	.28.00@29.50
Feed cornmeal, ton	.33.00@34.00
Cracked corn	.33.00@34.00
Rolled barley, ton	.27.00@28.00
Rolled oats, ton	.30.00@32.00
Middlings	.33.00@35.00
Oil cake, ton	.40.00@41.50
Cocoanut cake, ton	.25.50@26.50
Mixed feed, ton	.25.00@27.00
Shorts	.29.00@31.00

Deciduous Fruit Market

SACRAMENTO, June 10th, 1911.

Manager McKevitt of the California Fruit Distributors reports:

The following gives number of cars of deciduous fruit shipped from all points in California for the week (7 days) ending Friday morning, June 9th, 1911:

Cherries—40 cars. Cherry shipments show a marked increase. The early sections are now finishing on this variety and the later and larger varieties are just beginning in the San Jose section. Royal Annes and Bings have been of better average quality than the Tartarians. In the San Jose section all varieties are reported as unusually fine.

Apricots—4 cars. Considerable quantities of Royal Apricots are now moving from the Winters and Vacaville section. Pringles and Seedlings are nearly done.

Peaches—This variety of fruit continues in very light supply. A material increase may be expected in the next week or ten days.

Plums—Two or three of the early varieties of plums have made their appearance, but shipments will be of exceedingly small volume for the next week, after which time they will be in liberal supply and of several of the leading varieties including Cherry Plums, Clymans, and possibly a few Climax.

Pears and Grapes continues to look very promising. The crop of the former will be considerably better than was expected earlier in the season. From present appearances it is likely to equal that of last year. Barring unforeseen climatic conditions the grape crop bids fair to be considerably larger than ever before.

Weather—At the time of writing our last letter, weather was pleasant. Since that time, however, on the 6th instant, we had quite a shower of rain, which fortunately did not amount to more than a light mist in most of the sections where cherry shipments are being made; consequently little or no damage resulted. It is not often that we get rain as late as the 6th of June, and it is not expected that any more moisture will fall until late in the fall.

Citrus Fruit Market

LOS ANGELES, June 14, 1911.

The orange market has been somewhat weakened in the cleaning up of the Navels, Seedlings and others of the earlier varieties. In fact, they are still selling at the Eastern end, though the shipping of all excepting the Valencias has ended. Nearly 3000 cars of Valencias have been forwarded or will be within the next week or two, so that it will not leave over 5000 to be shipped after the Fourth of July trade.

Lemons could hardly be better in the general run of the market. Favorable weather conditions—that is, extreme heat—forces them up occasionally above normal, but the ordinary run will not vary much from $5.00 to $6.00.

Shipments.

Shipments of oranges since November 1st, 1910, to date: 30,908 cars, lemons 4,463, total 35,371. To same date last season: Oranges 21,232, lemons 2,879, total 24,111.

LOS ANGELES, June 12.—Seven cars Valencias, one seedlings, three lemons sold.

	Avge.
Red Raven, fy, Riverside, not shipped, Valencias	$2.10
California, ch, Riverside, not shipped, Valencias	1.85
Sylvan, fy, or, Valencias, Orange, shipped June 9th	2.10
Blue Ball, ch, Valencias, Orange, shipped June 9th	1.85
Sylvan xc, Valencias, Orange, shipped June 9th	2.00
Blue Ball, ch, Valencias, Orange, shipped June 9th	1.75
Woodland, xf, Valencias, Orange, shipped June 6th	2.00
Blue Ball, ch, Valencias, Orange, shipped June 6th	2.00
Sylvan, xc, Valencias, Santa Ana, shipped June 8th	2.00
Blue Ball, ch, Valencias, Santa shipped June 8th	2.00
Sylvan xc, Valencias, Orange, shipped June 8th	2.00
Blue Ball, ch, Valencias, Orange, shipped June 8th	1.75
Sylvan xc, Valencias, Orange, shipped June 7th	2.00
Blue Ball, ch, Valencias, Orange, shipped June 7th	1.75
Heap Good, or, Seedlings, Riverside, shipped June 10th	1.10
Lemona, xc, Lemons, El Cajon, shipped June 10th	3.92½
Dog, sd, Lemons, El Cajon, shipped June 10th	3.47½
National, xc, Lemons, Orange, shipped June 10th	4.05
Dulce, sd, Lemons, Orange, shipped June 10th	3.80
Green Palm, xc, Lemons, Los Angeles, not shipped	3.25
Stock Label, sd, Los Angeles, not shipped	2.75

LOS ANGELES, June 7.—Four cars Valencias, two seedlings, one St. Michael, two lemons sold.

	Avge.
Woodland, fy, Valencias, Orange, shipped June 6th, Nor. Route	$2.12½
Blue Ball, ch, Valencias, Orange, shipped June 6th, Nor. Route	1,87½
Woodland, fy, Valencias, Santa Ana, shipped 3rd	2.12½
Blue Ball, ch, Valencias, Santa Ana, shipped 3rd	1.87½
6th	2.00
Blue Ball, ch, Valencias, Orange, shipped 6th	1.85
Woodland, fy, Valencias, Orange, shipped 5th	2.00
Blue Ball, ch, Valencias, Orange, shipped 5th	1.75
Heap Good, Seedlings, Riverside, shipped 3rd	.90
Heap Good, Seedlings, Riverside, shipped May 31	.90
Red Raven, fy, St. Michaels, Riverside, shipped June 1	1.00
National, xc, Lemons, Oranges, not shipped	4.00
Dulce, xc, Lemons, Orange, not shipped	3.50
Lemona, xc, Lemons, El Cajon, shipped June 7	3.90

LOS ANGELES, June 9.—Six cars Valencias and two cars lemons sold.

	Avge.
Woodland, fy, Valencias, Orange, shipped June 6th	$2.12½
Blue Ball, ch, Valencias, Orange, shipped 6th	1.87½
Sylvan, fy, or, Valencias, Santa Ana, shipped 8th	2.10
Blue Ball, ch, Valencias, Santa Ana, shipped 8th	1.85
Sylvan, fy, or, Valencias, Orange, shipped 8th	2.00
Blue Ball, ch, Valencias, Orange, shipped 8th	1.75
Sylvan, fy, or, Valencias, Orange, shipped 7th	2.00
Blue Ball, ch, Valencias, Orange, shipped 7th	1.75
Woodland, fy, Valencias, Orange, shipped 5th	2.02½
Blue Ball, ch, Valencias, Orange, shipped 5th	1.97½
Sylvan, fy, or, Valencias	2.10
Blue Ball, ch, Valencias	1.85
Nacional, xc, Lemons, Orange, not shipped	3.90
Lemona, xc, Lemons, El Cajon, not shipped	3.75
Dog, sd, Lemons, El Cajon, not shipped	3.25

NEW YORK, June 12.—Eighteen cars navels, six seedlings, two bloods, six sweets, one Rio, five St. Michaels, nineteen Valencias, one grapefruit and three lemons sold. Market generally lower on oranges; unchanged on lemons. Fair and warm.

	Avge.
NAVELS—	
Swastika, L V W Brown	$2.35
Knight, or, Ely-Gilmore	2.20
Bishop, Ely-Gilmore	1.75
Orchard, imp, or, National O Co	2.70
Standard, imp, sd, National O Co	2.05
Euclid, or, Growers Ft Co	3.25
Uplanders, Growers Ft Co	2.45
Euclid, or, Growers Ft Co	3.10
Uplanders, Growers Ft Co	2.25
Euclid, or, Growers Ft Co	3.25
Pinnacle, O K Ex	3.15
Majesty, O K Ex	1.95
Angora	2.25
Coyote, O K Ex	1.80
Volunteer, S A Ex	2.30
Stork, S A Ex	2.15
King, S A Ex	1.60
Parrot, S A Ex	1.70
SEEDLINGS—	
Triumph	$1.60
Titus Ranch, fy, San Marino G P	1.50
El Toreador, cd, San Marino G P	1.30
Bishop, Ely-Gilmore	1.35
Sky Blue	1.40
Stork, S A Ex	1.80
Don Quixote, S A Ex	1.55
ST. MICHAELS—	
Colonel	$1.95
Old Mission, ch, Chapman	2.55
Lady Rowena, Chapman	2.20
Old Mission, Chapman	2.55
Golden Rule, Riv Ex, Riv	2.10
Squirrel, A H Ex	1.95
Palm Tree, A H Ex	1.65
Stork, S A Ex	1.75
VALENCIAS—	
Royal Crest, Randolph Ft Co	$3.50
Niagara, Stewart Ft Co	3.10
Elephant, or, Elephant Orchard	2.80
Winter Haven	3.00
Taylor Best	2.65
Bronco, West American Ft Co	3.55
Canyon Crest	3.35
Columbia	2.15
Corona, National O Co	2.80
Corona, sds, National O Co	1.95
VVV	3.15
None Better	2.80
Old Mission, fy, Chapman	3.90
Old Mission, ch, Chapman	3.40
Golden Eagle, sd, Chapman	2.75
Lotus, O K Ex	3.60
Monogram, O K Ex	2.85
Vista Bonita, A F, Hemet	3.75
Red Shield, A C G Ex	2.55
Green Crown, A C G Ex	2.55
Nonpareil	3.25
Whittier, S T Ex	3.20
La Mesa, Riv Ex, Riv	2.70
Hunter, A C G Ex	2.35
Red Shield, A C G Ex	3.15
Green Crown, A C G Ex	2.40
GRAPEFRUIT—	
Colonel	$1.20
E. High. A.	.90
Liberty	2.70
El Dorado	1.90
Liberty	2.80
El Dorado	2.05
LEMONS—	
Peerless	$4.50
Sunset	4.15
Laurel	5.00
Southern Beauties	4.75
Justrite	4.25
El Dorado	4.15

PITTSBURG, June 12.—Twenty cars sold. Market firm on good stock oranges; strong on lemons. Warm.

	Avge.
NAVELS—	
Naralimo, or, Sparr Ft	$2.55
Red Globe, Riv Ex, Riv	2.80
Parrot, S A Ex	.90
Yankee Doodle, A F, High	2.05
Circus xc, Sparr Ft	1.90
Cal Orange, Riv Ex, Riv	1.75
Owl, O K Ex	1.45
Crystal, Riv Ex, Riv	1.25
Parrot, S A Ex	1.55
Owl, O K Ex	1.70
Greyhound, S A Ex	1.55
VALENCIAS—	
Naralimo, Sparr Ft Co	$3.40
Lilac, xc, Randolph	2.65
Iris, D M, Monrovia	3.60
Golden Rule, Riv Ex, Riv	2.65
Circus, xc, Sparr Ft	2.90
Lighthouse, sd, Randolph	2.75
Jasmine, D M, Monrovia	3.15
Golden, Riv Ex, Riv	2.05

BOSTON, June 12.—Nineteen cars sold. Cloudy, raining. Market is unchanged, both oranges and lemons.

	Avge.
NAVELS—	
Eagle, A F High	$2.05
Honor Bright, A F High	2.60
Red X, O K Ex	2.50
Heart of Gold, A F High	3.85
Blue Jay, O K Ex	2.25
Honor Bright, A F High	3.40
Standard, sd, National O	2.80
VALENCIAS—	
Echo, S T, Pasadena	$3.00
Alta Cresta, A H Pach	3.70
Robusta K, A H Pach	3.35
Hobo X, A H Pach	2.65
Rose, xf, Red Q, G A	3.45
Santa Anita	2.85
El Toro	2.35
Arroyo, S T, Pasadena	2.60
Stag, A C G, Azusa	3.55
Woodland	3.00
Blue Ball	2.75

PHILADELPHIA, June 12.—Three cars navels, five Valencias, seven mixed, one seedling, one jaffa, one St. Michael, one lemon sold.

	Avge.
NAVELS—	
Eagle, A F, High	$1.75
Greyhound, S A Ex	1.70
Coyote, O K Ex	1.90
Volunteer, S A Ex	2.25
Stork, S A Ex	2.00
Owl, O K Ex	1.35
VALENCIAS—	
Playmates, R H, Red	$3.10
Pointer, A C G, Gleno	3.05
Premium, or, Benchley F	3.30
Perfection, fy, High, O G A	2.90
Superior, ch, Benchley	2.85
Golden Rod, ch, High, O G A	2.45

ST. LOUIS, June 12.—Thirteen cars sold. Cool. Market weak on account of the weather.

	Avge.
VALENCIAS—	
Martha Washington, S S, Tustin	$3.00
Premium, or, Benchley F	3.35
Cowboy, S S, Tustin	2.30
LEMONS—	
Bridal Veil, V C, Haines Spur	$3.90
Santa Anita	4.10
White Cross, V C, Haines Spur	3.60
ST. MICHAELS—	
Stork	$3.15
Airship	2.70
Golden Sceptre	2.45
Regina	2.25
Big Four	2.20
LEMONS—	
Rough Diamonds, V C, Limoncira	$4.20
White Cross, V C, Limoneira	5.50
Arab, S A Ex	5.30
Rough Diamonds, V C, Limoneira	4.40
White Cross, V C, Limoneira	5.75
Montecello, Sweetwater F	5.00
Red Bell, Randolph F	3.40
Horseshoe, lemonettes	4.30
Bridal Veil, V C, Limon	5.80
Pet, S A Ex	5.15
Pup, S A Ex	5.00
Bridal Veil, V C, Limon	5.90
Stock Label, Sweetwater, F	5.00
Deloro, Sparr F	5.00
Montecello, lemonettes	3.75
SWEETS—	
La Mesa	$2.25
Dan Patch	2.25
Pony	2.20
Yellow Beauty	2.15
Sugarleaf	1.55
NAVELS—	
Hawk	$2.05
Carlo	2.25

CINCINNATI, June 12.—Warm. Market advancing. One car Valencias, one navels, two lemons, two mixed cars sold.

	Avge.
NAVELS—	
Hawk, S A Ex	$2.00
Hawk, S A Ex	1.95
LEMONS—	
Tally-Ho, S B, Rialto	$4.10
O K, A C G, Azusa	4.85
Plain Ends, A C G, Azusa	4.80
Big R, S B, Rialto	3.95
Juicy, A C G, Azusa	4.70
Del Oro	3.95
Jajuna	4.05

MERCED COUNTY.

(Continued from Page 711.)

notably that of John Osborn, have been bearing prolifically for over twenty years. Although most of the newcomers of this part of the state are going in for alfalfa, in connection with dairying and hog raising, many are also setting out peach orchards. The thousands of acres already in successful bearing furnish ample proof of the excellent qualities of the soil for peach growing.

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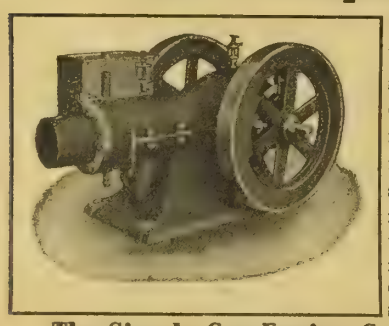

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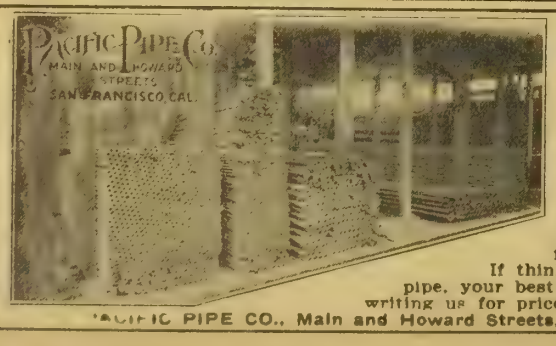

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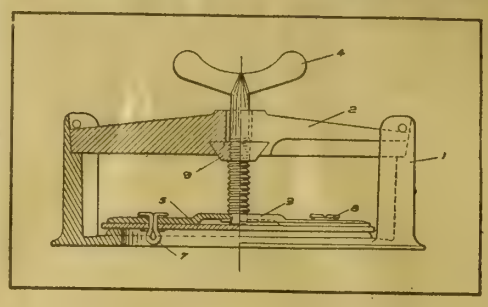

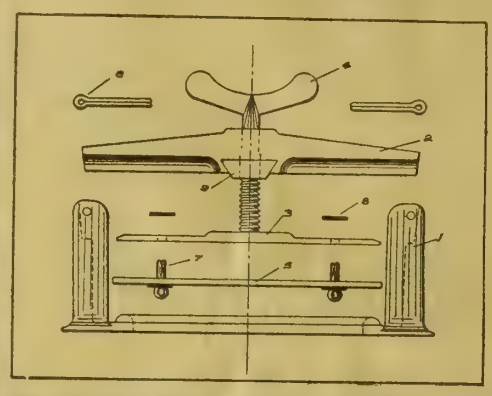

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2 Cross Bar	6 Cotter Pin
3 Top or Lid	7 Cotter Pin
4 Brass Thumb Screw	8 Cotter Pin Washer
	9 Brass Nut

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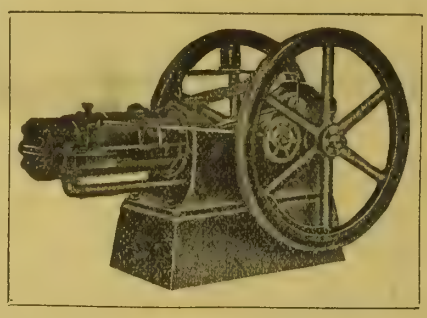

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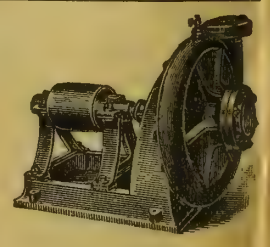

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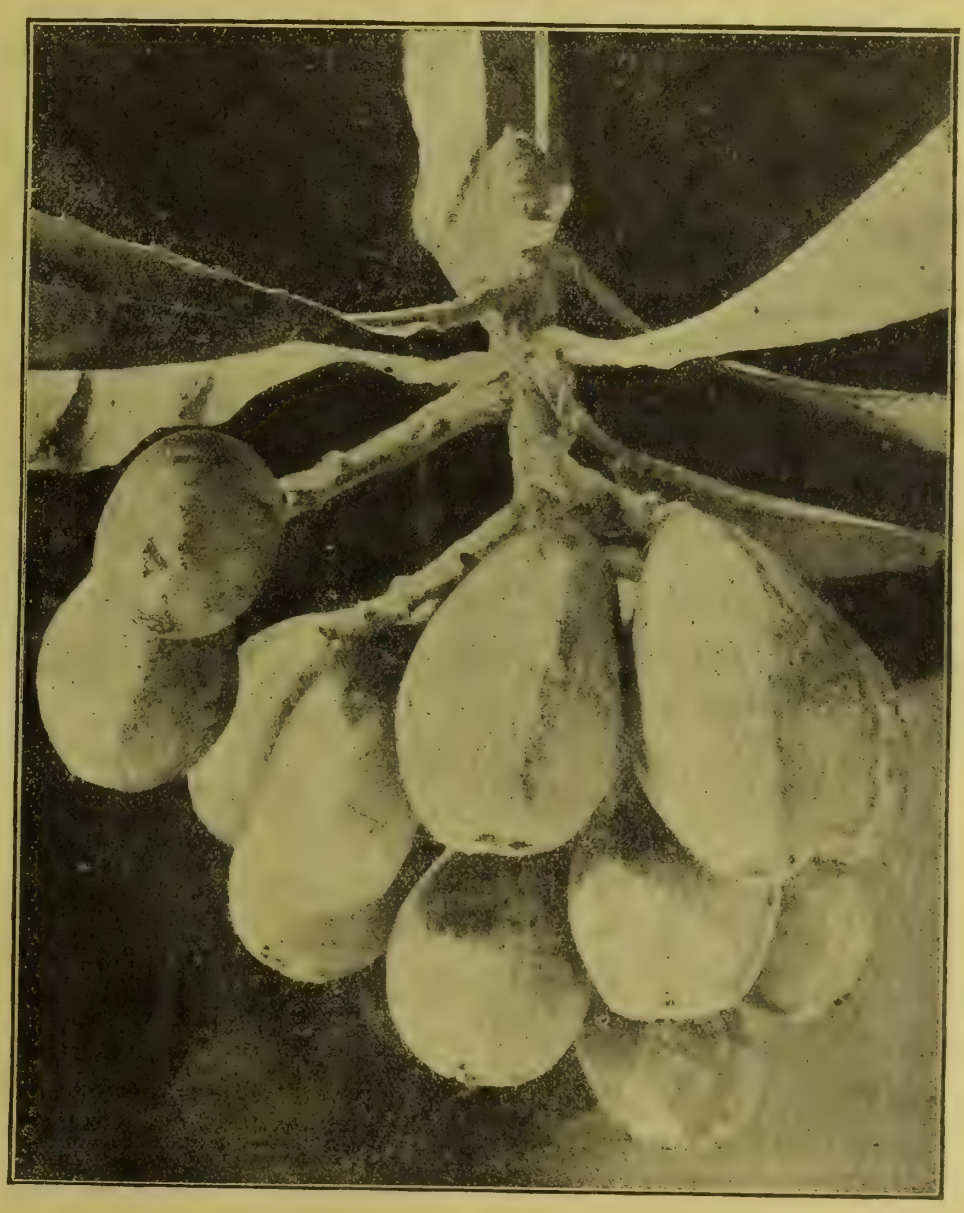

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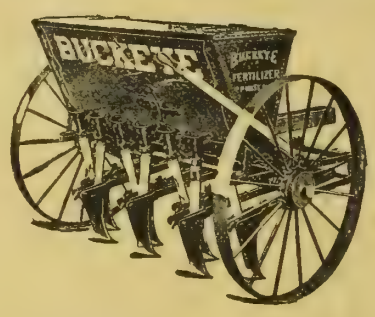

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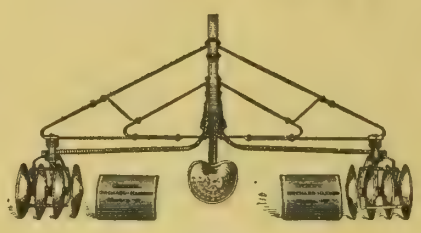

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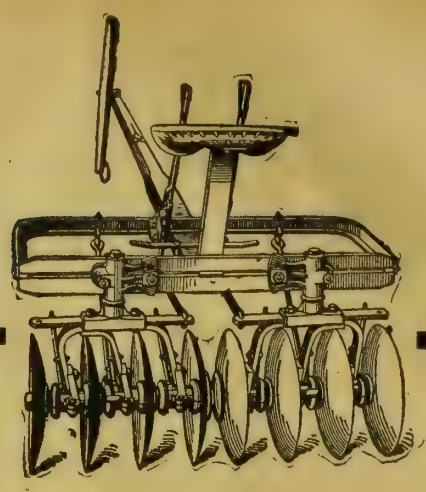

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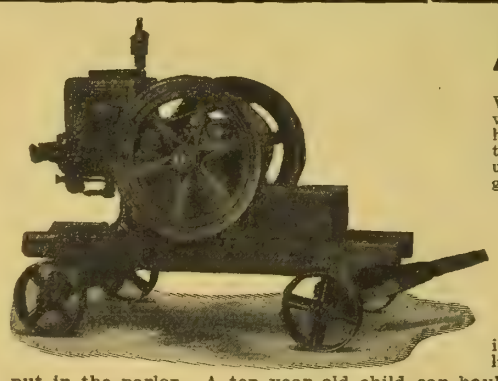

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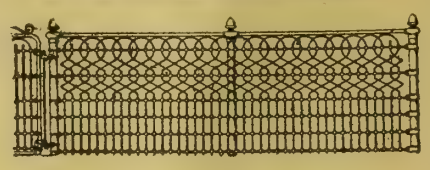

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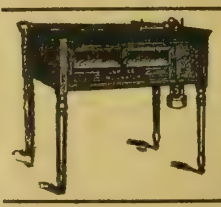

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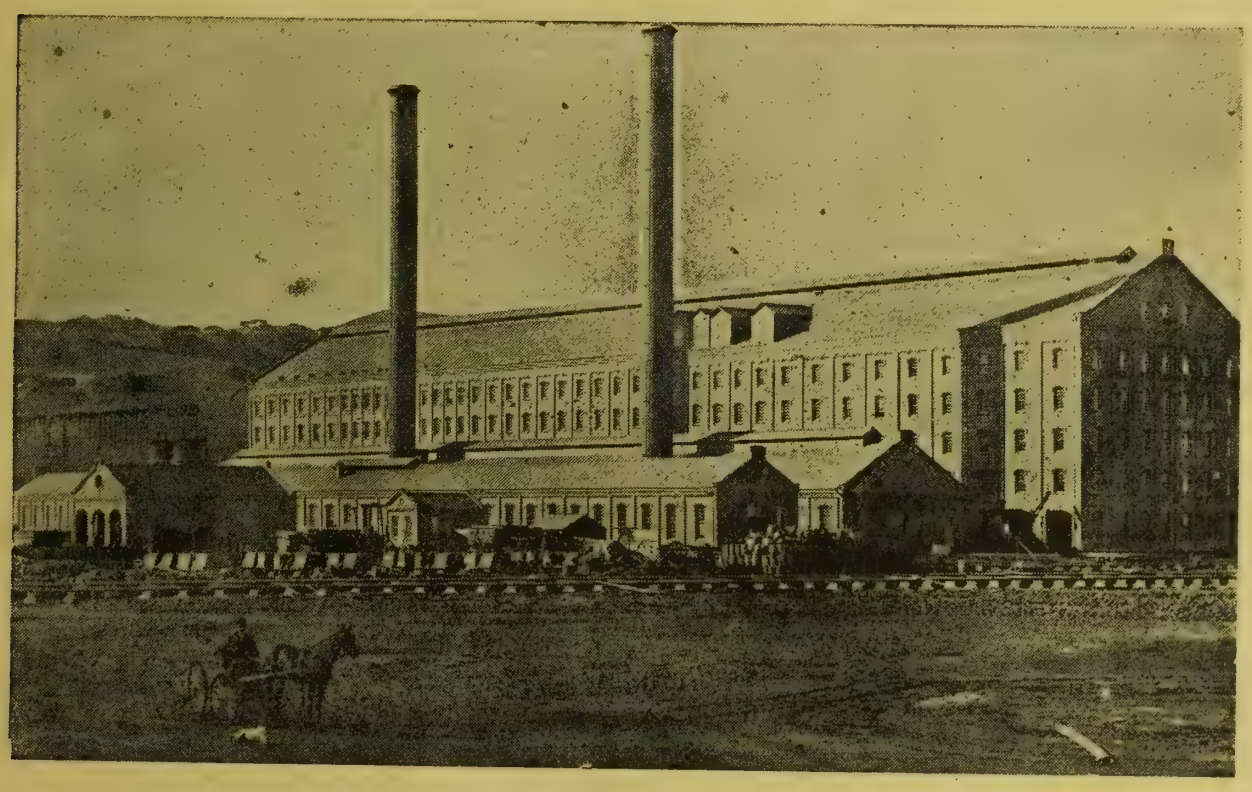
Vol. XXXVI. No. 25. LOS ANGELES: THURSDAY, JUNE 22, 1911 One Dollar the Year

Sugar Beet Growers Gather in Institute

Editorial Correspondence from the Salinas Valley, Where Sugar Beet Growers are Alive to the Advantages of Institute Work

Last week I stood in the sewing room of the Spreckel's Sugar Factory and saw some of the most rapid work in the sewing line that it has ever been my pleasure to witness. It may seem somewhat peculiar to refer to a sewing room in the largest sugar factory in the world, but that is quite an important factor in this particular factory, and we doubt not in every other factory in the country. The young ladies who were manipulating the sewing machines seemed to enjoy the work, and the whirr and rush of the machines was indescribable. It was anything but a pink tea function, for there were no words between stitches. This may be appreciated when the fact is mentioned that with watch in hand an actual count was made of the sugar sacks turned out from one



Sugar Factory at Spreckels.

of these machines, exactly seventeen and one-half in one minute. The making of the sacks consists of picking up the cloth which has been cut to the right size, running a seam down one side and across the bottom. Before one fairly leaves the needle of the machine another is placed close behind it and on goes the endless stream of sacks. Later another attendant picks up the sacks, cuts the thread between them and puts them in a neat pile for the coming season's sugar output. To go back a step in the making of these sacks. We do not know the name of the first machine to which the cloth is delivered, but it has close to human intelligence in its handling of cloth. It measures and puts it into shape for the sack, then clamps it for the attendant to use his "saw" to cut it. This saw is not supplied with teeth, but is more like the ordinary hay knife, or as the ladies express it, like a Christie bread knife. The edge is sharpened with a very coarse stone. After cutting the bale of cloth with this saw or knife, the stack of unsewn sacks is delivered to the girls at the machine before described.

These are the thin muslin sacks which are placed inside the coarse jute which is made in a similar way and an ingenious contrivance is provided for fitting the thin sack within the coarser one, which is done before the sugar is placed in it. This is but one of the activities. One could not imagine a more interesting place to visit than a sugar factory when guided through it by one thoroughly understanding each process. As noted, this has the greatest capacity of any sugar factory in the world. To convey an idea of its size, we may mention that 3000 tons of beets daily may be easily handled in the height of the season.

It was the pleasure of the writer to be shown through this factory by Mr. R. L. Adams, who is in charge of the Experiment Station connected with it. It is unique in this, that this factory is the only one in the country which is maintaining such an Experiment Station service. A description of that service is sufficient for another article at another time, but is it not of interest to know the various steps from sugar beet to beet sugar?

We will not cover the ground or field handling, but take the beets on delivery at the dump. Even the sight of these great bins is inspiring. As the beets are dumped either from train or wagon, they rest in a bin over a chute through which water is constantly running. To carry them to the mill it is only necessary to open the chute and let the beets fall into the running water. They are then carried along to a great wheel which lifts them to a higher level and brings them even with another wheel next to the mill, some hundreds of yards away. As they flow along the chute the dirt is all removed and an occasional grating allows it to drop away from the clear running water. At the mill another wheel carries them to the great screw elevator which lifts them to the slicers. They are sliced into shreds, so cut as to open the greatest number of cells. The pulp is next transferred to the diffusion batteries where it is submitted to the action of hot water. This water and the heat extract practically all of the sugar from the pulp which is then taken in conveyors to the pit or silo at some distance from the mill, or dumped into cars and carried directly to feeding yards, sometimes miles from the mills. Many have felt that the pulp is not suitable for stock food because of the chemicals with which it comes in contact, but as a matter of fact no chemicals whatever touch the pulp.

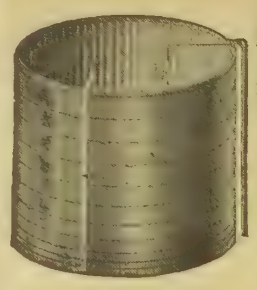
The next step is the heating of this water containing the sugar so as to coagulate certain albuminoids which it contains. The next is the adding of lime in the form of a milk of lime or whitewash to precipitate certain impurities, yet at the same time it makes an objectionable compound with the sugar. To rid the solution of this compound it is next submitted to a carbon dioxide treatment or "carbonation." This precipitates much of the lime. This carbon dioxide is manufactured in the lime-kiln and is merely the collection of what would otherwise be waste. The idea in this treatment is not to remove all the lime but leave sufficient to keep the solution slightly alkaline. The next step is to pass the juice onto the filter press, which removes the impurities which have been precipitated by the lime treatment. However, in order to make the process more perfect, a second liming together with the second carbonatation accomplishes this result. From a mass almost black in color the solution has now become very light, though not water white by any means.

The solution is now ready for the evaporators, and contains perhaps 10 per cent of sugar. The first evaporators reduce the light colored thin juice to a forty-five or fifty per cent solution, and it is then treated to sulphur fumes in order to bleach and precipitate other impurities. This process also reduces the lime and the viscosity or stickiness of the mass. It is again filtered through a mechanical filter or what is called an inverted bag filter, when it is ready for the vacuum pans. In these it is boiled to grain. This vacuum pan makes a substance called massecuite, which is French for "boiled mass," the thick molasses with much of the impurity and perhaps 96 per cent of sugar. This is next carried to the centrifugals where a 1200 revolution per minute machine throws the syrup away from the granulated sugar, which is later washed, run through a rotary dryer and later put into the sacks, the making of which is described at the beginning of this article.

This is perhaps enough regarding this great factory which it is an inspiration to visit, and we will pass on to the Beet Growers Institute which was fathered by the management of the Experiment Station to which we have referred. At the head of this Station is Mr. Adams, and under him a corps of excellent workers along various scientific lines. Mr. Adams conceived the idea that if the growers could be brought together to discuss the problems of beet culture it would be of great value to them and to the owners of the great factory. So arrangements were made for the barbecue and institute to be held at Alisal Park a few miles from Salinas, and it must be confessed the sugar factory people, once they decide to hold an institute, hold a good one, and make it one to be remembered by the patrons of the factory. Tickets were issued over the narrow gauge railway running from Watsonville, Salinas, Spreckels and other towns, to the park which is a natural grove of sycamore, like oak, wild azaleas, California buckeyes and various other interesting and beautiful trees. The buckeyes and azaleas at this time of the year were indeed most wonderful. The happy crowd of perhaps 800 people gathered in time for the opening of the program. The first number was supplied by the Spreckels orchestra, after which Mr. Adams called the meeting to order and introduced Manager Moore of the factory. Mr. Moore being more a man of action than of words, extended a warm greeting to all who were present and then called upon Judge Lacy to extend a more formal welcome. The Judge suggested that if this or a similar day could be made a regular observance of the people of the Valley it would be not only a pleasure to the people but a good advertising feature as well. He referred to other sections having their rose day, cherry day, etc., and asked why should not beet growers honor their product? He spoke of the various kinds of beets as red beet, white beet, cow beet, heart beat, pulse beat, drum beat, and even the dead beat, but fortunately among the beet growers said the last is scarcely ever found, and closed with the hope that all would enjoy the enjoyment of this enjoyable day.

Prof. Shaw of the State University opened his address with his often repeated quotation from Josh Billings. The writer has heard it several times and has almost committed it to memory, though he has lost a few cogs, but to give something of the idea and to draw out the Professor to give us

(Continued on Page 746.)



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SOUR STOCK.

Below is a view of the root system of two-year-old Florida sour stock grown in the Southland Nurseries of Mr. F. H. Disbrow, given to show what a magnificent fibrous system these roots have. Sour stock is coming more and more into general use, not only because of its excellent root system, which gives a vigorous tree, but because trees budded upon it are more resistant to gum disease. Mr. Disbrow states that in his score of years experience in growing seed bed stock he has produced over 5,000,000 seedlings, and he unqualifiedly endorses the sour stock as the best all around stock for California conditions. We doubt not that up to this time more orchards have been planted upon sweet stock than on sour, but the demand has been gradually changing, and today the greater percentage of the budding is upon sour. The seed of this stock must all be brought from Florida, and a year or more ago there was some trouble in securing sufficient, because of horticultural quarantine regulations. The state horticultural commissioner has modified the regulations so that now, under proper inspection, seed is admitted. Regarding this stock Mr. Disbrow says:

"It was introduced into Florida from Spain by the early Spaniards, and may be seen today, growing in isolated groves which receive no care whatever, healthy, clean and vigorous, on hammock land in the interior everglade regions of Southern Florida, where they were no doubt planted years ago by the Indians. Where the orange groves of Florida were destroyed by the freeze of 1894-5, killing the bud completely, sprouts from the sour root have grown up, are now bearing, and furnish the principal supply of sour seed."

ROOT SYSTEM OF SOUR STOCK.

MAGNESIA LIME.

The Cultivator received some time since a communication from Dr. Snowden answering Dr. Lipman's article in the number of June 1, and it has been unavoidably delayed until this time.

Dr. Snowden on Chlorosis.

Reviewing Dr. Lipman's article in your issue of 1st inst., discussing the causes of chlorosis, etc., the writer entertains the highest regard for the doctor's opinions in general; yet cannot afford to neglect certain facts which speak for themselves.

Ratio of Magnesia to Lime.

Accepting the results and conclusions of Dr. Oscar Loew and other investigators of the subject, it is certain that this ratio varies within wide limits, and that it also varies for different plants. I disclaim having tried to fix the most favorable ratio for any plant, although there is a mass of evidence to show that available lime should not drop below two parts to one of magnesia in the soil of the orange orchard if chlorosis is to be prevented.

This minimum ratio of lime was not adopted from the conclusions of any other investigator, since so far as I know, no one has ever heretofore studied the needs of the orange in this connection; but it is the result of fully one hundred observations made in the field and correlated with the analytical indications of the corresponding soil samples. The territory covered in this work is not confined to the Covina district, but reaches from Porterville to Santa Ana.

To show how positive the evidence has been in some instances: an orange grower submitted twelve samples for magnesia and lime determination saying his orchard was not suffering from "variegated leaf" except in one location. With no further knowledge of the case the report of the analytical indications was positively that number eight should be the chloritic location. His reply was "I will say that the most pronounced case of "variegated leaves" occurs at No. 8 where you found .38 per cent magnesia and .53 per cent lime, thus confirming your theories."

Methods of Solution.

My method requires boiling—not simply digesting, since it is necessary to eliminate the carbonic acid and also to dissolve enough iron to engage all the phosphoric acid dissolved.

Dr. Lipman's Results.

Sample No. 1. Findings.

Methods of Solution	Magnesia	Lime	Ratio
Snowden	0.42	0.51	1-1.21
Official	0.93	1.19	1-1.28
Hilgard	1.23	1.82	1-1.48

Sample No. 2. Findings.

Methods of Solution	Magnesia	Lime	Ratio
Snowden	1.02	0.64	1-0.63
Hilgard	1.68	1.82	1-1.08

In both these cases the orchards are suffering with chlorosis; in both

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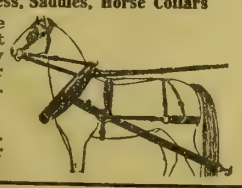

It is better to be known by the company you keep than by the friends you give away.

the lime is below the relative limit of safety fixed by me, by all the methods used. Thus Dr. Lipman's findings actually support my conclusion as far as they go. Now to make his endorsement complete I suggest that he take samples from orchard soils where the trees are thrifty and show not a trace of mottled leaf. In these I predict he will find at least twice as much lime as magnesia by my method.

The doctor points out that not the total lime, but the form of the lime is very important; and yet he favors a method that makes no distinction between the available and the unavailable, as against one that does.

Doctor Hilgard recognizes the principle of the greater activity of the soil materials soluble in weak acids, as evidenced by his practical endorsement of Dyer's 1 per cent citric acid solvent for some of the plant foods in the soil. ("Soils," page 339.)

Dr. H. W. Wiley says "Particles of lime minerals in soils are corroded only superficially by the rootlets of plants, and any process which would attack only the superficies of the lime particles would thus more nearly represent the activity of the solvent forces of plant growth." (Agricultural Analysis, Vol. 1, page 440.)

A Matter of Magnesia.

Admittedly because the ratio found by the Hilgard method is very much like that first recommended by Loew as the approximate ratio necessary between the two for plants in general, Doctor Lipman draws the conclusion that there is no justification for my conclusion, notwithstanding that it is based on much practical as well as theoretical evidence.

If we ignore the availability of the soil elements it is proper to assume that all the lime may be combined as silicate and all the magnesia as carbonate. Dr. C. G. Hopkins found in his experiments that with 0.57 per cent magnesia thus combined the plants were seriously injured. With 0.762 per cent they were usually so nearly killed as to produce no grain. While with 0.953 per cent they were practically all killed. ("Soil Fertility and Permanent Agriculture," page 170.) Now in this case where would the orange trees—not so very different from other plants in their tolerance of alkalies—"get off," with the 1.23 and 1.68 per cents of magnesia without the available antidote my method alone shows to be present?

Purpose in Using Lime.

On acid soils I always advise the carbonate, and on alkaline, the sulphate, provided the magnesia-lime ratio demands any at all. I have advised no one to use lime in any form until a chemical analysis shows that it is needed. If one does not wish to pay to have this work done he should consult his official advisers.

It is fortunate for the growers that there is one enterprising grower who was willing to use 50 tons of gypsum per acre, and I anticipate no loss to him through damage to his trees; since in '89 I was engaged to examine and report on a deposit of gypsum in Citrus County, Florida, and found orange trees growing and thriving on the deposit, which proved to be of low grade material. This orchard maintained its standing as a fine orange grove property until its career was closed by the freeze of '95.

Neither do I share with the doctor the belief that the reserve supply of potash will be made available all at once; the technical reasons for this being not desirable here. 50 tons of 92 per cent gypsum will add 0.86 per cent lime to one foot, or 0.29 per cent to three feet depth of soil on one acre.

Causes of Chlorosis.

It is generally understood that there are a number of causes of chlorosis. Let me add to the doctor's list lack of magnesia. Nevertheless, I feel sure that he will find upon impartial investigation that relative excess of magnesia is by far the most potent and wide-spread one in Southern California. I have seen several of those cases where it is due to too much lime; but to an experienced observer it is possible to tell the difference between these two forms upon simple inspection. That produced by too much lime is a more solid yellow, the rationale of this difference being simple enough. The trees are always planted in the limy soil at the time of

(Continued on Page 751.)

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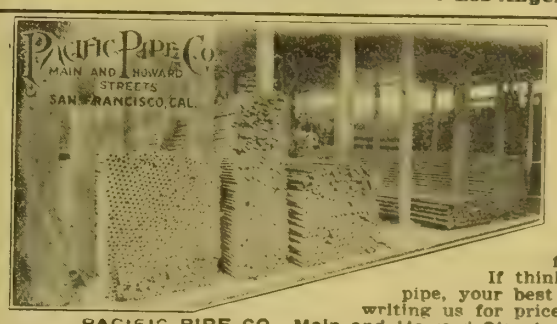

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Deciduous Fruit Culture

THE CALIFORNIA PEACH TREE BORER.

By Dudley Moulton, Deputy State Commissioner of Horticulture.

The California peach tree borer has been a menace to fruit growers in Santa Clara, San Mateo and Alameda Counties from the very beginning of the fruit industry in these regions and now the large acreage of apricots, peaches and prunes offers the insects suitable food plants over a large area and under almost ideal conditions in which to live. The pest is becoming ever more serious especially in the newer fruit sections and there are constant inquiries directed toward better understanding of the insect itself and the best methods of controlling it. Orchardists seldom recognize the adult moth of the species although the constant care and the disagreeable labor which accompanies digging the borers out has caused them to become intimately well acquainted with the larval stages.

The California peach tree borer derives its common name from its close relationship to the Eastern peach tree borer and from the fact that it is primarily a pest of peach and closely related trees. The Eastern borer has been known in the eastern states for more than 200 years. The Western borer has been known only since our own fruit industry was started and it is considered a pest only in limited areas around the southern arm of the San Francisco Bay. Adult moths of the species have been collected by entomologists in Northern California, Oregon, Washington, Nevada and Colorado, and the insect is seen to be a native of all of the western coast states.

At one time the lower foothill regions in the western part of the Santa Clara Valley were covered with a dense growth of underbrush and the Western Choke Cherry, one of the native food plants of the species, was one of the common plants. This land was cleared and set into orchards and the cultivated varieties of peaches, apricots and prunes gradually displaced the other foodplants of the insect and in its own native habitat. It was natural for the insect, therefore, to adapt itself to these new and similar foodplants and to extend its habitat into the orchards in the open and adjoining country.

Root Boring Insect.

The peach tree borer is eminently a root boring insect and two factors, the root stocks upon which the trees are grafted and the nature of the soil, influence largely the amount of damage that borers will inflict. Peach and apricot stocks are most susceptible to attack; almond, cherry, apple and plums less so and the wild plum, known as the Myrobolan or cherry plum (Prunus cerasifera) is almost entirely resistant. Myrobolan plum seedlings are imported in great quantities from Europe and are now recognized as one of the best stocks upon which to graft the domestic plums. This stock is susceptible to severe attack only when a tree has been weakened by some other cause such as a lack of water, cultivation or when it has been partly killed by gophers or other rodents. Almond stocks are more or less resistant if they are planted in soils suitable to their growth. Borers seem to attack trees more readily when they are planted in soils of light sand or gravel texture. We do not think that newly hatched larvae can reach the lower crowns or roots any more easily in light than in the heavier soils but it appears rather that the trees themselves are not so strong and therefore not so resistant.

The life cycle of the borer extends over a period of about twelve months. Larvae of all sizes may be found at almost any time during the year because one brood overlaps the other, but there is a definite period during which adult moths are flying, oviposition is taking place and when the newly hatched larvae are entering the trees. These periods are important economically because they indicate when is the proper time to apply protective washes. Adult moths are steel blue in color, are very active and are often mistaken for wasps because of their similar appearance and their rapid and erratic movements during flight. The first individuals of the season appear during April, many more in May and June and they are flying in maximum numbers during July and August. A few last individuals appear during September. They mate immediately after issuing from their cocoons and begin to oviposit a few hours later. The life of any individual moth averages only four or five days. Eggs are usually placed on the lower trunks of the trees between four and ten inches from the ground and they are easily found after they have once been seen. They are about one thirty-second of an inch long, are flattened and depressed on two sides, and at one end and are chestnut to dark brown in color. The eggs hatch about two weeks after they have been placed.

Larvae Are Active.

The minute larvae are extremely active, they crawl about freely and try at once to hide or get below the surface of the ground where they are more or less protected. They burrow into the living bark within a couple of hours after hatching, and later we recognize them as the borers in our trees. The nature and seriousness of their injury is recognized by every practical orchardist. Larvae usually mature to moths about 11 months after they have hatched. The chrysalis stage, the changing from larva to the adult moth, occurs during the spring and summer months and after the moths emerge the empty pupal cases are commonly seen projecting out from the cracked and wounded bark.

The period when new larvae are entering the trees and the second period when they are mostly full grown are important to the orchardist because the too commonly practiced methods of control, "worming" and applying protective washes, are successful more or less as they are practiced at the proper time. Eggs are placed two or three days after the moth first emerges, which means that the period of oviposition is practically the same as that of the appearance of the moths. The eggs hatch after about two weeks and as the worms enter the trees immediately this occurs mostly (judging from our records of emergence of moths), from the middle of June to the middle of October and the period when they are entering in maximum numbers is from the middle of July to the middle of September Protective washes should be applied just before this time preferably during the month of May. All larvae are from one-half to nearly full grown and are more or less sluggish during the winter months and this is preferably the period when worming should be done. Worming during the spring is also quite as effective but the larvae, becoming active in February and March, when the sap begins to flow up, can do much damage. Worming earlier in the winter would eliminate this later injury.

Only sharp tools should be used during the process of worming. The practice of using a combined knife, scraper and chisel, such an instrument as is sold for this particular purpose, is not advisable because such tools are made of poorly tempered steel and cannot be kept sharpened. An ordinary ¾-inch wood chisel, a horseshoe knife, and an individual scraper are now commonly considered the best tools. The bark is too often broken rather than cut when dull tools are used and much damage accompanies such careless work. The bark around the wound should be cut clean so that it can heal over.

Protective Wash.

A protective wash should be used after worming has been accomplished. Such a wash serves in two ways. Primarily it acts as a repellent and keeps moths from placing their eggs

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on these treated surfaces. If the wash is applied after worming in the fall it deteriorates and cracks and falls away before the time when oviposition is occurring and for this reason is not so effective. It is considered good practice to dig the borers in the winter but the wash should be applied in April or May. The wash serves in a secondary way to render the labor of subsequent worming much more easy and rapid. The dirt and bark scalings fall from the tree more easily and the masses of trash, which indicate the presence of borers, are better defined.

A mixture of lime and crude oil has been successfully used and its cheapness and the ease with which it is prepared render it most desirable. About 50 pounds of rock lime are placed in a barrel and slaked with 10 to 15 gallons of warm water and while the lime is boiling 6 or 8 gallons of heavy crude oil are poured slowly in. Enough water is then added to make the whole into a thick wash. This should be applied immediately and preferably with a heavy brush. The roots exposed after worming and the lower trunk up to about 18 inches above the ground should be thoroughly treated.

Pure heavy crude oil has been much used for borers but this treatment is dangerous, especially on peach and apricot trees. A heavy residuum oil has resulted in less injury but even this should not be generally recommended. The lime-oil mixture contains the necessary repellent qualities of the crude oil and the porousness of the lime which renders it safe. Carbon bisulphide has been recommended extensively but its use is now generally discouraged. If the treatment should be followed by a rain, or if the ground is especially damp the gas treated soil cannot be left around the trees without immediate injury. The carbon bisulphide method has been most successful when an orchardist has done his own work for several years and when he himself places the charge and realizes the danger. Hand cutting and removing the dead bark is not generally practiced with this treatment and consequently the tree can never heal over the old wound. Common practice has demonstrated that it is necessary to dig the worms out by hand, preferably in the early winter or spring and that a protective wash is desirable and the lime-oil wash applied in April and May has been as successful as any.

NITROGEN GATHERING BACTERIA APPLIED THROUGH MANURE.

Two conflicting statements appeared in a recent Cultivator and called for a criticism and a query from observing subscribers. The statement in an article by Mrs. Sherman was in effect that the application of manure from alfalfa-fed animals carried to the soil nitrogen gathering bacteria. The other statement on another page was that alfalfa hay or manure would not inoculate soil.

Determined that our keen-eyed subscriber should be informed we wrote to Prof. C. B. Lipman of the University of California for light. In a sense both statements are correct. But without preliminary statements we ask the careful reading of Prof. Lipman's letter. It is a most informing statement on a question which perplexes many.

* * * *

I note your question with reference to the bacteria of legumes which may be caried through the manure as a medium to the soil. In answer to this, I beg to say that though there can be no doubt at all that some of the legume bacteria pass through the alimentary tract of animals with the alfalfa material, it is altogether very doubtful that sufficient of them and especially sufficient virulent forms do so and, therefore, I should regard that means of inoculating the soil a very precarious one where inoculation was actually necessary. To be sure, barnyard manures are usually made in places where a good deal of alfalfa material, never fed to the cattle at all, becomes mixed with the manure and in that way the manure is often responsible for carrying the legume bacteria of the alfalfa plant. There is much more certainty of the bacteria being present by this means than by the first above mentioned, but even here I should say that it is a doubtful means of inoculating the soil. The only safe way, as I have often indicated in my talks in California, to inoculate the alfalfa, is to go to the direct source of growth of the bacteria, namely, either to a soil containing them or to an artificial culture. As I have explained, the method which can be used here in California by making a suspension of an inoculated soil in clean water and moistening the seed, thus covering every seed with a film of water containing many of the legume bacteria, it can be easily seen that the method is a simple one which can be carried out by anybody and with no special precautions and no expense can be made to give the most effective service. Of course, it may also be argued that in many cases inoculation is unnecessary in California, as indeed I have pointed out in all of my talks on this subject, because of the fact that there are so many wild legumes growing throughout the state which seem to be more or less closely related to alfalfa, or, at least, the bacteria on their roots are, to those on the alfalfa roots, but that is really not an argument to controvert in any way the statements above made with reference to inoculation by means of manure, because it is a question of need of inoculation or no need of it and in the first case it can only be done by the proper method if good results are expected. In the second case, since no inoculation is necessary, there is also no necessity for going to the labor and expense of inoculation by means whose efficacy is questionable.

As you say in your letter, I have often talked of the beneficial effects of manure in soils, aside from all other ways, through the large number of bacteria which the manure introduces into the soil and it may be that this statement has somewhat confused the question, which I have above discussed with other bacteriological conditions in the soil, in the minds of some of my hearers or readers. The fact is that while this enormous number of bacteria is introduced into the soil by means of manure, they are not the bacteria for the most part that have anything to do with nitrogen fixation, either by means of a partnership with legumes or by powers which they possess by living free in the soil. They are for the most part, bacteria which are concerned in the transformation of organic nitrogen compounds to ammonia and to a considerable extent also bacteria of the nitrifying group which have the power of changing that ammonia to nitrates. I am making this distinction in order that the matter may be perfectly clear in the minds of all those who have any doubts with reference to this matter. The introduction of any but the nitrogen fixing bacteria has thus far not been looked upon as true inoculation, and while, to be sure, in a broader sense it is so, is not regarded as such because of the fact that the soil naturally contains such large numbers of these bacteria that an introduction of a few nitrifying bacteria usually is of no effect so far as the production of nitrates is concerned.

The directors of the Chamber of Commerce of Fresno are endorsing the work of squirrel eradication and urge the joining of the county with the federal and state authorities in the effort.

The San Joaquin Valley has watched with interest the first trip of the ship J. R. McDonald up the San Joaquin river to within hauling distance of Fresno.

A suit is on between the Consolidated Seeded Raisin Company and the Selma Fruit Company involving $100,000 property interests.

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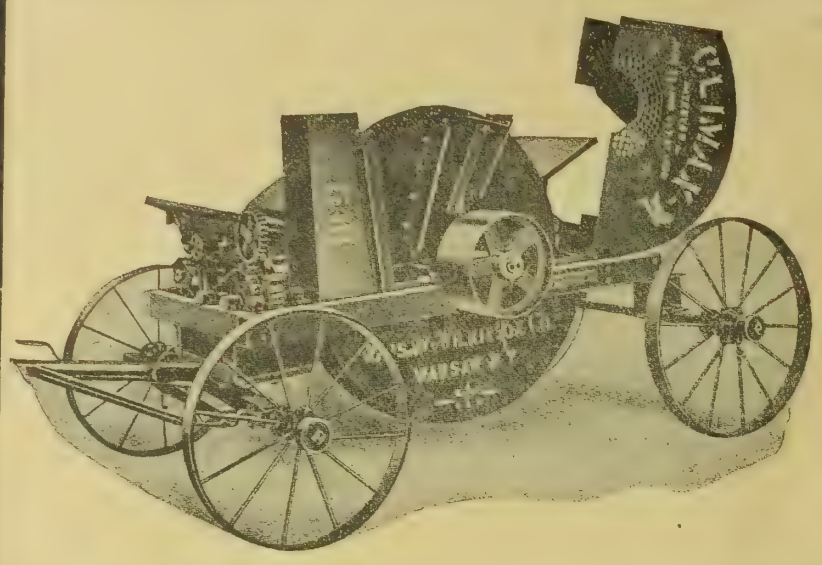

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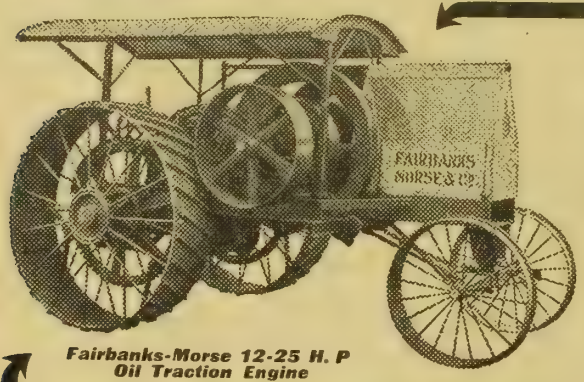

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THE MILK INSPECTOR.

We will later have a story of milk inspection as carried on in Santa Barbara County. It is not pleasing. It may be interesting. Meantime the following from the Rural New Yorker may be of interest and show to the California dairyman that he is not the only one who has troubles.

Inspection by the New York City Board of Health is probably in a somewhat chaotic condition. So far as farmers are concerned there is no certainty of a more rational inspection. In former years there has been a veterinary inspection, carried out by the creamery people, the expense sometimes thrown upon the farmers and sometimes borne by the creamery. Now a veterinarian is sent out from the city. He has been in this vicinity, and the report is that he has ruled out some cows. I have heard no complaint, and have seen no particular evidence either of competency or incompetency. The value of the veterinary inspection is still partially unsettled, but with little reason at present to doubt its efficiency to a tolerable degree. Very likely the veterinarian has had very little experience with cows, as he is supposed to be a city man, and dislikes cows. He appears to be a better man than was expected, but not so good as is needed. This estimate is founded partially on a reasonably good guess.

It has been understood that a bacteriological test is to be made of milk as sold by the farmer, and some have supposed that no other inspections would be made than these two. This illusion has been dispelled within a day or two. Perhaps I may as well give somewhat in detail the mode of procedure in this case. Two men were seen approaching, driving quite rapidly, just as the farmer was about starting for the field in the afternoon. He halted a little for the men to drive up and one of them, a very large man with a very red face and a rough bearing, remarked that he wanted to see the cow stable. He neither asked permission to do so, nor did he announce his identity or authority. Finally the farmer recovered himself enough to ask the purpose of the visit.

"The Health Department," responded the caller.

"The New York City Department?" queried the farmer. A nod answered the question.

"A veterinarian?" further asked the farmer.

"Nope; inspector." The inspector then proceeded to the stable, asked several questions and wrote rapidly, taking in all he got from one spot near the corner of the barn. "Sign there," suggested the inspector. The farmer thought he ought to see what he was expected to sign. The inspector said he would sign for him. The farmer still insisted that he wanted to see what was on the paper. The inspector wrote something, tore out the carbon duplicate and handed it to the farmer. The score was 70. This was neither a liberal score nor an extremely bad one. The farmer asked the inspector if he couldn't allow something for the concrete floor. Six points had been taken off for the floor. The inspector said he hadn't seen that any part of the floor was concrete, but as over half the floor had been concreted he would allow one point. This he did not do, however. The farmer further asked if he might not have any credit for the small-topped milk pails he was using.

"We'll see 'em," remarked the inspector.

"In what respect do you find the privy unsanitary?"

"Has it wash-down bowls?" "No." "Has it covers with spring hinges?" "No." "Then it is unsanitary." "It has covers, is taken care of and is in good shape." "Has it spring hinges on the covers?" "No." "Then it is unsanitary," again announced the inspector.

"By the way, I gave you credit for tight ceiling. I see there is some dust coming down from the hay mow. I will take off something for that."

There was a short argument which ended by the inspector saying that he was satisfied with the score in the first place, but, he added:

"I thought while you are caviling at my inspection, I would show you that I could rip this thing up, if I am a mind to." The remarks of the inspector were all in an angry tone, and he now slammed his book down to emphasize apparently, his own importance and his disgust at the farmer's question or impertinence, or as he seemed to think, caviling. Webster says "cavil" means to raise captious or frivolous objections; to find fault without good reason. The farmer had answered the inspector's questions courteously. He had asked about four points, but not in an angry or captious mood. He scarcely received a single courteous answer. He wasn't bluffed into submission, however, and further asked:

"What is it expected that a stable should score?"

"Whatever it does score "

"But what should a stable score?"

"One hundred is perfect, sir," was the answer.

"You do not mean me to understand that you expect a stable to score a hundred?"

"It is impossible, sir. The best we ever had was 92."

"Hasn't the Board of Health some standard upon which they pass a stable?"

"It makes no difference if the stable scores but 10, nothing will be done about it. All we want is to educate the farmers to do a little better."

There were some further remarks by the farmer about the pleasant day, which were answered in a sarcastic manner. Possibly it was less the fault of the inspector that he was thus uncivil than the bad beer he had recently "punished." Nevertheless he evidently went to the stable with a "chip on his shoulder," not an especially good thing for an inspector to have in his possession anyway. "I can rip this thing up," and "we want to educate the farmers to do a little better." That first quotation is a very good comment on the arguments of those who claim that scores made by different inspectors are practically uniform. Regarding the second it seems as though this particular inspector must be a great "educator." Former inspectors have been bad enough, as the Board of Health has publicly admitted, although there seem to have been some fairly good ones among them. This last specimen has little to his credit I am sure, judging from good evidence that is submitted. We now wait for the third "installment," which is supposed to be the "bug" man with plates and things to catch the bacteria that may or may not be in the milk the farmer sells. When and where shall we look for common sense regarding this business.

H. H. L.

COW TESTING ASSOCIATIONS.

In Denmark there are 500 cow testing associations; in Sweden as many more, and in Norway and other countries of Europe several hundred. There were 170 in Denmark within five years after they first started. In the United States there were only twenty-nine of these associations at the end of five years. In Canada about sixty cow testing associations have been formed. In the United States there are in all fifty-six such associations, located as follows: Wisconsin, eleven, Vermont, nine; Maine, seven; Michigan, six; Iowa, five; California and Ohio, three each; Pennsylvania and New York, two each; and Washington, Connecticut, Colorado, Nebraska, New Hamp-

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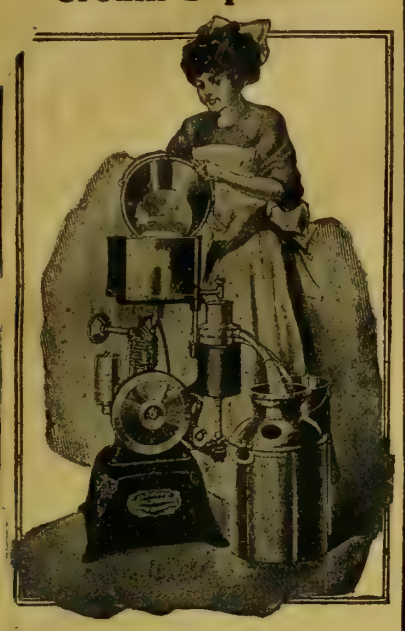

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The above statement is drawn from a statement made by Prof. E. S. Savage of Cornell University. The reason for the slowness of development of these associations in the United States, he thinks, is the great lack of energetic local leadership among our dairy farmers.

We may say that the reason for the great lack of such leadership is the lack of dairy intelligence among the great mass of dairy farmers.

A glance at the number found in each of the above states shows that Wisconsin has the largest number. There is no state in the Union where all phases of the dairy question are kept so constantly agitated and before the eyes of the farmer as in Wisconsin. Besides, it has a vigorous state dairymens association, which has taken the lead in pushing this industry upon the conviction of the farmers of the state. Professor Savage is right. It takes leadership to get anything done.—Hoard's.

DAIRYING SCORE CARD.

The following detailed score card to apply to equipment and methods of the dairy, we clip from Hoard's Dairyman:

Equipment	Score Perfect
Cows.	
Health	6
Apparently in good health	1
If tested with tuberculin once a year and no tuberculosis is found, or if tested once in six months and all reacting animals removed	5
(If tested only once a year and reacting animals found and removed, 2.)	
Comfort	2
Bedding	1
Temperature of stable	1
Food (clean and wholesome)	2
Water	2
Clean and fresh	1
Convenient and abundant	1
Stables.	
Location of stable	2
Well drained	1
Free from contaminating surroundings	1
Construction of stable	4
Tight, sound floor and proper gutter	2
Smooth, tight walls and ceiling	1
Proper stall, tie and manger	1
Light: Four sq. ft. of glass per cow	4
(Three sq. ft., 3; 2 sq. ft., 2; 1 sq. ft., 1. Deduct for uneven distribution.)	
Ventilation: Automatic system	3
Adjustable windows	1
Cubic feet of space for cow: 500 to 1000 feet	3
(Less than 500 feet, 2; less than 400 feet, 1; less than 300 feet, 0; over 1000 feet, 0.)	
Utensils.	
Construction and condition of utensils	1
Water for cleaning	1
(Clean, convenient and abundant.)	
Small-top milking pail	3
Facilities for hot water or steam	1
(Should be in milk house, not in kitchen.)	
Milk cooler	1
Clean milking suits	1
Milk Room.	
Location of milk room	2
Free from contaminating surroundings	1
Convenient	1
Construction of milk room	2
Floor, walls and ceiling	1
Light, ventilation, screens	1
Total	40

Methods	Score Perfect
Cows.	
Cleanliness of cows	8
Stables.	
Cleanliness of stables	6
Floor	2
Walls	1
Ceiling and ledges	1
Mangers and partitions	1
Windows	1
Stable air at milking time	6
Barnyard clean and well drained	2
Removal of manure daily to field or proper pit	2
(To 50 feet from stable, 1.)	
Milk Room.	
Cleanliness of milk room	3
Utensils and Milking.	
Care and cleanliness of utensils	8
Thoroughly washed and sterilized in live steam for 30 minutes	5
(Thoroughly washed and placed over steam jet, 4; thoroughly washed and scalded with boiling water, 3; thoroughly washed, not scalded, 2.)	
Inverted in pure air	3
Cleanliness of milking	9
Clean, dry hands	3
Udders washed and dried	6
(Udders cleaned with moist cloth, 4; cleaned with dry cloth at least 15 minutes before milking, 1.)	
Handling the Milk.	
Cleanliness of attendants	1
Milk removed immediately from stable	2
Prompt cooling (cooled immediately after milking each cow)	2
Efficient cooling; below 50° F.	5
(51° to 55°, 4; 56° to 60°, 2.)	
Storage below 50° F.	3
(51° to 55°, 2; 56° to 60°, 1.)	
Transportation; iced in summer	3
(For jacket or wet blanket, allow 2; dry blanket or covered wagon, 1.)	
Total	60

ANIMAL HAPPINESS ON THE FARM.

The dairyman who is looking for results will not allow the dog or the small boy to worry his cows. He knows that if he wants a well filled pail they must not be frightened, but kept quiet and content.

The grower of beef cattle is sure to weed out the one that is continually bawling when it should be grazing, for the simple reason that there is more waste than gain of adipose tissue at such a time. The stock content to feed upon the good pasture at hand, rather than busy themselves trying to break into forbidden fields, possibly not nearly as good, are the ones that make the most gain in weight.

The hen that is dogged every time she finds a nice soft place to scratch is not the one that makes the best egg record. She may be hard on the garden, but a good fence would easily fix that. Do not discourage her natural efforts and then expect her to do her best for you.

The horse that is compelled to fight flies continually cannot get in a full day's work, or at least if it does there is less in stamina, which eventually tells on the life work of the animal. Neither can it do its best with an ill fitting harness. The horse that is comfortable and in good spirits is the one which makes the record.

A flock of sheep harassed by dogs soon show the trouble in their general condition as surely as in their manner. Fleetness of foot is not one of the characteristics of the animal, and when this is enforced as a means of preservation it is to the detriment of the flock.

The farmer and his family, as well as his stock, accomplish more when care free and in a happy turn of mind. All nature is fresh and cheerful. It is profitable for us to be likewise.—Farm World.

It is a known fact among most buyers that one of the reasons they do not buy eggs on the quality basis is because the producer objects to it, refusing to accept any price other than so much per dozen, regardless of quality. Sometimes the farmer even threatens to go to another buyer, if his eggs are candled. This is indeed a very peculiar state of affairs. Some farmers will not sell their best eggs because they do not obtain any better prices for them. Some do not know what a really first-class egg is like, so through ignorance market only a fair quality of eggs. Some blame must also be placed upon the farmer who brings in his best eggs. In many cases he will not demand a grading of his eggs. In fact, he will sometimes resent any hint on the part of the buyer to candle his eggs.

Several cases have been reported where hydrocyanic acid gas was used for fumigating hen houses. The trouble is to make such houses airtight. They are usually ventilated. The poisonous gas is very active, and the house must be perfectly tight in order to make this method effective. If there are any cracks the gas will escape rapidly.

It is hopeless to advise dairy farmers who are opposed to silos, dairy papers and things that cost a little time and money.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles, Cal.

No Hoof-No Horse

Statistics show that 80 per cent of all horses are lame, and that 80 per cent of the lameness is caused by hard and contracted feet. Especially is the dry season in this section very hard on hoofs. As a hoof softener, toughener, nourisher and grower there is nothing equal to

Eshelman's Wool Fat Hoof Healer

A horse's hoof is from 60 to 70 per cent water. Grease and water will not mix. There is no grease about Wool Fat. It mixes readily with water, is very penetrating, and while a great medicine of itself, it also acts as a vehicle to carry to the afflicted parts the other medicinal properties of the HEALER. It gives natural stimulation and nourishment to the hoof. There is nothing that can compare with it for this purpose, nor as a remedy for tender, brittle, hard and contracted hoofs, split hoofs, quarter cracks, mud fever, scratches, corns, cracked heels, grease heels, and for all kinds of sores and cuts anywhere on any stock. It will surprise you with its power as a healer and restorer. It is not a new remedy, but has been on the market in the East for many years, where it has given the greatest satisfaction.

4 oz. package, 25c; 12 oz., 50c; 32 oz., $1.00; 5 lb. pail, $2.00; 10 lb. pail, $3.50. It is easy of application. Send for Folder with many testimonials of big horsemen, vets and others. Or better accept our

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We will send you a 2 lb. can; use it 15 days, and if satisfactory send us $1.00. If not, write us to that effect, and you need pay nothing. We take all the risk; you just try it. Send for it today.

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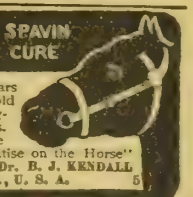

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Not Ventilated

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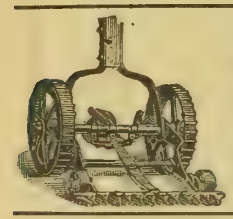

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Small Fruits and Vegetables

STRAWBERRIES OUT OF SEASON.

By Q. A. Lobingier.

Answering a question as to method of producing a second or other crop of strawberries out of season, Mr. Lobingier writes:

You never can tell just what results you will have from strawberries. You cannot tell just what any particular variety will do on your soil until you try it. And a variety will not act just the same way every year. So many things enter into the problem that it is folly to lay down any set rule for producing certain results. Some years ago the growers at Montebello were very successful in getting a first-class crop of Brandywines in November. They allowed the plants to ripen up and rest by withholding water. This was done to such an extent that to the casual observer it would seem that the plants were dead. In fact, all the old leaves were dried up, but along in September they were freely watered and made a wonderful growth and set a large crop of fine berries, which at that late season brought fancy prices. But Montebello is very free from frost and that particular fall was free from rain which was greatly in their favor. The success of one or two growers that particular season prompted all of them the following season to repeat the experiment with the result the same as to growth and crop, but the rains came early and destroyed the fruit. With the low temperature prevailing at that season the fruit will not stand up under a rain.

It is something I have not known to be satisfactorily explained why certain varieties that in the East are known to produce but one crop, will when planted out here bear the entire season, and why but few will do this. I had some thirty varieties shipped to me from the East one season and gave them an equal, impartial test, side by side, under exactly similar conditions. The Excelsior and Brandywine were the only two out of the lot that bore more than the one crop, and the Excelsior limit was reached in eight or nine weeks, while the Brandywine bore the entire season.

I set out an acre of Brandywines in November and we marketed the first fruit on the 29th of March and picked from this acre every day until the 15th of July when the plants ceased bearing, but were given regular waterings until fall and made a fine growth. The following season we marketed the first berries April 4th and picked every day until Oct. 12th—that year's berries from that acre selling for $2700. The following year we began picking from that acre on April 12th and picked every day until Dec. 4th. As we did not keep any separate record of this year's picking, the figures cannot be given, but while there was about the same quantity of fruit as the previous year, the price was very much lower and the returns correspondingly less. The following year we began picking from this same piece April 1st and continued until July 1st when the crop was so poor as not to justify watering, and they were plowed under.

Since then the Klondike has come to the front as an early, and in a sense, continuous bearer, but its limit here is a couple of months.

I no longer grow strawberries for market, but if I did, and wished to get a second crop I would not hesitate to try the method of withholding water until they could have a period of rest. Then by watering freely and starting new growth you would be pretty certain to get more or less berries. This method of giving the plants a rest at will could not be practiced except in a climate without summer rain.—Q. A. L.

CLOTH SHADE FOR LETTUCE.

In a recent number of one of the farm papers Mrs. C. W. Beyer describes a method of growing lettuce which is well worth trying. Her method is as follows:

"Lettuce sown in the open will mature from two to three weeks earlier and be in much finer condition if grown under cloth frame. Surround the bed by boards about six inches high set on edge. On these put a light frame made the size of the bed, and over the frame tack muslin or burlap.

"Keep the cloth over the bed all the time, and you will be surprised how much the lettuce will be in advance of that left exposed, and it is as crisp and tender as the hothouse plants.

"The same plan is good for growing lettuce in midsummer, as the cloth protects it from the sun and also helps to hold the moisture. I have found this plan excellent."

We have used the cloth protection in the fall after hard frosts have commenced, and found that the finest kind of lettuce may be grown in this way. We are trying this plan for our lettuce this spring, and anticipate the best results.

We make frames of one inch by two inch lumber, three feet by six in size, and tack cheap sheeting on this. These we use to shade newly transplanted plants in the cold frame, and also to protect them from frost on cold nights. Anyone having a hotbed or cold frame will find a few of these cloth frames very useful, although they are inexpensive. — Wisconsin Agriculturist.

SWEETS IN MERCED COUNTY.

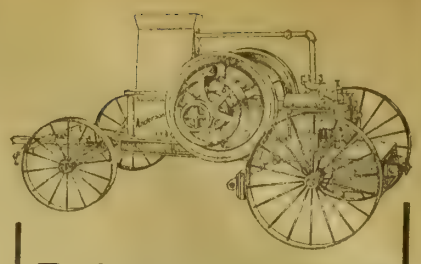
A subscriber at Atwater writes: Farmers in this district of Merced County have put in a larger area of sweet potatoes this season than ever before. The successful yields and high prices of the past few years have given a great impetus to sweet potato growing. The acreage in other districts of the state, where sweets are successfully grown, is considerably below the average this year and Merced growers anticipate unusually good prices in consequence. Three-fourths of the sweet potatoes of the state are produced in the Merced sandy loam soil and they are widely known for their peculiarly rich meaty flavor.

The success of sweet potato growers in the Atwater district is attracting many settlers, most of whom are purchasing land in Merced Colony No. 2, a tract of 3000 acres recently opened near Atwater. The Co-operative Land and Trust Company of San Francisco, the owners of the land, report a brisk demand for their property.

The Pasadena Gardeners Association, one of the live organizations of its kind in the state, not content with its annual Flower Show which is a society feature in that beautiful city, and its semi-monthly meetings on the 1st and 3rd Friday of each month, has now entered the educational field and will hold an exhibition at the Board of Trade rooms, Pasadena, on June 29th, for the purpose of educating people in nomenclature of flowers. As Mr. Barnhart of that association has remarked, many of the flowers which are becoming common in California are unknown even to some florists and gardeners. His idea is that these people should be educated, but primarily the object is to reach and enthuse the people who are not working with flowers all the time. There is to be no admission charged; there will be no prizes given, and a request is extended to all who have new plants and flowers to bring them for exhibition, and especially is the invitation to those who have flowers of which they do not know the names, to bring them for naming.

Where land is limited, cucumbers and tomatoes may be grown on stakes or trellises. Chicken-wire is good for this, or tomatoes may be tied to stakes driven in the ground at each plant, and then all but two or three branches kept cut off, and tying those left to the stake as they grow; this results in a little less fruit per plant, but more plants may be planted on the same amount of space. Three feet apart each way is enough.

Seven cars of lima beans aggregating 140 tons were shipped from Hueneme last Saturday.



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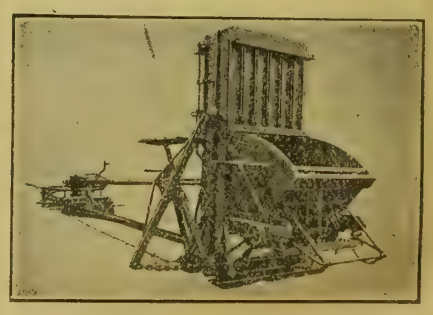

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General Agriculture

SACCHARIN TABOOED.

The secretary of agriculture has issued a decision based upon a finding of the Referee Board of Consulting Scientific Experts, which forbids the use of saccharin in food on and after July 1st next. The decision is under the Food and Drugs Act and will prohibit the manufacture or sale in the District of Columbia of the territories of foodstuffs containing saccharin, as well as interstate commerce in such foodstuffs. The finding of the board is the second since its creation and is regarded as very sweeping, inasmuch as the decision affects more than 30 different classes of foods. Some of the articles affected are soft drinks, sweet pickles, jellies and jams, and in some instances beer.

The decision as promulgated is signed by the secretary of the treasury, the secretary of agriculture, and the secretary of commerce and labor, in order that the regulations embodied in the decision may be put into effect. The decision follows:

"At the request of the secretary of agriculture, the Referee Board of Consulting Scientific Experts has conducted an investigation as to the effect on health of the use of saccharin. The investigation has been concluded, and the Referee Board reports that the continued use of saccharin for a long time in quantities over three-fourths of a gram per day is liable to impair digestion; and that the addition of saccharin as a substitute for cane sugar or other forms of sugar reduces the food value of the sweetened product and hence lowers its quality.

"Saccharin has been used as a substitute for sugar in over 30 classes of foods in which sugar is commonly recognized as a normal and valuable ingredient. If the use of saccharin be continued it is evident that amounts of saccharin may readily be consumed which will, through continual use, produce digestive disturbances. In every food in which saccharin is used, some other sweetening agent known to be harmless to health can be substituted, and there is not even a pretense that saccharin is a necessity in the manufacture of food products. Under the Food and Drugs Act articles of food are adulterated if they contain added poisonous or other added deleterious ingredients which may render them injurious to health. Articles of food are also adulterated within the meaning of the act, if substances have been mixed and packed with the foods so as to reduce or lower or injuriously affect their quality or strength. The findings of the Referee Board show that saccharin in food is such an added poisonous or other added deleterious ingredient as is contemplated by the act, and also that the substitution of saccharin for sugar in foods reduces and lowers their quality.

"The secretary of agriculture, therefore, will regard as adulterated under the Food and Drugs Act foods containing saccharin which, on and after July 1, 1911, are manufactured or offered for sale in the District of Columbia or other territories, or shipped in interstate or foreign commerce, or offered for importation into the United States."

SUGAR CONSUMPTION.

The consumption of sugar in the United States per capita went up 20 pounds in the decade between 1899 and 1909. This increase was more than twice as much as in the previous ten years. Every person in the United States now eats 79 pounds, as against 39 in 1879, or 40 pounds apiece more in the year. The growth of sugar consumption is largely due to the establishment of the domestic production of beet sugar. In 1879 only 1400 tons were produced, but in 1909 the amount had developed to 501,700, compared with 334,100 tons of home produced cane sugar in 1909 as against 89,400 tons of cane produced sugar forty years ago.

Beet Sugar.

Beet sugar constitutes, at this time, a large proportion of the total sugar production of the world. Its manufacture in the United States is comparatively new, as it had scarcely emerged from the experimental stage prior to 1880.

The number of establishments engaged in the manufacture of beet sugar increased during the decade 117 per cent; the number of acres planted in beets increased 207 per cent; the quantity of beets produced 399 per cent, and the average production per acre 61 per cent.

The value of the products increased 557 per cent. The quantity of granulated sugar increased from 37,900 tons to 496,800 tons and the value from $5,581,000 to $45,646,000. Raw sugar sold as such decreased in quantity, which indicates that the manufacturers are now refining a larger percentage of their sugar output than previously.—Orange County Tribune.

A CITY AND COUNTY LAW.

The new county horticultural act, known as the Cogswell Bill No. 965, and which was signed by the governor March 25, contains a provision that will permit San Francisco county to secure a horticultural commissioner. The clause was inserted at the request of the nurserymen and florists of San Francisco, who have been unable heretofore to secure the inspection of their orders going out from the city.

The old law provides as follows: "Whenever a petition is presented to the board of supervisors of any county, and signed by twenty-five or more persons, each of whom is a resident freeholder and possessor of an orchard, the supervisors shall appoint a horticultural commissioner." After the word county above, add "or county and city," and after orchard add "or greenhouse or nursery," and you will have the law as amended, and which now permits San Francisco to establish the office of horticultural commissioner. This county has no orchards and could not qualify under the plain reading of the old act. As amended the measure now permits florists and nurserymen of any county to join in petitioning for a commission.

A wild story was circulated all over the state while the Cogswell bill was pending that it would throw out of office all the county horticultural commissioners appointed under the law of 1909. It does nothing of the kind, and such a result was never thought of by the committee of growers drawing the bill. Most all of the commissioners understand that their tenure is not affected in any way, and that they will remain in office for the full term of four years from the date of appointment.—J. W. Jeffrey in L. A. Times.

BORAX IN THE UNITED STATES.

California produces all the borax mined in the United States and is now supplying nearly all the domestic demand. The principal mine is in the Death Valley region, in Inyo county. Another mine is in Los Angeles county.

The mineral mined is colemanite, or borax of lime, most of which is shipped crude to Alameda, Cal., or Bayonne, N. J., for refining.

About half the product is consumed in enameling kitchen ware, but new uses for borax are found every year.

Paris green is never dissolved in water but only mechanically mixed with it and held in suspension. Arsenate of lead does dissolve in water and the particles of the arsenical compound are very finely divided and much more completely cover the surfaces to be coated with the poison than is possible with paris green. The arsenate of lead sticks better and does not injure the foliage so easily. In the end it is the cheaper and better insecticide.

The management of the sugar factory at Spreckels, Monterey County, gave a barbecue picnic to 800 or more of its patrons at Alisal Park northeast of Salinas last week.

"Beats 'Em All for Making Money"

"I have run..... and many other machines, but the Wolverine beats them all for making money. I have put 216 pounds of dry straw in a bale and 175 pounds of hay." (Abstract from letter received. Name and address of party furnished on request.)

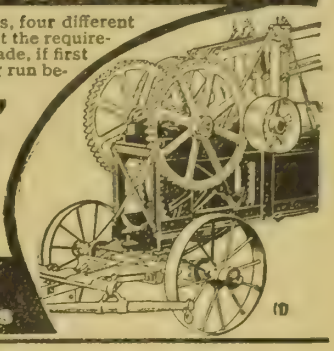
From "stem to stern" the Wolverine Hay Press is RIGHT. There isn't a dishonest or careless spot in its whole make-up. We have the biggest plant in the country devoted exclusively to making Hay Presses. The Wolverine has made an enviable reputation—and it is maintaining that reputation and increasing its facilities every year to take care of the growing demand.

A smooth, even, heavy bale comes from the Wolverine Hay Press. It is a fact that dealers will often pay more for hay put up in nice bales. It eats hay as fast as it can be handled by four men in a mow. It can be depended upon to work every hour in the day without a repair man constantly "tinkering" around. It is built for hard, long service.

Wolverine Hay Press

WOLVERINE CONSTRUCTION DEFIES DESTRUCTION

The Wolverine is built both with steel and wood frames, four different sizes, all with double gears, with various equipments to suit the requirements of purchasers. It isn't the cheapest Hay Press made, if first cost is considered, but it is the cheapest baler in the long run because there is an absence of repair bills.



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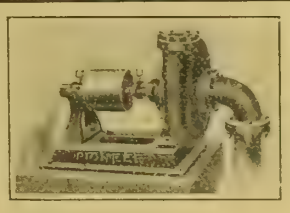

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Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:
THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,269 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres. and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, June 22, 1911

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The sugar beet acreage the state over is reported much greater this year than ever before. One or two sections show a slight shrinkage, but on the whole there will be a large increase of output.

GUERNSEY CATTLE INTEREST.

The largest attended meeting of the American Guernsey Cattle Club was recently held in New York City, and showed great progress for the breed. The report of the secretary showed that there are now in the Herd Register 19,010 bulls and 35,277 cows, the number having nearly doubled during the last five years. An interesting census was given showing that there were 17,846 Guernseys distributed among 1293 breeders. The state of Wisconsin had 2991, New York 2308, and Pennsylvania 2006. During the last year 818 Guernseys have been imported to this country. Thirty-five persons have joined the club last year.

During the five years the Advanced Register has been established 107 bulls and 1270 cows have been admitted. The club is now following the records of 554 animals in their year's work.

The great feature of the year in the annals of the Guernsey has been the winning of the great Iowa State Dairy Cow Contest by Mr. W. W. Marsh's three cows. In this not only did the Guernseys have the leading cow in Dairymaid of Pinehurst 24,656, Adv. R. 843, Year's Record: 14,562.4 lbs. milk, 860.26 lbs. butter fat.

Officers chosen were: Pres. J. M. Codman, Brookline, Mass.; vice president, Ex-Gov. W. D. Hoard of Fort Atkinson, Wis.; Ezra Michener, Michener, Pa.; secretary and treasurer, Wm. H. Caldwell, Peterboro, N. H.; members of executive for four years: Chas. L. Hill, Rosendale, Wis.; W. W. Marsh, Waterloo, Ia.; member of executive committee for three years to fill unexpired term: E. T. Gill, Haddonfield, N. J.

THINNING FRUIT.

It is already late to discuss the thinning of fruit, but if there is one orchardist who has overloaded trees and has not attended to it, let him get busy. We note the headlines of a farm paper of the Northwest which says: "You can afford to be reckless when it comes to thinning fruit." This reminds us of a remark at a fruit growers convention some years ago. The matter of thinning peaches was under discussion. One good peach grower gave his experience as nearly as we can remember as follows: "I first took off twice as much fruit as should have been taken off, then waited a couple of weeks, taking twice as much as I should have taken off. I waited another two weeks and when I saw the weight of fruit left on the trees I knocked them all off, and still there were too many left."

ANOTHER PEST.

Horticultural Commissioner Beers of Santa Barbara County has reports from some sections of his district that much damage was done this season to lima beans and other seed crops because of ravages of a very small centipede, Scolopendrella californica. Upon investigation Mr. Beers has found that the asparagus fields on Bouldin Island near Sacramento, were the scene of its first appearance, or at least the first report of its appearance in the state. Regarding this pest, it is said that it belongs to "an ancestral group and represents the parent of both centipedes and insects."

Dr. Chittenden, of Washington, D. C., Department of Agriculture, says: "These creatures will bear close watching. I have always been of the opinion that they are absolutely harmless."

Mr. Beers adds, "He seems to regard them as purely scavengers, but without doubt they are fond of vegetable growth, as they destroy lima beans, garden beans, asparagus, sprouting corn and melon seeds in the stage of bursting forth from the covering."

Professor Woodworth says: "Heretofore the food of the Scolopendrella has been supposed to be minute insects but there can be no doubt about its vegetable feeding habits."

SOME OF CALIFORNIA'S PRODUCTS.

California produces of barley $23,874,000; of wheat $16,074,000; of oats it produces much less, coming down to $4,162,000, and the great staple of the middle west, corn, is still left on the down side of the ledger with only $1,470,000. The production of beet sugar is the great factor in the state's productive industry that now passes the twelve million dollar mark. The production of lima beans is no inconsiderable factor in our welfare, for that homely product brings in ten millions of dollars yearly. Potatoes make a good showing with nearly seven million to their credit. Onions are not so strong, for they barely exceed one million dollars. Dairy products approach thirty million dollars, while fish and game, often considered of little commercial value, show a credit of five million dollars. In fruits, the citrus is a long leader. It now brings to the state in excess of $30,000,000 annually. Fresh deciduous of all kinds bring nearly fifteen millions of dollars. Dried fruits, including prunes but not including raisins, nearly $18,000,000. Canned fruits loom up well with a credit of $10,000,000. Olives and olive oil are not so extensive as they will be some day, but they already have a credit of nearly two million dollars. Wine and brandy have a credit of $21,300,000. Table grapes look good with a return of nearly $5,000,000.

SHAMEL'S WORK.

The first authorized statement of the Bureau of Plant Industry on the work of Mr. A. D. Shamel, in the orange groves of California, is just out in the form of circular No. 77. It gives a statement as to the beginnings of this work, the objects of the investigations, with list of varieties selected for performance records, and location of the various plats. The numbers of the different records are referred to and illustrated with good photographs. Methods of picking, grading, sizing, together with counting and weighing and facsimile of blanks used are given. Suggestion is made for the formation of citrus improvement clubs, together with individual work by orchardists. The importance of uniformly productive trees is given particular attention. Any citrus grower interested may secure the circular by writing the department.

BEAN DAY.

Lima bean growers of Southern California are all invited to celebrate Lima Bean Day in Ventura, Saturday, July 1st. It is anticipated that this will bring the biggest gathering of lima bean growers ever brought together at one time. Information is to be gathered as to the present crop and as to best methods of disposing of it. The lima bean growers have shown an example of successful co-operation in the marketing of last year's crop. We doubt not this meeting will still further perfect last year's system.

The Maine Agricultural Experiment Station has given more attention to poultry questions than any other station in the country. It has issued a number of good reports, and now comes another circular, No. 398, a book of over 200 pages, dealing with poultry diseases and their treatment. Residents of Maine receive the book free of cost, but those outside the state are asked to remit 25 cents in coin.

The work is extensive in its scope and detailed in its treatment. Practically all of the known diseases of poultry are treated at greater or less length. Furthermore, chapters are added on such subjects as general poultry hygiene, including poultry house hygiene and sanitation and hygienic feeding; the diagnosis of the diseases of poultry; medicines likely to be found useful by the poultry doctor; and poultry surgery. Special attention is given the common diseases of chickens.

Regarding the short editorial note in last week's Cultivator stating that charges had been filed by Mr. James Berry against the Chief of the Weather Bureau, we are informed that the committee in Congress having to do with the expenditures of the Department of Agriculture, took up these charges and not considering them worthy of following farther, has dropped the entire matter. This information was given to us in a letter received from Washington. The Weather Bureau has been of inestimable service to many interests of this country, and it would be unfortunate if its efficiency were lowered by any scandal.

In an extended review of the most excellent book of fiction, "The Story of the Soil," which appeared in a recent Cultivator, we neglected to state that the book was published by Richard G. Badger of the Gorham Press, 194 Boylston St., Boston. The Cultivator will soon be in shape to supply this book to its subscribers. We spoke of its being fiction, which it is, but it is so full of interesting facts regarding the soil, physical and chemical, that it is a wonderfully instructive book.

Patterning after the Australian egg-laying contests, the Philadelphia North American will organize a contest to take place in the near future. This will be the first of its kind attempted in America. Some of the best poultry people in the country have been engaged to act as advisors and overseers of the contest. It is claimed that the United States produces about thirty billions of eggs annually, or nearly 300 eggs for each man, woman and child in the country. Averaging the production of the hen at 80 eggs per year, it requires 370,000,000 hens to furnish this number of eggs. The idea is to encourage the hens to greater production and the farmer to more discriminating selection of hens which will accomplish results.

The University Farm School at Davis is sending out its announcement for 1911 and '12. We note the first term begins on September 11th. The University Farm School opened for instruction in January, 1909. Its purpose is to furnish technical training in agriculture to those who do not wish, or do not feel able, to pursue a college course. The regular course of study is for three years, and does not fulfill the requirements for entrance to college. Special students of sufficient maturity and earnestness may be permitted to take such subjects as suit their needs.

Agricultural News Notes of the Pacific Coast

Northern California

In spite of late frosts Red Bluff, Tehama County, reports a big apple crop.

Fairoaks, Sacramento County, reports the finest setting of oranges ever in that section.

The Butte County Farmers Mutual Insurance Company has filed articles of incorporation.

Cattle growers of eastern Butte County are perplexed at the continued stealing of cattle.

Fifty growers of Ukiah, Mendocino County, have united and will establish a co-operative winery.

The Ukiah Poultry Association has united its forces with those of the Farmers Club of that city.

A Sacramento County dairyman has closed a deal to supply 300 gallons of milk daily to San Francisco.

Vina, Tehama County, will have a bumper crop of wine grapes and a fair crop of practically all other fruit.

Chico, Butte County, reports snow three feet deep in the higher portions of the mountains to the east of that city.

Sacramento Valley is discussing the advisability of one large exhibit building for the entire northern end of the state.

Sutter County farmers are planting beans on some of the overflowed lands. A very large acreage will be put in.

The government fish hatchery at Hornbrook, Siskiyou County, hatched over 2,500,000 rainbow trout during the last year.

Beet planters near Davis, Yolo County, are pleased with the outlook for the coming crop; the cool weather has been very beneficial.

The effort of the government to secure control of the Calaveras Big Tree Grove has brought out a valuation of $1,000,000 by the present owners.

The complete record of the rainfall of Ukiah for the season shows it to be 32.80 inches. The average for the past 34 years has been 37.16 inches.

The state highway act known as the Chandler bill became effective last week, and now it is possible to proceed with the $18,000,000 highway construction.

It is proposed by the superintendent of grounds of the capitol at Sacramento to convert about three acres into a garden in which native plants only shall be admitted.

The canning season for fruits and vegetables in the Sacramento Valley will be from one to three weeks later this year than last. The local canneries are now working on asparagus and in a small way on cherries.

From over 200 varieties of rice grown in an experimental way at Biggs, Butte County, some three varieties have been demonstrated best adapted to the local conditions, and 00 acres are in rice fields this year.

San Francisco capitalists will finance a proposition looking towards the irrigation of large tracts of land north and east of Sacramento. The water will be brought from Amador county. A part of the scheme contemplates a 150,000,000,000 gallon reservoir.

Central California

A meeting is to be held today at Porterville to discuss the fertilization of citrus groves.

The Sempervirens Club of California held an annual banquet at San Jose last Saturday.

Twenty-five carloads of fine beef cattle were shipped out of Porterville last week. Stock was valued at $30,000.

Terra Bella, Tulare County, has just finished its deepest well, being 450 feet. It shows a column of water 400 feet deep.

The Fresno County Fair Association directors are planning extensive improvements on the county fair grounds.

Apple growers of the Pajaro Valley do not like the Heyburn cold storage bill and scores of letters are going to California senators.

The friends of the Big Basin or Sempervirens Park in Santa Cruz and Santa Clara Counties, are working to secure a better highway entrance to the park.

The management of the Apple Annual of Watsonville is looking about for competent judges to place the awards on exhibits to be made at the second annual.

The Fresno County board of supervisors is being urged to make a full levy of 6 cents per $100 on all taxable property in aid of Fresno County participation in the 1915 Exposition.

The prune growers of Santa Clara are endeavoring to solve the white labor problem and it has been suggested that a free employment agency be established in San Jose to supply the desired white help.

An enthusiastic plant breeder at Porterville maintains that he has produced a seedless tomato. We presume that the tomato will have to be grafted on a live oak tree in order to perpetuate its species.

Secretary Miot of the Tulare County Board of Trade suggests a meeting of promotion organizations of San Joaquin Valley to discuss the matter of uniting to display the products of the Valley at the San Francisco Exposition.

The state horticultural commissioner has issued a quarantine order against receipt of alfalfa from the state of Utah because of the alfalfa leaf weevil; also against Colorado and Texas potatoes infested with the potato beetle.

Lovers of birds are urging squirrel poisoners to use poisoned barley instead of poisoned wheat in the work of destruction. It has been stated that the dove and quail will not eat the barley while they will invariably clean up any scattered wheat and besides the poisoned barley has been found to work even better with the squirrels.

The Visalia Grange is out with a formal resolution urging the adoption of a 90-pound grain sack in place of the present large one holding about 125 to 140 pounds. The principal reason given is that the large grain sack is too heavy for easy handling by "the large number of women poultry keepers which is continually increasing." Another reason given is that the larger size is more likely to burst and cause loss of grain.

Southern California

Escondido will begin shipping of apricots about June 23.

Escondido apricot growers hope for a 14 or 15 cent price on dried cots.

Hopper catchers are proving effective in the vineyards of Imperial Valley.

Calexico is already shipping sugar beets to the factory at Glendale, Arizona.

Ventura County bean growers have lost much from the ravages of cutworms.

The cotton gin at Imperial which was burned some months ago is to be rebuilt.

The scarcity of Japanese labor is causing some to turn to the Hindus for help in emergencies.

The latest ambition of Calexico, Imperial County, is the establishing of a sugar beet factory, which it is claimed it will secure within two years.

Lemon growers are pleased at the prices being received; some exceptionally fine fruit has struck hot weather to the tune of $7 per box.

Ventura County is planning for a celebration of Lima Bean Day on July 1. A special invitation is extended to every Lima bean grower in California.

The California Fruit Growers Exchange has recently purchased large timber tracts which will supply material for orange boxes for several years.

Anaheim, Orange County, beet fields have been held back by the cold weather so that it will be the middle or last of July before harvesting can begin.

The first good healthy Russian thistle found in Imperial Valley has started a commotion which will probably result in a still hunt for any others of this pest.

The Gregory Fruit Company at Colton is making extensive changes and improvements in the cannery, and will soon be ready for opening on the summer pack.

Potato growers of several sections in the San Gabriel Valley have formed the San Gabriel Valley Growers Potato Association, hoping to secure better returns on the market.

Bee inspectors of several southern counties have been busy attempting to run down a car of bees from San Joaquin Valley which it was stated was infested with foul brood.

An agronomist in charge of grain and sorghum investigations and representing the Bureau of Plant Industry of Washington is investigating Dwarf Milo Maize, for which seed has been distributed from the department.

Horticultural Commissioner Essig of Ventura County has called a meeting of farmers and fruit growers to be held at the city hall, Santa Paula, next Thursday, June 29. Methods of fumigation, spraying and quarantine will be discussed.

With 750 cars of cantaloupes in transit and 140 cars a day being added to the quantity, the melon growers of Imperial Valley called a special meeting and decided that, notwithstanding the rapidity of ripening, shipments should be arbitrarily reduced to seventy cars at least.

The Coast

Alfalfa growers at Gifford, Washington, are making a first cut.

Cantaloupes and alfalfa at Yuma, Arizona, are revelling in a 110 degree temperature.

Oregon's winter wheat condition is reported as 95 per cent as against 92 per cent for the ten-year average.

A sheep grower at Pullman, Washington, has lost a number of valuable Shropshires because of bloating on alfalfa.

Well wishers of the advancement of Northern Washington, are urging more serious consideration of irrigation methods.

Farmers near Wilcox, Arizona, anticipate a greatly enlarged market from the development of mines in that section.

Potato growers at Grangeville, Idaho, have a contract for the furnishing of all potatoes to the Northern Pacific dining service.

The secretary of the interior has sent an agent to investigate the delay in the completion of the Milk River reclamation project in Montana.

A dairyman at Bozeman, Montana, has a Jersey which produced for him within seven days 450.2 pounds of milk and 21.24 pounds of butterfat.

A dry farming expert near Wilcox, Cochise County, Arizona, is exhibiting a bunch of wheat grown from one kernel, on which is 239 heads of wheat.

Kititas County, Washington, contemplates reclamation through irrigation of 90,000 acres of land. It is estimated that the cost will be $70 per acre.

One of the greatest irrigation efforts undertaken in this country is in contemplation on the Medina River near San Antonio, Texas. It will cost $6,000,000.

The controversy over the establishment of the San Carlos dam site near Tucson, Arizona, has resulted in a request to the secretary of the interior to make a visit to the San Carlos Reservation.

The Washington County, Oregon, Cow-testing Association is doing good work in showing the dairymen the production of each of their cows. The "star-boarders" will be eliminated from the herds.

A farmer at Pampa, Washington, is enthusiastic over the discovery of an enemy of the dreaded "Jim Hill" mustard, in a wire worm that leaves wheat untouched, preferring the weed as an article of diet.

A new agricultural school has just been established at Lais, Mindanao, P. I. It is hoped to make this school a sort of agricultural station for the introduction and trying out of trees and plants adapted to this region.

A financial corporation has been organized in Portland, Oregon, to make loans on stock fed for the Portland market. Nearly all the banks in Oregon, Idaho and Southwestern Washington have promised to co-operate.

The holdover hay is so scarce at Toppenish, Washington, that California hay is being shipped in and the local growers are contemplating baling their hay without the usual sweat in the stack so as to meet the demand.

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Profit in the Poultry Yard

Practical poultry people who may have ideas from their experience as to methods of feeding and housing and general care of poultry will convey a favor upon the Cultivator and its circle of readers by sending in concise accounts. Mrs. Basley is always willing to answer queries which with the experience of others should make this a most valuable feature in poultry life on the Coast. Opinions or matters of a personal nature should be omitted, but a concise statement of facts is always valuable.

THE IMPORTANCE OF WATER.

By Mrs. A. Basley.

A brood of Indian Runner ducks have sore eyes, showing a milky looking foam, the disease seems to be going through the entire flock. The only trouble is that the ducks have not a deep enough water vessel. Ducks require to rinse their nostrils frequently during the day. The drinking vessel should be deep enough for them to immerse their whole heads or at any rate as far as the eyes. Otherwise they cannot clean out the nostrils, the mucus hardens and frequently an abscess will form and the eyes become affected. It possibly may be necessary to inject a little oil, (castor oil) in the nostril that is stopped up, to soften the mucus, but usually a good supply of clean water is all that is necessary.

Where poultry is kept in confinement there is perhaps nothing so important in the feed as the water supply. Water is the cheapest part of the food and yet how careless many are in supplying it and in keeping the vessels sweet and clean! Water is the great carrier which alone can convey anything into the animal system, and without it all food would be useless. This is especially the case with fowls and notably our domestic hen. The body of the hen is more than half water, while over three-fourths of the contents of the egg is water. How more than necessary it is to give the hens clean water. A friend of mine says when she cleans out the water vessels, "I have to drink or rather eat this water myself in the hen's egg and I don't like dirty water." Sometimes water has been left to warm in the sun. Warm water if clean will not hurt a chick or a fowl any more than it will human beings. It is not as palatable, it is true, but nevertheless, it is harmless if it is clean. When, however, chicks are allowed to run on ground of their own droppings and then in their water dishes the water thus polluted, especially if warm, will develop poison, for nothing is more poisonous to all animals than emanations of their own excrement. Many a lot of promising chicks has died off one after another till the whole flock was depleted and all sorts of remedies given to stop the fatality, while the owner laid it to his own bad luck or anything under the sun except the true cause, drinking polluted water.

I have used all kinds of water and found it equally good as long as it was kept free from poisonous droppings brought into the water on the feet of the little chicks. River water, well water, spring water, warm water, the ditch water or canal water, it is all good so long as it is kept free from animal or fowl pollutions, which contain the deadly poison that yearly kills off thousands of little chickens, and particularly brooder chicks, where water is often suplied in such a way that little chicks can get into it.

The only proper way to give water in a brooder is to use a fountain. They cannot get into that, and one good drinking fountain is an effectual protector against this deadly menace of filthy water, and never let the fountain go empty. You cannot grow chickens successfully without as good a supply of water as of food, for without the water the food will not be properly assimilated.

As to the laying hen, clean and wholesome water must be given to her if she is to do her best in providing the eggs from which the chickens are to be hatched. A hen may be able to live on the water contained in the green feed supplied to her, but she will not be productive of eggs; if the water supply suddenly stops, the egg output will stop also. A laying hen is much like a milking cow, both require a great deal more water than if free from the drain on their natural powers, and nothing will more certainly arrest the milk giving of the cow or the laying of the hen than an insufficient supply of water. In warm weather a hen which is laying and fed on grain will drink or waste in the awkward way she lifts it, three-quarters of a pint a day. If you watch your hens carefully you will see that they will take a good drink before going to roost and another the first thing in the morning and either just before or just after laying.

Keep all dishes and fountains scrupulously clean; at least once or twice a week scald them with boiling water in which washing soda has been put. Neglect anything rather than the water supply, for success cannot be attained without this important factor in chicken culture. But where chickens are raised for profit as well as for pleasure, nothing should be neglected, but every little detail carefully attended to.

Ducks require even more water than chickens; they like to take a mouthful of water at each bite of food, and if they cannot get their nostrils well under the water they are sure to suffer from getting their heads stopped up and from indigestion.

I found that the best way of keeping plenty of water and clean water for ducks was to get a barrel and saw it in two one-third of the way from the end with the bunghole in it. Dig a hole deep enough to bury the large part of the barrel, knock the bottom out of it, and put the one-third on to that. Fit a broom handle into the bunghole, and keep this top part of the barrel, which should be level with the ground, full of water. Every day let the dirty water run out and leak away through the bottom of the barrel, and fill up with fresh. Of course you could use a box or anything that would hold the third of the barrel steady and yet allow the water to run away. This was the most satisfactory arrangement that I could make for my Indian Runner ducks. I had tried a cement basin and various other forms of drinking vessels, but this was more easily handled, cheaper, and suited me better than any other plan.

RHEUMATISM IN POULTRY.

Damp floors and walls bring on rheumatism. Throw open the chicken house on fine days and let the blessed sunshine in. Pure, dry, air is much healthier than warm air highly charged with moisture. Rheumatism is almost never seen in flocks where the quarters are dry. A little common baking soda put in the water where the hens drink will help to prevent a leg weakness. Water fowls —geese and ducks — cannot stand dampness in their quarters any better than chickens. A great many people ignore this fact. They imagine because ducks and geese like water they do not need dry sleeping quarters. They do not roost high up as do chickens, but prefer dry clean straw to squat on at night. Where boards are used as a floor, there is apt to be more or less drafts from cracks unless a quantity of dry dirt or sand is kept on the floors. A scratching shed should always have a floor of earth. Such a floor is absolutely free from drafts. Cover it well with litter and you will then have no rheumatism among your fowls.

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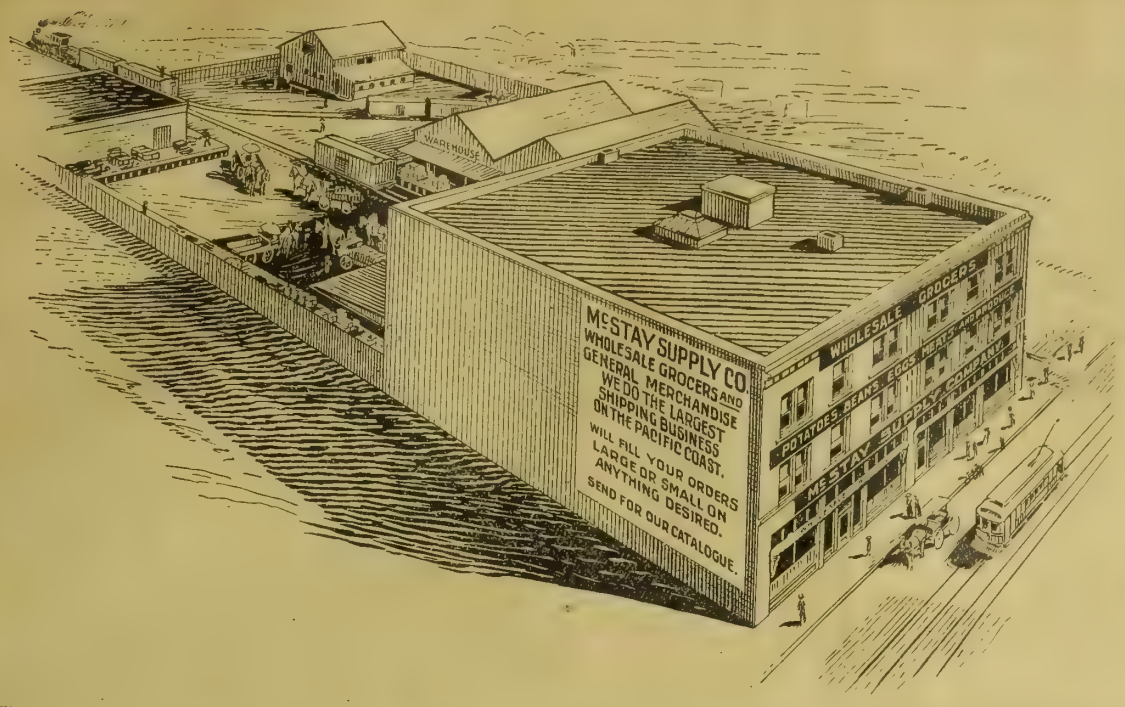
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50 lbs., in toweling sacks.....$1.40
Per bbl. $5.40
100 lb. sacks ....$2.75—per bbl. 5.30

TEA.

Basket Fired, Uncolored Japan, or Spider Leg Tea, the regular $1.00 grade, put up in fancy imported Japanese work-baskets.

½ lb. baskets .....$ .35
1 lb. baskets ..... .65

Remember we can furnish you with any kind of Tea you desire at from 30c per lb. up.

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Highest grade pure ground spices, any kind desired.

16 oz. tins, each.....$ .33

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Our own manufacture, guaranteed to be absolutely pure, and triple strength, all flavors.

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Folger's Golden Gate, staple on this Coast for many years.

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Assorted kinds of best grade of Walnuts, Almonds, Pecans, Filberts and Brazils.

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Wisconsin's famous Long Horn, full cream cheese.

12 lb. cheese, per lb. .....$ .17
6 lb. cheese, per lb. ..... .18

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We will buy all of your eggs all of the time, and pay you according to the buying quotations on the day received. We have good second-hand egg cases to sell at 15c each.

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We quote here only high grades; we have cheaper grades at proportionately lower prices.

Cherries, extras, qt. cans, per doz.$2.10
Cherries, extras, qt. cans, ½ doz. 1.10
Peeled Apricots, extras, qt. cans, per doz. 1.85
Peeled Apricots, extras, qt. cans, ½ doz. ..... .95
Plums, extra Standard, per doz.. 1.35
Plums, extra Standard, ½ doz... .70
Pie Cherries, gal. cans, per doz.. 4.00
Pie Cherries, gal. cans, per can.. .35
Pie Apples, gal. cans, per doz..... 2.80
Pie Apples, gal. cans, per can.... .25

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Corn, extra quality Holland, per doz. .....$ 92½
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Asparagus, Mammoth White, per doz. 2.50
Asparagus, Mammoth White, ½ doz. 1.30
Pork and Beans, 1's, per doz.. .90
Pork and Beans, 1's, ½ doz..... .47

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The brands we quote here are the very best quality obtainable.

Standard, qts., per doz.....$ .80
Standard, gals., per doz..... 2.50
Extra quality Standard, qts., per doz. ..... .90
Extra Standard, qts., per doz.... 1.05
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Ghirardelli's California Star sweet chocolate, put up in 1 lb. cakes.

1 lb. cake .....$ .19
Vernard's ground, 3 lb. tins, per lb. ..... .20

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Fresh from the factory daily, packed in 24 and 35 lb. cases.

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Fresh hand-made chocolates, all flavors.

5 lb. boxes, each $1.10
Caramels, 5 lb. boxes, each..... 1.00
Peanut Brittle, 5 lb. boxes, each.. .80
Grocers' Mixed, 5 lb. boxes, each.. .50

DENTINE GUM.

20 packages .....$ .55

BREAKFAST FOODS.

The celebrated Maple Flake, Toasted Corn Flakes, regular 10c packages; our prices:

Per doz. .....$ .75
Per ½ doz. ..... .40
Violet Oats, per doz..... 1.25
Violet Oats, per ½ doz..... .65

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Our famous Stayco Chick Feed, best on this market.

100 lb. sacks, each.....$2.60
Lightning Chick Grower, 10 lb. sacks ..... .75
Rice for Chicks, per lb..... .02¼

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Our pickled Barracuda and Halibut can be freshened and then fried or baked.

Barracuda, 10 lb. kits.....$ .85
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CANNED FISH.

French Sardines, ¼s, doz.....$ .90
Minced Clams, 1's, doz..... .90
Minced Clams, 1's, ½ doz..... .47

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Guaranteed by us to be equal to Elaine.

Per case, 10 gals.....$2.25

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Paraffine wax, 216 candles to case, per case $3.00

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Anti-trust plug cut smoking, put up in lunch pails containing 1 lb. net.

Per pail .....$ .41

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We recommend the Alpine, because it contains the highest percentage of butter fat.

Per case, 4 doz.....$3.60

PICKLES.

Medium size sour pickles, best quality.

Commercial, 5 gals., each.....$ .95
Chow Chow, Mason qts., each..... 23
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Boiled, qt. cans, each.....$ .20
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Fancy Carolina head, the long grain.

10 lb. sacks .....$ .68

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Dairy fine granulated salt for kitchen and table use.

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The famous Golden Glory Drips, same quality as Karo Corn Syrup.

Gal. cans .....$ .45
5 gal. cans 2.00
Rock Candy Drips, gals..... .75
Genuine New Orleans, for table use, gal. cans ..... .75

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Clairette, 100 bars $3.15
20 bars ..... .65
Fairy Oval, 100 bars..... 3.85
20 bars ..... .80

GOLD DUST.

Large size, per doz.....$2.10
Large size, per pkg..... .18

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Royal Skin Food, 4 oz.....$ .35
Royal Cold Cream, 4 oz..... .35
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Royal Bay Rum, pts..... .50

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Royal Ointment, 2 oz.....$ .25
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Royal Cough Cure, 4 oz..... .25
Royal Catarrh Remedy, 2 oz..... .40

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White Ribbed, special, 2 qt.....$1.05
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Goodwear Maroon, 2 qt..... 1.75
Goodwear Maroon, 3 qt..... 2.00

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Write us for prices on anything you want; we can save you money. We will also buy your honey.

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Plain white dinner sets, made of the best English clay, 112 pieces; sells for $12.00.

Our price $8.90

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The Dana Peerless, absolutely the best freezer on this market.

1 qt. size $1.55
2 qt. size 1.90
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Women's and children's Japanese reed straw, wide brims, very natty and durable.

Hats, each .....$ .25

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One of the most effective and durable churns on this market.

6 gal. size $3.25

We have them in all sizes up to 50 gals.

WASH BOARDS.

Laundry Queen, each .....$ .30
Invincible, each ..... .20

MOPS.

Famous Daisy 1 lb. mops with handle attached.

Mops, each .....$ .20

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Imported from France, made of the best round willow; they are regular hampers with covers.

Medium size .....$ .55
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Pints, gross .....$ 5.75 doz....$ .50
Qts., gross ..... 6.30 doz.... .60
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JELLY TUMBLERS.

Gross .....$2.40 doz....$ .21

TOILET PAPER.

Imperial 1,000 sheet rolls; straight 10c seller; our price:

Per doz. .....$ .70

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Handled shoe brush.....$ .15
Leather back horse ..... .13
Hoof brush ..... .15
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Solid back scrub ..... .08
50c tooth brush ..... .27
Antiseptic tooth brush..... .12
100 feather turkey duster..... .55

ENAMELED WARE.

5 qt. coffee pots.....$ .40

We will give the following assortment:

1 qt. measure, 1 soup ladle, 1 basting spoon, 1 skimmer, 1 cake turner, 1 fluted cake tin, 1 bread pan; our price for the assortment .....$ .53

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These quotations are for solid oak, best construction and material throughout.

50 lb. capacity $14.35
70 lb. capacity 15.65
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160 lb. capacity 30.95

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Galvanized Rotary $8.45

HARDWARE.

Send to us for anything you need; we will save you money.

BUILDING MATERIALS.

2 ply ready roofing $1.50
1 ply rubber flaxine 2.00
1 ply rubber sanded 2.15
Galvanized corrugated iron, square 5.10
Painted corrugated iron, square...3.20

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Barn or roof, put up in 50 gal. barrels; our price:

Per gal. .....$ .95

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Single farm or orchard without collar.

Our price, each $10.86

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8 oz. duck, 4 ft. wall, pole, guys and stakes complete, 10x12....$10.45

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We can fill your orders for anything in this line at a saving to you.

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Try a pair of our men's "So-Easy" work shoes; regular $4.50 seller; we guarantee them for one year.

Per pair $3.48

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Send for our catalogue of prices.

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A full line for men; get our prices.

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Men's heavy blue denim waist overalls; our price:

Per pair .....$ .77

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Send to us for your linen, white goods, table damask, cotton and linen crash, muslins, sheeting, dimities and lawns, foulards, poplin, ginghams, etc.

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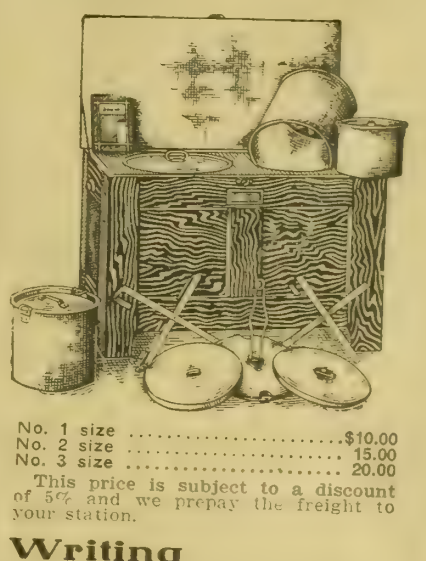

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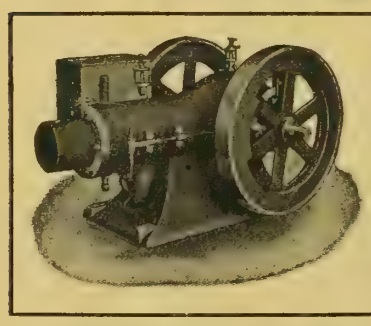

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The Simple Gas Engine Co., 114 East 8th., Los Angeles, Cal.

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Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Sick Pigs.

Pigs four to six weeks old lose their appetite; the eyelids are swollen and sore; they stagger around, apparently unable to see; dwindle for about eight or ten days; and die. The pigs are run on alfalfa and receive daily a small feed of milo maize, and are fat when taken sick. The pigs die, but the old hogs are not affected. Last fall I had fine success with pigs under similar conditions and handled just the same.—Subscriber, Brawley.

This is a contagious disease of a febrile character. The sows may have passed through the disease and are for that reason immune. Hold a post mortem examination on one of the pigs which die of the disease and examine the lungs, kidneys, liver and other organs. Rip the large gut open and wash its lining and look for ulcers. Then write this department, giving a full description of your findings.—F. G. M.

Stiff Knee.

My mare one year ago had two little bunches appear on the knee joint. These were soft at first, but became larger and bony later, and other lumps are now coming out around the joint, which is beginning to show stiffness.—Subscriber, Lodi.

Bony growths in the knee joint when of long standing cannot be removed. However, a liniment made by mixing the following ingredients may be used to check the progress of the disease and relieve the pain: Oil of cedar, half ounce; chloroform, one ounce; tincture of capsicum, two ounces; spirits of camphor, two ounces; tincture of iodine, half ounce, and alcohol, two ounces. Shake before using and apply with friction once daily.—F. G. M.

Abscess and Fistula.

My mare began to lose flesh about two months ago. The veterinarian attendant opened an abscess on her breast, and this was washed out with antiseptics twice daily. Now there is a lump about the size of a turkey egg, and this is quite hard, with some fever, but very little discharge. Another veterinarian pronounced this a fistula, but treatment has not improved the animal. When driven faster than a walk she will cough and breathe with difficulty.—Subscriber, Riverside.

An abscess is a collection of matter (pus), and after an abscess is opened if matter continues to flow from the opening for a long time the condition is then termed a fistula, therefore both veterinarians were correct. If the cough and difficult breathing is due to this locally diseased condition, the windpipe or some large blood vessel, or both, must be involved, hence it would be advisable to have a qualified veterinarian probe the fistulous tract with the object of determining its depth and direction and the vital organ approached. It would be far better to trust the treatment to a veterinarian, as an operation may be required.—F. G. W.

Abnormal Milk.

A Jersey cow which seems to be in perfect health, yields milk which at times is not right, becoming thick while still sweet, and apparently containing an excess of water, and a very thin film of cream comes over it. Ordinarily her cream is abundant.—Subscriber, Folsom.

The milk of some cows is affected at the periods of heat. But if the change in the milk does not occur near her periods the subscriber is advised to draw the milk from each teat into separate vessels and observe if the change in the milk applies to all four quarters or only one or two. If the latter, the disease is localized in the udder, but if all samples are affected alike the trouble is systemic. In case it proves to be a systemic trouble, give the cow one pound of epsom salts in water as a drench, and follow with hyposulphite of soda, one tablespoonful in the feed twice daily. If localized in the udder, supplement the treatment by rubbing into the affected quarter or quarters an ointment containing five per cent of oliate of mercury.—F. G. W.

Legal

Edw. L. Payne, attorney, 301-304 Douglas Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Payne is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Acquiring Road Right.

A owns 60 acres and B and C owning other lands have to go through A's place to get to the county road. There are two separate roads through the place. Part of the year they go on one and the remainder of the year the other. To get out to the public highway they open two gates. Have they established a road? A has owned the land for four years and both B and C traveled it several years before A bought his place.—F. P., Visalia.

The first part of the question is worded so that it appears that B and C have no other means of access to their property except through A's land; if so, B and C have a right of way by necessity; assuming, however, that they have other means of ingress and egress, the maintaining of gates by A might be considered as evidence that A retained control of the roadway, and has merely given B and C a license which might be revoked.—E. L. P.

Cousins Marrying.

May cousins marry in California?—Subscriber.

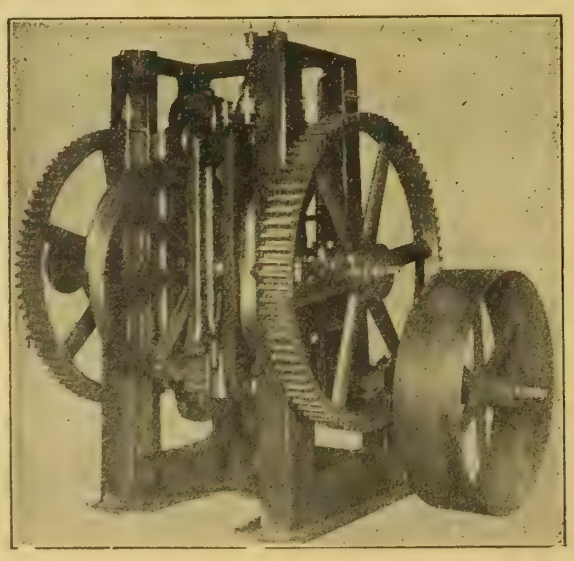
There is no law prohibiting the intermarriage of cousins in California.—E. L. P.

Section Lines.

A section is square with the world on three sides, but on the fourth the line starts from the southwest corner and runs 7 degrees west of north. This takes in some 6 or 7 extra acres. West line is, however, along the steep wall of the canyon where the land is inaccessible and worthless. Does the law require that in dividing north and south lines shall run at varying angles,

(Continued on Page 751.)

The Luitwieler Improved Pump



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Both large and small capacities. Sizes from 2 to 75 horse-power in stock, to lift from 3 to 100 miner's inches of water.

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Luitweiler Pumps save you from 20% to 60% of your fuel or power bill. Power costs real money. SAVE POWER. Save Money. Get our absolute written guarantee before buying a pumping plant. Heads equipped with sliding bases. No pit. No breakdowns. No bother. No tearing down to put on new leathers. Minimum of attention only. Always have water. The only plunger pump practical for use geared direct to driving power.

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Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Watering Peaches.

How frequently should bearing peach trees be irrigated and is there danger of watering too near to picking time, thus making the fruit watery?—Subscriber, Glenn.

One good watering shortly before ripening will not have any deleterious effect on peaches. I have practiced it for years and have only found good results. It is the continuous watering, as when small fruits are planted between the trees and watered every couple of weeks or even oftener throughout the season, that works injury to the peaches.—Q. A. L.

Number of times or particular time of watering any orchard tree must depend more upon its condition than upon any rule. So long as the tree is growing well and in good condition it needs no water, but it is necessary to keep careful watch so as to anticipate its needs. There should be sufficient moisture in the ground during the growing season to keep the young growth from withering.

Rhode Island Reds.

Kindly give me through your question column information as to the origin of the Rhode Island Reds.—F. S.

The Rhode Island Reds come from the little state from which they take their name, and they may be said to be the oldest, newest breed in the United States. Their origin is somewhat undecided. They were popular fifty years ago, and were then said to be raised from the Red Cochin China cocks brought to Little Compton, R. I., by sea captains and crossed with the common fowls there. A little later came the great Malay fowls from the peninsula of that name. Their color was dark red or brown, streaked with yellow, some varieties more red than others. The Red Cochin and the Red Malay cocks were crossed with the flocks of fowls at Little Compton forty or fifty years ago. There was also a red variety of Chittagonga at that time in that neighborhood.

They are excellent utility fowls. The dressed poultry is nearly all uniformly yellow skinned, yellow legged, plump and meaty. The eggs are brown, uniformly good sized. We do not consider an egg up to standard unless it weighs over two ounces. Very few of our eggs except those laid by young pullets fall under this weight.

The standard weights are: Cock, 8½ pounds; hen, 6½ pounds; cockerel, 7½, and pullet, 5 pounds. The general surface of the plumage is a rich brilliant red, except where black is desired. Depth of color (red) is slightly accentuated on wing bows and back, terminating in a tail of glossy bottle green black.—A. B.

Picking a Duck.

Will some reader of the Cultivator give me the best method of cleaning a duck. I find the down is very hard to get off.—Subscriber, Orosi.

Probably the easiest way is to remove the feathers dry while the natural heat of the body is yet in the bird. Some prefer to select a heavy board wider and longer than the bird and drive two nails firmly at the top, and to these tie the duck securely as soon as slaughtered. Set boards slanting on the table and scald wings and tail for easier removal of the large feathers. Pick breast and back first, working rapidly with both hands. When the larger feathers are off the down remains. Hold the bird first by the wings, then by the feet over a quick blaze. (This does not make the finest looking carcass.) Use knife blade to remove pin feathers. Some prefer to scald, then wrap in hot towel for a few moments when the down is more readily removed. However, as the subscriber asks other readers to send in suggestions, we will ask for better methods.

Rye.

What is the feeding value of rye hay compared with other grain hay, and also is the grain good for poultry feed?—Subscriber, San Jacinto.

We are unable to give the analysis of rye hay, but do not think it would be equal to either good barley, oat or wheat hay. Rye, the grain, ground to a meal, is practically the equivalent of corn-meal. We do not think it would be a desirable complete food, but would be excellent in forming a balanced ration.

Bee Paralysis.

I have used sprinkling of salt water (not too strong), and powdered sulphur. Take small can, perforate cover, using same as shaker, shake sulphur on top of combs, also bottom board, below combs. The bees will work and take out the sulphur at once. The disease disappeared from my hives although I could not say if the above is a sure cure. Another way is to replace the queen. I had one colony that had the disease, but after the weather turned warmer they got over it without treatment. I marked hive and found the same colony had disease this spring, and I will replace queen this year.—Hy. Bauer, Fillmore.

Scions on Olives Starting.

How long after olives are grafted should the scions start? When should the twine be cut?—Subscriber, Hemet.

Length of time before new growth will start depends upon the condition of the tree and upon the weather. The cutting of the twine is also best determined by watching the condition of the bark; until the growth begins to swell the stock so that the string cuts in there is no harm in leaving the twine on.

Green Cabbage Worms.

When things go wrong we always look to the Cultivator for aid, and so we are calling on you this time to ask the following questions: What will prevent or kill green worms that I find on my cabbage? They hatch from eggs of a white miller or butterfly. We object to using Paris green or other poison on them. What will keep away the worms that are found in sweet corn? Last year had a great deal of trouble with them and would like to know something to prevent them from coming.—J. E., Lincoln.

On such plants it is possibly safer to use white hellebore, formula for which is given in the special spraying issue of the Cultivator for November 3rd as follows: Hellebore one pound, water 50 gallons. Mix the hellebore with a small quantity of water first, then pour into the spraying tank, or if preferred, it may be used dry, mixed with road dust or flour, say one pound of the hellebore to five or even ten of the diluent. This pest is sometimes treated with hot water, poured almost boiling over the cabbage. It may seem that this would destroy the plant, but cabbage will stand very hot water. Hand picking is also an effective method of handling the worm.

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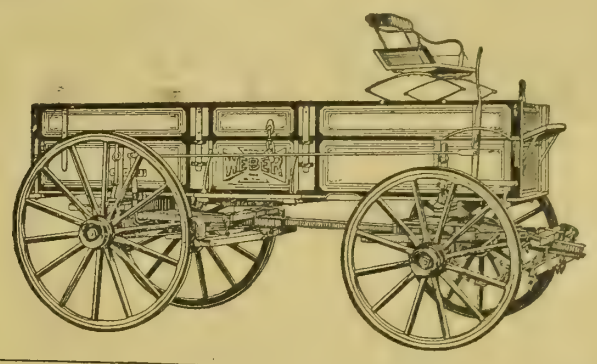

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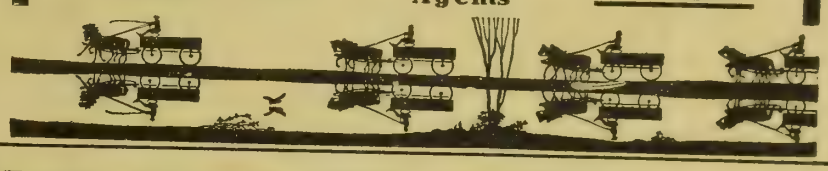

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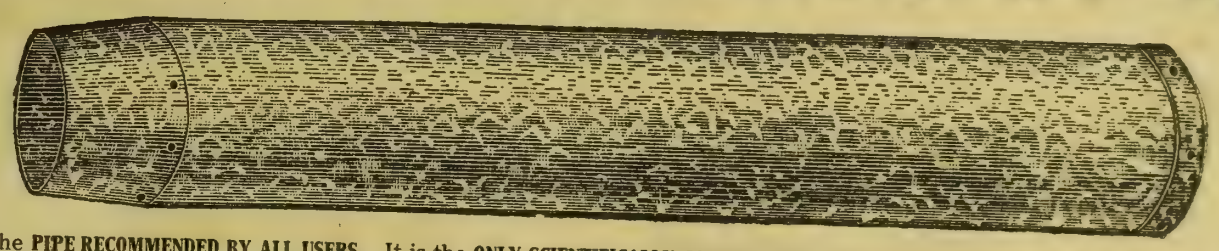

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30,000 feet	1½-inch	Standard, at	6c per foot
50,000 feet	2-inch	Standard, at	8½c per foot
10,000 feet	2½-inch	Standard, at	14c per foot
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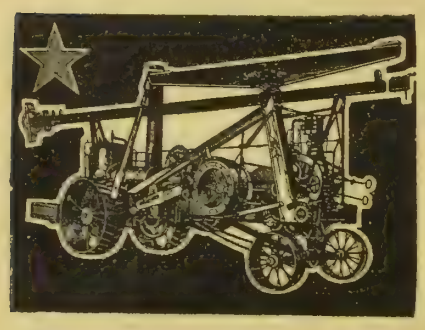

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Buff Orpingtons

1000 birds to select from. Trios, $7.50 and up. Eggs for hatching, $2 and $3. Special selection; prices on application. Mr. & Mrs. W. S. Sullivan, 50 Market St., Agnew, Santa Clara Co., Cal.

Tulare County shipped 2861 cars of oranges this year.

Some use the arsenate sprays and find them satisfactory.

The sweet corn worm is another proposition, and there seems to be no way of reaching it. The only plan followed is to plant a larger quantity of corn than is required. The eggs are laid in such a way that it is impossible to reach them with poisons.

BEET GROWERS INSTITUTE.

(Continued from Page 731.)

a correct version, we quote as follows: He who by agriculture would get rich Must plow, and cultivate,—and sich. Work hard all day, sleep hard all night * * * and not get tight.

Prof. Shaw's talk was along the line of humus, and as we have quoted so fully from him in the past we will not give of his address, but remind those who were present at that time that the Professor omitted to give one of his usual slogans or catch phrases which is "With all your getting, get humus." An explanation from the Professor is due along this line.

Prof. Shaw later made another address on the irrigation of sugar beets, and from this we may quote in another issue of the Cultivator.

Mr. A. Miles spoke upon labor problems affecting the Salinas Valley and the state in general, from which we quote:

THE LABOR QUESTION IN THE BEET FIELD.

By A. Miles.

Years ago we had a competitive system of labor between the Chinese and the Japanese. Finally, the Japanese gained control of the entire business. Just about that time prices began to rise in every direction. To assist the farmer in meeting these increased expenses, as much as to encourage the industry of beet raising, the Spreckels Sugar Company paid more for the beets delivered to it; but the Japanese, being virtually in control of the situation, reached out and grabbed all the benefits which would accrue to the farmer from this source, by demanding more for their labor. Then again the Sugar Company took hold of that side of the question, at an expense to it of many thousands of dollars. It sought and tried out various classes of labor, meeting with reverses and discouragement on all sides. The Hindu was found the most adaptable to this particular kind of work and the company took the initiative in training these men to the work of the beet field. It required some years of indefatigable labor to accomplish results, to say nothing of the expenditure of much money, and patiently bearing the murmurs of discontent heard on all sides; but finally such results were attained that any aprehension any of you may have had—and justly so, I will admit—as to the culture of the sugar beet, may now be entirely and safely swept away. The present season the Hindus have contracted to care for 1200 acres of beets, and for lack of territory, we are refusing offers almost daily. So it will be the next year, and the next, and so on. Under these circumstances the Japanese are content to work for a fair rate of wage, instead of claiming all the traffic would bear, so to speak, and thus making the business prohibitive.

The program was closed by an address by Mr. R. L. Adams, Supt. of the Experiment Station, in which he answered the question, "Why do we advocate beets." In part, Mr. Adams' address follows:

WHY WE ADVOCATE BEETS.

By R. L. Adams.

Only a good farmer can raise the sugar beet. The crop is exacting and to make its fullest development requires special attention from the time the ground is first broken in anticipation of seeding until the crop is finally delivered at the mill. The host of details demand immediate and intelligent action. Failure to comply with the crop's demand will always be shown in a reduced yield or a reduced sugar content. For this reason only good farmers make a success of beets. On the other hand when you see a man making a success of his beet crop you may put it down that this man is a thorough farmer who understands his soil and crop, and gives both the proper handling.

The sugar beet has played an important part in the development of Monterey County. According to figures given out by County Clerk T. P. Joy the value of the crop among all those grown in 1910 was second. Barley alone exceeded the value of the beet crop to the farmers and that by only $50,000, which considering the fact that over 100,000 acres are grown against fifteen thousand acres of beets or less, is not a very great margin. This means that the sugar beet is an important factor in the financial standing of the county, and everything possible should be done to protect and foster the industry. And what applies here applies in some degree to every county where the sugar beet is raised commercially.

To the average farmer the immediate financial returns are what interest him most, especially if he is a tenant farming under only a short lease. He then aims to get all he can out of the land during the time that he is there. This may not sound charitable but it is human nature. Viewed from the standpoint of acreage returns the sugar beet stands first both in profit and in total value when compared with ordinary farm crops. Using County Clerk Joy's figures again the value of the sugar beet is $57.14 per acre, while the next, second crop—beans—has but a $37.20 value. Averages compiled by a former assistant of mine from figures given by actual growers outside the company show the profits for beets to average nearly $40 per acre or an increased profit over grain of $21.15, over beans of $11.65, over potatoes of $13.40 and over peas of $26.15.

Not only is the sugar beet a paying financial crop in itself but its effect on the soil is markedly beneficial. The deep plowing and thorough cultivation necessary to fit the soil for the beet crop, kill weeds, improve soil texture and make a greater depth of soil available for future crops. The beet itself sends penetrating rootlets deep into the ground forcing the soil particles apart. In decaying these roots leave open channels which greatly facilitate the entrance of air and water. In its growth plant foods are taken from deep down in the lower strata of soil, brought up to the leaves, there to be evaporated and stored in the crown of the plant. In topping this crown is left on the land and in future rotting the store of plant food becomes available for other shallower rooting crops.

Just as the sugar beet has played an important part in the past development of the Salinas Valley and the neighboring sections, even so should it prove a valuable ally in the future. As I speak a spirit of change is noticeable over the land. Wheat and flax were profitable once, but the yields grew less and less, finally forcing the farmers into growing barley. And now barley seems to be following the way of wheat and flax. Less crops are being harvested than formerly. This naturally sets a farmer to thinking "what next?" It is not my aim to attempt to outline a remedy for the great grain fields and show how methods must be instituted which will stop this downward trend—methods involving the return of humus to the soil, the selection of better seed, deeper working of the land, and possibly the application of fertilizers. A widespread system of irrigation has been suggested as the ultimate remedy but this in itself will only postpone the evil. It will not do away with it. What I wish to do is to suggest the greater use of the sugar beet on such lands as will grow it profitably. All lands are not adapted to the sugar beet, but lucky is the man who has a kind of soil which will produce them, for their effect, as outlined before, will go far towards correcting evil conditions. More beets can well be considered for this Valley, and in their growing both farmer and soil will benefit.

As to the effect on the soil from continuous cropping. On the company's

(Continued on Page 751.)

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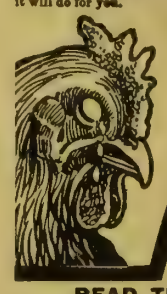

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1 Queen, 75 cents;
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Larger quantities quoted on application.
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Household Department

THE THREE FISHERS.

Three fishers went sailing out into the west,
Out into the west as the sun went down;
Each thought on the woman who loved him the best,
And the children stood watching them out of the town;
For men must work, and women must weep,
And there's little to earn and many to keep,
Though the harbor bar be moaning.

Three wives sat up in the lighthouse tower,
And they trimmed the lamps as the sun went down;
They looked at the squall, and they looked at the shower,
And the night-rach came rolling up ragged and brown.
But men must work, and women must weep,
Though the storms be sudden, and waters deep,
And the harbor bar be moaning.

Three corpses lay out on the shining sands
In the morning gleam as the tide went down,
And the women are weeping and wringing their hands
For those who will never come home to the town;
For men must work, and women must weep,
And the sooner it's o'er, the sooner to sleep;
And good-by to the bar and its moaning.—Charles Kingsley.

THE CAT THAT KILLED CARE.

The most characteristic feature of Mrs. Roswell's countenance was the deep,bow-shaped line that indented her forehead just above the bridge of her not at all remarkable nose.

Her maiden sister. Georgiana Keith, bore the same distinguishing mark, and it was likewise reproduced, in slighter degree, on the youthful brows of Mrs. Roswell's two daughters, Elizabeth and Dorothea. All four were what Mr. Roswell called "born worriers," and Mr. Roswell's name for the bow-shaped mark was "Mother Keith's anxious pucker," because his mother-in-law possessed the depest "anxious pucker" of all, since her's was the monument of seventy years of unmitigated worrying.

Yet at the time of this tale Mrs. Roswell was certainly the most active worrier of the entire quintet. It was that little woman's habit to worry for three months about the spring house-cleaning, and actually to accomplish the dreaded task in less than three weeks. She worried for two nights and a day over the concocting of a cake that really required less than half an hour for the baking. She worried for weeks over discharging a cook, when the actual deed could be accomplished in rather less than two minutes.

"Now, Mary," Mr. Roswell said on one occasion, when his wife confessed that she had worried all night over the problem of using up an overlarge roast of beef, "you've been in a bigger stew for twenty-four hours than you can ever hope to make of that meat. If you can't get it off your mind any other way, you'd better go down stairs at once and put it on the stove—or in it. You do enough worrying over managing this one small household to run all the affairs of this country, and Russia besides."

"I know it's foolish," Mrs. Roswell had replied, "and I don't mean to worry, but I can't help doing it."

Why a certain lean, homeless, neglected half-grown cat with a tremendous craving for human sympathy should have selected the Roswell cottage for a permanent home is one of the things that are past finding out. Mrs. Roswell, her mother, her sister Georgiana and her two daughters had always felt that they had enough to worry about without acquiring a cat.

But the Roswells had nothing to say about it. The cat claimed them as his own, and refused to give them up. He was not a prepossessing pussy. His fur was dingy and matted, his paws were stained with mud, and his long, extremely slender tail, had a curious spiral twist some inches from the tapering end.

But never was there a more loving, more demonstrative cat. Henry, as they finally called him, cuddled in all the Roswell laps, leaped to all the Roswell shoulders, twined himself tenderly about all the Roswell ankles. The affection, however, was all on Henry's side. No neat and tidy Roswell could bring either himself or herself to the caressing of such a decidedly unkempt creature.

"Dear me," said Mrs. Roswell, "that cat is so dreadfully grimy that it isn't possible to tell what color he is. He must have lived in somebody's coal bin before he came to us."

"He has licked one leg quite clean," said Elizabeth, dislodging Henry from her lap. "He seems to be yellow, with a pinkish cast, like Aunt Georgiana's changeable silk waist."

"He's just the shade of maple frappe," observed Dorothea, hastily tucking her ankles under her to save them from the sinuous caresses of demonstrative Henry. "Just think of owning a maple frappe cat!"

"I've been worrying for five days," said Mrs. Roswell, "about that animal. He must be washed, but how in the world can the thing be done? I've never washed a cat."

"You mustn't think of doing it!" cried Grandma Keith. "Some cats go perfectly mad with terror at sight of water."

"Yes," said Elizabeth, "I know it's dangerous. The Millards washed their Angora cat, and Grace was scratched clear to her elbows."

"We'll have to send the poor thing away," declared Mrs. Roswell, drawing her skirt from under Henry, who was settling down for a nap. "He has already caught three mice and two rats, and I'd rather like to keep him if his fur was only decently clean, but he does look too disreputable for words."

"If you'll give him time," said Mr. Roswell, kindly permitting Henry to lick his shoe, "he may get himself clean."

"He can't!" declared Dorothea. "There's more of him to wash than there was last week, and he wastes all his best licks on us."

"He has nice eyes," said Aunt Georgiana. "His manners are certainly ingratiating and his craving for affection is almost human. Do poke him a little with your foot, John . He is so hungry for a little appreciation."

Mr. Roswell poked. Henry instantly responded with a deep, sonorous purr.

Mrs. Roswell, her mother, her sister and her two daughters worried considerably about the feeding of Henry. They even wrote to a woman's magazine to ask how many mice a middle-sized cat should be permitted to eat in one day, and if rats would injure the digestion of a pussy of tender age. But, above all, it was the problem of giving Henry a much-needed bath that brought the deepest wrinkles to all the Roswell brows.

Henry, in a dry state, was a peaceable, thoroughly good-tempered cat. Henry, wet, might prove a veritable demon. He certainly cried aloud for at least one bath, yet who of all the Roswell's would undertake to bathe a soiled, maple frappe, half-grown cat?

"Not I," said Grandma Keith.

"Nor I," shuddered Elizabeth.

"Nor I," echoed Dorothea. "It's a pity we can't send him to the steam laundry to be mangled with the sheets."

"Or," said Mr. Roswell, "to the Chinaman to be starched with my shirts. Perhaps Bridget—"

"Sure, and I'll not!" declared Bridget, when approached. "You never can tell what mischief a wet cat will do."

"But," argued Mrs. Roswell, "somebody will have to wash him. Suppose we draw lots—"

"Will you do it," queried Mr. Roswell, "if the lot falls to you?"

"No," admitted Mrs. Roswell.

"They're a nice lot, aren't they,

Henry," said Mr. Roswell, "to be so afraid to wash one small harmless yellow cat?"

"O John! Will you—"

"No, ma'am! I washed a cat once—once was enough for me. Why don't you send to the hospital for a trained nurse?"

This suggestion was made in fun; but later in the day Mrs. Roswell was reminded of it. She had gone to visit a sick neighbor, and in the goodness of her heart, had offered to sit with the patient long enough for Miss Ball, the nurse, to take a little run in the fresh air.

"Thank you very much!" said the girl, returning half an hour later with glowing cheeks. "I feel lots better for my walk. I'll do as much for you some day."

"Did you ever happen to wash a cat?" asked Mrs. Roswell, suddenly remembering Henry.

"Lots of times. We used to own a white one that had to be scrubbed twice a week because she would sleep in the coal-scuttle."

"Would you—wouldn't you—would you——" began Mrs. Roswell, her anxious pucker deepening suddenly, "would you——"

"Would I wash a cat for you? Why of course I would—if—if it isn't a very fierce cat!"

"Oh, Henry isn't fierce when he's dry," returned Mrs. Roswell. "He's remarkably sweet-tempered. But we're so afraid water will alter his disposition that we've worried for three weeks over the problem of washing him."

"I'll come over at ten tomorrow," promised Miss Ball, "to take a look at him. Have a foot-bath and some good common soap and plenty of hot water ready in a warm room. If he looks at all promising, I'll tub him."

The assembled Roswells, fairly shivering with excitement, stood in a circle in the kitchen the next morning while Miss Ball tested the water in the foot-bath with her thermometer. Then she gently disengaged Henry from Elizabeth's ankles, and lifted him into the tub.

Grandma Keith backed into the pantry, Aunt Georgiana fled hastily up the back stairs, and the others shrank against the wainscoting, to make ample room for the flying leap of a frantic, dripping, revengeful cat.

But there was no leap. Instead, Henry deeply grateful for such an unusual amount of attention, sat up and purred while Miss Ball rubbed every scrap of him with soap except his contented eyes. Then she rinsed him with gentle showers of clean warm water, and Henry, sitting knee-deep in the pleasant flood, purred louder than ever.

"And to think," said Dorothea, who held Henry, still purring, wrapped in a shawl before the grate to dry, "that this whole foolish family worried for three weeks over washing a cat that would rather be washed than not! Just see how proud he is of his nice white paws."

"Yes," returned Mrs. Roswell, whose brow was smoother than it had been for many days, "all my worries turn out just that way; but I don't believe I shall ever be able to worry again without thinking of Henry sitting up in that tub and purring with all his might and main. Nothing ever made me feel so foolish."

"Then this," said Dorothea, twinkling, "may prove to be the cat that killed care."—Youth's Companion.

MEXICAN FRIJOLE SOUP.

Pick over and wash well 1 pint haricot or brown beans, put into cold water to cook; after boiling slowly for 10 minutes, drop in a piece of soda about as large as one of the beans and allow to boil five minutes more. Turn into colander and pour cold water over until the soda water is well rinsed off. Put back into the kettle, put on more cold water and let boil for an hour. Put in some bits of fresh pork, slice a good sized onion thin, put in and let boil until the beans drop to pieces. Season with salt, a dash of cayenne pepper and thin with a pint of cream or rich milk. When done it should be of the consistency of thick gruel. Serve with bread sticks or crackers. If pork is not liked, put in butter size of walnut with the milk. This takes about two and a half hours to cook. The recipe is given is for a family of six. Try it.

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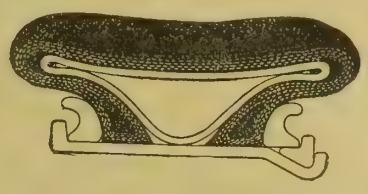
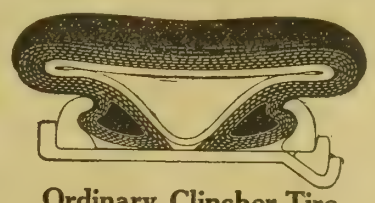


The No-Rim-Cut Tire

This tire fits any standard rim. Simply reverse the removable rim flanges—that is, slip them to the opposite sides. They will then curve outward, as shown in the picture above. The tire comes against a rounded edge, and rim-cutting is made impossible.



Ordinary Clincher Tire

In the ordinary tire—the clincher tire—the removable rim flanges must be set to curve inward. They must grasp hold of the hooks in the tire base, to hold the tire on. Note how those thin flanges dig into the tire when deflated. That is the cause of rim-cutting, which may wreck a flat tire in a moment.

10% Oversize

The No-Rim-Cut tire, where the rim flanges flare outward, can be made 10% over the rated size and still fit the rim. And we give you that oversize without extra cost.

That means 10% more air—10% greater carrying capacity. And that, with the average car, adds 25% to the tire mileage.

This oversize takes care of your extras—top, glass front, etc. It avoids the overloading which causes blow-outs on nine cars in ten which have skimpy tires.

These two features together—No-Rim-Cut and oversize—will under average conditions, cut tire bills in two. Yet these tires cost you nothing more than other standard tires. Do you wonder that men who know these tires insist on getting them?

GOODYEAR
No-Rim-Cut Tires

Our latest Tire Book, based on 12 years spent in tire making, tells many facts which motorists should know. Ask us to mail it to you.

THE GOODYEAR TIRE & RUBBER COMPANY, 90th Street, Akron, Ohio

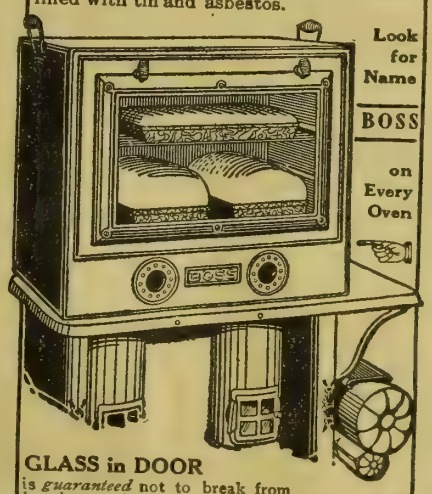
Branches and Agencies in 103 Principal Cities *We Make All Sorts of Rubber Tires*

(324)

USE A PORTABLE
BOSS OVEN
With Patented **GLASS DOOR**

on *your* stove or range, either oil, gasoline, acetylene, alcohol or gas.

No more spoiled bakings or worry—No more wasted heat—No more jarring or chilling of oven. Housewives can see their baking without opening door. Economy and convenience both guaranteed in the BOSS—a polished blued steel oven lined with tin and asbestos.



GLASS in DOOR

is *guaranteed* not to break from heat because it is secured by our patented *yielding pressure* retaining strips, which permit expansion and contraction. Glass door fits snugly in one-piece beaded front, and is held tightly in place with two turnbuckles, preventing escape of heat.

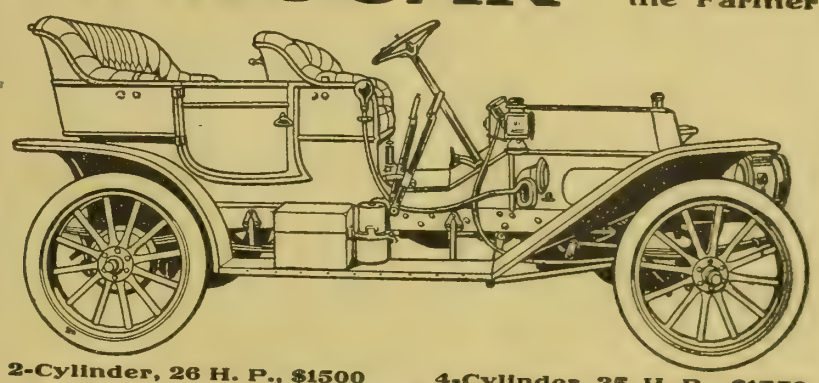
Baking qualities and ventilation superior to any other oven or range. All heat goes right into the open bottom, and is perfectly distributed to all parts of the oven by means of our patented Heat Deflector. Flame always visible through small mica windows. With the BOSS a baking costs *less than a cent.* It will many times over *pay for itself* in saved bakings to say nothing of saved fuel.

Ask YOUR Dealer to show you the BOSS Glass Door Oven. INSIST upon seeing the name "BOSS" stamped in the front of Oven. Then you know that it is genuine and *guaranteed.*

FREE: Our valuable Recipe Book, containing many cookery helps and full description of BOSS Ovens sent FREE on receipt of postal, plainly written, giving your own and your dealer's names and addresses.

THE HUENEFELD CO. 2738 Spring Grove Ave. Cincinnati, O

DUROCAR
The Car for the Farmer



2-Cylinder, 26 H. P., $1500 **4-Cylinder, 35 H. P., $1750**

Made in Los Angeles and factory open to your inspection. Come and see us.

Both Phones **Durocar Mfg. Co.,** 935 S. Los Angeles St. Los Angeles, Cal.

ARE YOU ONE OF THEM?

There are multitudes of young people who are not in the public schools, but who look to the business college for the special educational training and finishing needed preparatory to lucrative business employment. Of such the major portion of a thousand enroll every year at the ISAACS-WOODBURY—the recognized leader since 1884.

We have abundant teaching force of the highest grade, clean and inviting rooms, with perfect light and ventilation—100 FEET ABOVE STREET NOISE AND DUST. Call, write, phone. New Catalogue—27th year.

The Isaacs-Woodbury Business College

5TH FLOOR HAMBURGER BLDG., LOS ANGELES

F1850 Edward King Isaacs, Pres. MAIN 2305

No wrong by wrong is righted.

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June 21, 1911.

Butter.

Butter dropped off a half cent on locals and demand was brisk. Receipts 49,719 pounds.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	22½
Firsts	21½
Ladies	18
Country	15
Eastern	21

Cheese.

Local Anchor	16
Oregon Daisy	16@16½
Northern	14½
Domestic Swiss	18
Imported Swiss	30@32

Eggs and Poultry.

This week shows a lower market on all eggs but Eastern; a two cent drop all round.

Paying price f. o. b. Los Angeles is:

Local Ranch, candled	24
Case count buying price	20
Northern and Imperial	18@22
Eastern	21

Dealers pay for live poultry f. o. b.:

Hens, per lb	13@15
Roosters	8
Broilers	18
Fryers	20@22
Roasters	19@20
Turkeys	20@23
Ducks	14@15
Geese	15
Guinea hens, doz	4.00
Squabs, doz	2.00

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7@7¼
Prime steers	6
Heifers	6
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Sweets, yellow, lug	3.50
Sweets, red	3.00
New potatoes, lugs	75@85
New Local, cwt	2.25@2.35
Texas Early Triumph	2.25@2.50

Onions.

Wholesale quotations:

Silverskins, ctl.	3.00
Bermudas, crate	2.00
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	35@65
Asparagus, lb	4@6
Beets, doz. bunches	20@25
Bell peppers, lb.	35
Beans, lb.	3@5
Beans, wax	4@6
Green chilis	18@20
Cucumbers, dozen	20@75
Cabbage, sack	1.15@1.30
Celery, doz	75@1.00
Carrots, doz	20@25
Corn, lug	60@1.00
Horseradish, lb	12½
Onions, green, doz bunches	10@15
Kolrabi, doz bunches	40
Leeks, doz	35@40
Lettuce, crate	75@85
Mushrooms, basket	3.50@4.00
Oyster plant, doz	35@40
Okra	4@5
Peas, lb.	3@5
Parsley, doz bunches	20@25
Parsnips, doz bunches	20@25
Radishes, doz bunches	15@20
Rhubarb, Strawberry	1.75@2.00
Spinach, doz	15@20
Squash, summer	35@40
Spearmint, doz	25@30
Tomatoes, Mexican, crate	90@1.35
Turnips, doz	30@35
Watercress, doz	25@30

Citrus Fruits.

Valencias	2.25@2.75
Navels	3.00
Grapefruit	1.75@3.25
Lemons	1.75@5.00
Limes, hundred	1.25

Fresh Fruits.

Wholesale prices on the market are:

Apricots, crate	1.25@1.50
Pearmains	2.75
Currants	8@10
Cantaloupes, ponies	75@1.00
Cantaloupes, standard	1.20@1.35
Cherries, black, bulk lb	8@10
Cherries, white, bulk, lb	5@7
Figs, box	1.75
Grapes, Sweetwaters, crate	1.10@1.35
Grapes, Thompson Seedless, lug	2.00
Grapes, Black, crate	1.50
Bananas	4@4½
Loquats, lb	4@6
Loganberries	7@8
Peaches, lug	1.25@1.50
Pineapples	7@8
Plums, Clymans, lug	2.00
Dewberries	4@5
Blackberries	4@6
Raspberries	5@6
Gooseberries, lb	8@10
Strawberries	4@6
Watermelons, lb	1@2

Dried Fruits.

Wholesale prices are:

Apricots	13@16
Evaporated Apples, fancy, lb	13½@14
Figs, box	1.85@2.25
Peaches	8@10
Nectarines	10
Pears	13@14
Prunes	11@14
Plums	10@11

Beans Dried.

Wholesale quotations:

Limas	6.25@6.50
Black eyes	6.50
Pinks	6.25
Lady Washington	4.25
Small white	4.00
Mexican reds	5.00@5.25
Garvanzas	4.50
Bayous	4.50
Lentils	6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	16@16½
Chestnuts	10@12
Almonds, IXL, lb	16@17
Pecans, polished	15@16
Peanuts, Eastern	7½@8
Peanuts, California	6½
Pine Nuts	18@20

Honey.

Wholesale quotations:

Extracted water white	9
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

New barley hay	10.00@12.00
No. 1 old barley hay	12.00@13.00
Wheat hay	12.50
Tame oat	13.00@14.00
Alfalfa	12.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.85
Corn	1.70@1.75
Kaffir	1.75
Millet	3.25
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.90
Seed barley	1.50
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.70
Cracked wheat	1.95
Shorts	1.90
Bran	1.65
Oil cake meal	2.50
Feed meal	1.75
Rolled barley	1.50

San Francisco Market

SAN FRANCISCO, June 20, 1911

Butter.

Butter holds fairly steady with occasional fractional change. Demand on all grades is good.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	22½
California extras, lb	21½
Prime firsts	21
California firsts	20
Seconds	19

Cheese.

Cal. flats	10@11½
Cal. Y. America, fy, new	12½@13
Oregon, fancy	13½

Eggs and Poultry.

Eggs are reported in good request, extras and pullets go up a half cent.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	21½
Prime firsts	19½
Firsts	19
Seconds	17
Eastern seconds	15
Select pullets	18
Select pullets	17½
Hens, doz	4.50@9.00
Fryers, doz	5.00@6.00
Ducks	5.00@7.00
Broilers	2.00@3.50
Roosters, doz	4.00@9.00
Geese	2.00@2.50
Pigeons	1.75@2.50
Squabs	2.00@2.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	4.50@5.50
Cows and heifers	3.50@4.75
Calves, lb	5@6½
Hogs	5@7
Wethers, No. 1, unshorn	4½@4¾
Milk lambs	5
Ewes, No. 1, unshorn	4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

Oregon, cwt.	3.00@3.50
New potatoes, cwt	2.00@2.75
Early Rose	2.00@2.50
Eastern	2.00@2.50
Burbanks	2.50@2.75

Onions.

Australian	2.75@3.00
New green, box	50@65
Red, new, sack	1.50@1.75
Bermuda, seed	2.00
Silverskins	1.50@1.75
Garlic, lb, new	3@3½

Vegetables.

Wholesale quotations:

Asparagus, box	50@1.50
Beans, string and wax	3½@4
Bell peppers	10@15
Carrots	60@75
Cucumbers, box	75@1.00
Corn, doz	10@40
Celery, crate	1.50@2.50
Chili peppers, lb	12½@15
Cauliflower, doz	75@1.00
Egg plant, lb	15@20
Lettuce, crate	75@2.00
Okra, lb	6@10
Peas, sack	1.00@1.50
Rhubarb, strawberry	1.00
Summer squash, lug	75@1.75
Tomatoes, crate	65@1.50
Turnips	60@75

Citrus Fruits.

Navels, new	1.25@3.00
Valencias	2.00@3.00
Grapefruit	75@2.75
Lemons	2.00@5.25
Limes, Mexican	4.50@5.00
Tangerines, halves	1.25@1.50

Fresh Fruits.

Apricots, crate	50@1.25
Apples, box	1.90@2.25
Apples, new, green, 20-lb box	50@1.50
Cantaloupes, ponies	1.00@1.50
Cantaloupes, standard	1.25@1.50
Cherries, white, lb	4@5½
Cherries, black, lb	5½@7
Cherries, black	75
Currants, drawer	90@1.15
Currants, chest	8.00@9.00
Figs, box	1.75@2.00
Peaches, box	50@1.00
Plums, box	75@1.00
Loganberries, chest	3.00@4.00
Blackberries, chest	4.00@5.00
Raspberries, chest	10.00@18.00
Gooseberries, drawers	75
Strawberries, Lgwths, chest	7.00@9.00
Malindas, chest	4.50@6.00
Pineapples, Hawaiian	2.00@3.50
Bananas	1.00@1.50

Dried Fruits.

DRIED FRUITS—1911 crop, f. o. b., carload lots, per lb.—Apples, 8¾@9½c; Apricots, 15½@17c; Peaches, 9@10½c; Prunes bulk basis, 4¼@5¼c; per lb, 4@7½c, with a premium of ½@1c on large sizes; Figs, 5@6c for white; Pears, nominal.

RAISINS—1911 crop; Seeded, per pkg—Fancy, No. 16, 7½@7¾c; Choice, No. 16, 7@7¼c; Loose Muscatels, in 50-lb boxes—Standard, 4-crown, 6½@6¾c; do, 3-crown, 6c; do 2-crown, 5½c. Seedless—Muscatels, 5c; Sultanas, 6@6¼c; Thompsons, 6¼@6½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10, N P U	15c
Almonds, 10 Nonp	17
Almonds, '10, I X L	16
Almonds, Peerless	13½
Pecans	14@17
Chestnuts, California	6@8
Peanuts	5@5½

Beans Dried.

Limas	6.30@6.40
Pink	4.75@4.90
Black eyes	6.75@7.00
Small white	3.35@3.45
Large white	3.25@3.35
Kidneys	6.25@6.35
Garbanzos	2.50@3.25
Bayou	3.90@4.00
Horse beans	3.50@4.00
Red Mexicans	5.35@5.50
Cranberry	3.75@3.90

Hops.

Hops, coast, 1910	22@24
Hops, 1911 contracts	21@25
Hops, Oregon, 1911	22@25

Honey.

Water white, comb, '11	15
Dark comb	12½
Extracted white, '11	9@10
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner & Miller say:

Arrivals of Hay during the last six days have amounted to 2100 tons; this shows a further decrease over the past several weeks. All offerings of hay have moved off remarkably slow, excepting something strictly fancy.

Practically the entire amount that we have been receiving has been of the old crop. No horse hay of the new crop has been moving into the market as it is not being sought at the present time for the reason that there is so much old hay available which the consumers prefer. Harvesting is in active process, and considerable baling has already been done, and it is now thought that the quantities will be heavier than anticipated.

The shipping of hay on export account has been light, and there has been no demand in any direction to take any quantity of hay to relieve the situation here.

We quote the wholesale prices in round lots on today's market as follows, viz:

Fancy wheat hay	13.50@14.50
No. 1 wheat or wheat & oat	11.00@12.00
No. 2 wheat or wheat & oat	10.00@11.00
Choice tame oat	10.00@12.50
Other tame oat	8.50@10.50
Wild oat	9.00@10.00
Stock hay	6.00@8.00
Alfalfa	9.00@10.50
Straw, bale	40@50

Grain.

Barley, fancy	1.28¾@1.30
Barley, good to choice	1.25@1.27½
Oats, white	1.50@1.60
Rye, new crop	1.42½@1.50
Mustard, brown	5½
Alfalfa seed	5½
Millet	3@3½
Flaxseed	5@5½
Broom corn seed, ton	25.00

Feed Stuff.

Alfalfa meal	14.00@15.00
Bran, ton	27.50@28.50
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	28.00@29.50
Rolled oats, ton	29.00@30.00
Middlings	32.00@34.00
Oil cake, ton	40.00@41.50
Cocoanut cake, ton	25.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	28.50@29.00

Deciduous Fruit Market

Sacramento, June 17, 1911.

Manager McKevitt of the California Fruit Distributors reports:

The following gives number of cars of deciduous fruit shipped from all points in California for the week (seven days) ending Friday morning, June 16, 1911:

Cherries—43¼ cars: Shipment of this fruit from the early section is finished, supplies coming almost entirely from the Santa Clara Valley at the present time. A considerable volume of shipments from that section will continue for the next week or ten days.

Apricots—16¾ cars: Royal apricots are moving in considerable volume now and shipments of this variety will continue to increase for the next two weeks. From this time forward we will have abundant supplies to meet all shipping requirements, although, as is well known, the crop of apricots in the early section is very light this year. Fruit is coming principally from the Vacaville and Winters section.

Peaches—3½ cars: Alexander peaches are now ripening rapidly. The first few boxes of Triumph have already made their appearance. Next week will nearly finish the Alexanders and should show a considerable volume of Triumph, which is our earliest yellow peach.

Plums—3½ cars: Clyman constitutes the principal variety of plum now being shipped. The first few scattering crates of Tragedy, Burbank and Climax are now going out from the early sections. All varieties will be more plentiful next week, and the heavy plum movement will probably be in full swing within the next two weeks.

The outlook for pears and grapes continues to be all that could be desired. Pears are growing rapidly and the grape crop never looked better than it does at this time. Bunches are large and well formed, berries are well developed for the stage of growth, and unless the unexpected happens this crop will be as fine as was ever harvested in the state.

Weather: Weather conditions are now ideal.

Citrus Fruit Market

Los Angeles, June 21, 1911

Oranges are stronger and lemons are weaker. The orange market is looking materially better than a week ago, caused in part by the cleaning up of Navels and other of the earlier fruits. Strictly fancy Valencias are now selling so as to bring $2.75 f. o. b. California, but such sales are the exception and the usual run of the Valencia cars will net not far from $2.25. Even the auction markets feel the impetus of the improved trade and good sales are universal.

A bit of disappointment is felt amongst lemon growers at a decided falling off in the lemon demand; this just preceding the Fourth of July trade was not anticipated, but the weather has taken a change toward the cooler, more favorable to humanity and less so to the lemon trade. In addition imports have been strong in anticipation of the big prices. These circumstances have resulted in the loss of approximately $1.00 a box. While that means much to the grower there is still a good showing for $4.00 to $5.00 f. o. b. Eastern points is now obtaining instead of $5.00 to $6.00 as in the past two weeks.

Shipments.

Shipments of oranges to date since November 1st, 1910: 31,416 cars; lemons, 4,661; total, 36,077. To same date last season: Oranges, 21,893 cars; lemons, 3,093; total, 24,986.

LOS ANGELES, June 14.—Six cars Valencias, one car St. Michaels, one car seedlings, one car lemons sold.

	Avge.
Sweetest Yet, fy, Valencias, Riverside, not shipped	$2.10
Sweetest Yet, ch, Valencias, Riverside, not shipped	1.85
Sylvan, fy, or, Valencias, Pomona, shipped June 13	2.10
Blue Ball, ch, Valencias, Pomona, shipped June 13	1.85
Woodland, fy, Valencias, Orange, shipped June 12	2.12½
Blue Ball, ch, Valencias, Orange shipped June 12	1.87½
Sylvan, fy, or, Valencia, Santa Ana, shipped June 8	2.02½
Blue Ball, ch, Valencias, Santa Ana, shipped June 8	1.77½
Sylvan, fy, or, Valencias, Orange, shipped June 7	1.97½
Blue Ball, ch, Valencias, Orange, shipped June 7	1.72½
Sylvan, fy, or, Valencias, Orange, shipped June 8	1.95
Blue Ball, ch, Valencias, Orange, shipped June 8	1.70
Red Raven, fy, St. Michaels, Riverside, shipped June 12	1.10
Red Raven, ½ boxes, St. Michaels, Riverside, shipped June 12	.55
Heap Good, or, Seedlings, Riverside, shipped June 9	.75
Nacional, xc, Lemons, Orange	3.95
Dulce, sd, Lemons, Orange	3.45

LOS ANGELES, June 16.—Two cars Valencias, one St. Michaels, one seedlings and one car lemons sold.

	Avge.
Red Raven, fy, Valencias, Riverside, not shipped	$2.32½

California, ch, Valencias, Riverside, not shipped 2.07½
Sweetest Yet, ch. Valencias, Riverside, not shipped..... 2.27½
Sweetest Yet, ch, Valencias, Riverside, not shipped..... 2.02½
Red Raven, fy, St. Michaels, Riverside, shipped June 12..... 1.10
Red Raven, fy, St. Michaels, ½ boxes, Riverside, shipped June 12 .55
Heap Good, or, seedlings, Riverside, shipped 14th, pre-cooled and iced 1.10
California, ch, Valencias, Riverside, snipped 14th, pre-cooled and iced 1.10
Rubidoux, sd, seedlings, Riverside, shipped 14th, pre-cooled and iced 1.10
Heap Good, Valencias, or, Riverside, shipped 14th, pre-colled and iced 1.10
Heap Good, or, Valencias, ½s, Riverside, shipped 14th, pre-cooled and iced ..... .55
Heap Good, or, seedlings, ½s, Riverside, shipped 14th, pre-cooled and iced ..... .55
Nacional, xc, lemons, Orange, shipped June 13 ..... 3.95
Dulce, std, lemons, Orange, shipped June 13 ..... 3.45

LOS ANGELES, June 19.—One car Valencias, two seedlings, and two cars lemons sold.

	Avge.
Liberty Girl, fy or, Valencias, Santa Ana, not shipped	2.22½
Beach, sd, Valencias, Santa Ana, not shipped	1.97½
Rubidoux, std, seedlings, Riverside, shipped 14th, pre-cooled and iced	1.00
Heap Good, or, seedlings, Riverside, shipped 17th, all small sizes.....	1.00
Lone Paul, xc, lemons, Santa Ana, not shipped	3.72½
Beach, std, seedlings, Santa Ana, not shipped	3.52½
Nacional, xc, lemons, Orange, shipped June 13.....	3.90
Dulce, std, lemons, Orange, shipped June 13.....	3.40
Queen, ch, lemons, San Diego, shipped June 13.....	3.75

NEW YORK, June 19.—Nine cars navels, one bloods, two seedlings, three sweets, one St. Michaels, and fourteen cars Valencias sold. Market higher. Fair.

NAVELS.

	Avge.
Uplanders, or, Growers' Ft. Co.....	2.55
Red X, O. K. Ex.....	2.25
Bear, O. K. Ex.....	2.40
Red X, O. K. Ex.....	3.35
Parrot, S. A. Ex.....	2.40
Coyote, O. K. Ex.....	1.60
Lark, O. K. Ex.....	1.85
Parrot, S. A. Ex.....	2.25
Mahala, L. V. W., Brown.....	3.20
Swastika, ch, Brown.....	2.70

VALENCIAS.

Old Mission, fy, C. C. Chapman.....	$4.05
Golden Eagle, sd, C. C. Chapman....	3.05
V. V. V.....	3.50
None Better	3.10
Old Mission, fy, C. C. Chapman.....	4.10
Golden Eagle, sd, C. C. Chapman....	3.10
Corona	3.15
Corona, sd	2.65
Pioneer, Pioneer Ft. Co.....	4.00
Glendora Heights, fy, A. C. G. Ex..	4.10
Evolution, A. C. G. Ex.....	3.05
Iris, D. M. Ex.....	3.20
Violet, D. M. Ex.....	2.95
Pinnacle, O. K. Ex.....	3.60
Whittier, S. T. Ex.....	3.40
Red C, Cov., Covina.....	3.10
La Mesa, Riv. Ex.....	3.10
Golden Rule, Riv. Ex.....	2.75
Arrowhead, S. B. Ex.....	3.05
Carrier	2.80
Robusta, A. H. Ex.....	2.90
Hobo, A. H. Ex.....	2.70
Hobo "K," A. H. Ex.....	2.65
Elephant, Elephant Orchards	3.60
Elephant 2nds, Elephant Orchards..	2.90

SEEDLINGS.

Alhambra, S. T. Ex.....	$2.35
Titus Ranch, fy, San Marino G.....	2.35
El Toreador, sd, San Marino G.....	2.15

SWEETS.

Golden Cross, O. K. Ex.....	$2.60
Red X, O. K. Ex.....	2.20
La Mesa, Riv. Ex.....	2.40
Tiger, S. B. Ex.....	2.40
Colton Terrace, S. B. Ex.....	1.90
Quail, O. K. Ex.....	2.40
Queen Bee, Q. C. Ex.....	2.25
Royal, Q. C. Ex.....	1.90
Sunset, S. S. Ex.....	1.90
Lark, O. K. Ex.....	1.90
Bear, O. K. Ex.....	2.85

GRAPEFRUIT—BOXES.

Queen Bee	$3.30
Royal	2.80
Corona	1.65

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NATIONAL CO-OPERATIVE REALTY CO.
MARDEN M648 Marden Building
sident Washington, D. C.

BOSTON, June 19.—Twenty-one cars sold. Weather clear and warm. Market unchanged on oranges, easier on lemons.

NAVELS.

	Avge.
Parrot, S. A. Ex.....	$ .70
Stork, S. A. Ex.....	1.90
Parrot, S. A. Ex.....	1.75
Eagle, A. F. Ex., Highgrove.....	2.35
Orchard, or, National Orange Co....	3.40
Coyote, O. K. Ex.....	1.40
Coyote, O. K. Ex.....	1.55
Heart of Gold, A. F. Highgrove.....	2.90
Yankee Doodle, A. F. Highgrove....	2.05
Standard, sd, National Orange Co..	2.55

VALENCIAS.

Nonpariel, Cov., Covina.....	$3.60
Robusta, A. H. Pachappa.....	3.25
Robusta "R," Pachappa	2.90
Hobo "R," Pachappa	2.25
Kenilworth, A. R. Riverside.....	3.05
Twin Peaks, or, Growers' Ft. Co.....	3.65
Diamond A	3.00
Diamond B	2.60
Fox	2.15
Alta Cresta, A. H. Pachappa.....	3.80
Robusta "K," Pachappa.....	2.95
Hobo, Pachappa	2.80
Dan Patch, A. F. Highgrove.....	2.50
Peasant, A. H. Riverside.....	2.65
White Cross, sd, Growers' Ft. Co.....	3.05
Aster, or, Clt. Ft. Union.....	2.95
Good Buy	2.35
Dragon	1.75

LEMONS.

Rey, S. T. Ex., Fernando.....	$3.90
Trail, A. C. G., Lamanda Park.....	3.70
Pet, S. A. Ex.....	4.70
Pup, S. A. Ex.....	3.60
Tunnel, S. T. Ex., Fernando.....	3.65
Canyon, A. C. G., Lamanda Park....	3.60
Arab, S. A. Ex.....	4.25

PITTSBURGH, June 19.—Thirteen cars sold. Market easier, especially on small-sized oranges, easier on lemons. Cool.

VALENCIAS.

	Avge.
Pride of the West, Pioneer Ft. Co...	$2.90
Golden Rule, Riv. Ex., Riv.....	3.00
Crystal, Riv. Ex., Riv.....	1.55
Red C, Cov. Ex., Covina.....	2.90
Crystal, Riv. Ex., Riv.....	1.75
Circus, xc, Sparr Ft. Co.....	2.40
Golden, Riv. Ex., Riv.....	2.25
Homer, Q. C. Ex., Corona.....	3.05
Golden, Riv. Ex., Riv.....	2.20
Jasmine, D. M. Duarte.....	3.05

LEMONS.

Circus, xc, Sparr Ft. Co.....	$3.50
Homer, Q. C. Ex., Corona.....	3.80
Hawk, S. A. Ex.....	3.20
Goddess, S. A. Ex.....	2.60
Del Oro, ch, Sparr Ft. Co.....	3.35
Camel, Q. C. Ex., Corona.....	3.60
Mountain Crest, S. A. Ex.....	3.15

CINCINNATI, June 19.—Warm. Market declining on oranges; steady on lemons. Three cars Valencias, three seedlings, one navels and two cars lemons sold.

VALENCIAS.

	Avge.
La Paloma, Riv. Arlington.....	$2.40
Carnival, S. T. Ex., Arlington.....	2.95
Braeside, Riv. Arl.....	2.00
Cal. Beauty	3.25

LEMONS.

As You Like It, L. G., Lem. Grove..	$5.05
Royal, Q. C., Corona.....	3.90
Growers, L. G. Lem. Grove.....	3.90
O I C, Q. C. Ex., Corona.....	3.35

SEEDLINGS.

Alhambra	$2.10
Don Quixote	1.60
Red Globe	2.30
Heap Good	1.65
Rubidoux	1.10

CLEVELAND, June 19.—One car Valencias, one lemons, four mixed cars sold. Market lower. Cool and pleasant.

VALENCIAS.

	Avge.
Mother Colony, S. T. Anaheim.....	$2.95
Premium, or, Benchley Ft. Co.....	3.30
Carnival, S. T. Anaheim.....	2.45
Superior, ch, Benchley Ft. Co.....	2.80

LEMONS.

On Honor, L. G. Lemon Grove.....	$4.35
As You Like It, L. G. Lem. Grove..	4.15

ST. LOUIS, June 19.—Weather favorable. Market firm on good stock. Eight cars sold.

VALENCIAS.

	Avge.
Prairie Chicken, A. H. Prenda.....	$2.50
Albion, ch, Placentia, M. O. A.....	3.50
Santa Anita	3.10
Braeside, Riv. Arlington.....	2.85
Cambrai, sd. Placentia M. O.....	3.25
El Toro	2.80

LEMONS.

Centauria V. C., Santa Paula.....	$3.10
Stock Label, V. C., Santa Paula....	3.25
Centauria, V. C., Santa Paula.....	4.25
Stock Label, V. C., Santa Paula.....	3.70
Lemon Spray, V. C., Santa Paula..	3.20
Our Beauty, A. C. G., L. Park.....	3.60
Lemon Spray, V. C., Santa Paula....	4.10

ST. MICHAELS.

Arcadia	$3.05
Big A	3.00
Big D	3.00
Burro	2.85

SWEETS.

Arcadia	$2.90
Big A	2.75
Big D	2.75
Burro	2.70

PHILADELPHIA, June 19.—Three cars navels, three mixed cars, two cars Valencias, one St. Michaels, one sweets, one seedlings and one lemons sold.

NAVELS.

	Avge.
Quail, O. K. Ex.....	$2.20
Coyote, O. K. Ex.....	1.95
King, S. A. Ex.....	1.50

VALENCIAS.

Stag, A. C. G. Ex., Glendora.....	$4.20
Coyote, O. K. Ex.....	3.00
Fates	3.45
Salt Lake, sd, King Ft. Co.....	3.35
Pointer, A. C. G. Ex.....	3.45
Native Son, ch, King Ft. Co.....	3.90
Knight, or, Ely-Gilmore	3.45
Bishop, ch, Ely-Gilmore.....	3.05

THE EVIL OF WASTED EFFORT.

The poet, Walt Whitman, gives us in a single line, an understanding of the meaning and scope of evil:

"Nothing out of its place is good; nothing in its place is bad."

Here we can see at a glance that what we call evil in this world comes from a perversion of good, the right thing in the wrong place. Brought down to the common affairs of life, to the business of the farm, how true it is. Good work at the wrong time means wasted labor. Poor tools in place of right ones mean wasted labor.

A lack of order, care, a place for everything and everything in its place, means wasted labor. Live stock of a kind not fitted to the purpose of the farm means wasted labor. A poorly informed mind not knowing, and maybe not caring to know, the real meaning of the forces that it is dealing with means wasted labor. Badly constructed buildings where animals are forced to live in an unhealthy, unsanitary condition mean wasted labor.

And so out of this enormous sum of wasted labor, ignorance in place of knowledge, come the growing evils of a wasted soil, wasted opportunities and finally a wasted life, with but little to repay for the long years of toil it has cost.

It all comes back to things out of place. A lack of fitness. What a triumph of mind over matter, of human accomplishment, it is to be able to establish on the farm an assemblage of right things in their right places. A good word should be spoken for the humblest farmer who strives to this end.—Hoard's Dairyman.

CLOTHES MOTHS.

Woolens and furs may be kept from injury during the summer months by enclosing the same in air-tight receptacles, preferably in a perfectly tight chest made for the purpose, and placing in a shallow dish on the top of the goods some bisulphide of carbon, at intervals of three weeks, two or three times during the summer. The odor of a cedar chest, and of moth balls, may be repulsive to the insects, but does not kill. It is usually unsafe to allow woolens or furs to remain undisturbed a long time in an ordinary trunk, since as a rule such trunks are not moth-proof. Some owners of furs place them with cold-storage firms in our cities during the summer season, since the pest cannot work in a temperature below forty degrees Fah. In our own home we use a galvanized iron chest, two feet square at the ends, and three and one-half feet long. Six hooks on the cover serve to hold it tight to the chest. A chest of this size takes four tablespoonfuls of bisulphide at an application, and is not opened for three or four days after the liquid is placed therein. No light should be brought near bisulphide of carbon, as the gas coming from the same is explosive.—F. L. Washburn, Minnesota University Farm.

God made all the creatures, and gave
them our love and our fear,
To give sign we and they are his
children one family here.
—Browning.

He prayeth best who loveth best
All things both great and small;
For the dear God who loveth us,
He made and loveth all.
—Coleridge.

The two most engaging powers of an author are to make new things familiar and familiar things new.—Thackeray.

It is good discretion not to make too much of any man at the first because one cannot hold out that proportion.—Bacon.

Mountains may not have mouths and noses, but we have seen a mountaineer.

THEIR POSITION.

Bolden: Do you go in for society, Olden?

Olden: Well, Johnny has a gang, my wife has a set, and I have a crowd.—Harper's Bazar.

SUGAR BEETS.

(Continued from Page 746)

ranch No. 1 beets have been grown continuously for ten years, with only an occasional crop of barley. In 1901 the yield was 15.6 tons per acre for an average of several hundred acres. In 1909 it was 15.4 tons—practically the same. In 1910 due to favorable weather conditions this land produced an average of 19.6 tons from six hundred acres.

Since rotation is the life of the land it will pay all growers to give grave and deliberate consideration to the sugar beet. By growing this crop in connection with the usual bean, potato or grain crop the fertility of the land is maintained at a maximum for future handling.

Following beets the increase of other crops, with the possible exception of potatoes, is increased, greater yields than ordinary of from 25 to 75 per cent being the rule rather than the exception.

MAGNESIA-LIME.

(Continued from Page 733)

maximum content, and begin to suffer as soon as development begins, the change of color rapidly becoming acute. But planted in a normal soil, magnesia, comparatively little withdrawn from the soil by the tree and crop, accumulates, while the lime supply gradually diminishes, the trees slowly succumbing to the declining ratio of the lime, and showing for some time the mottled appearance.

But this matter will be settled by the growers themselves in a year or more, since enough of them have supplied lime to the soil of their mottled orchards, even should they desist now, to see what it will do to the trees.

SECTION LINES.

(Continued from Page 744)

or is this optional with the various owners?—Subscriber Orloff.

The law requires that the surveyor shall run the north and south lines according to the true meridian lines. After the land has been patented to individual owers, they can change the boundary lines to suit themselves.—E. L. P.

Business

VALUABLE INFORMATION.

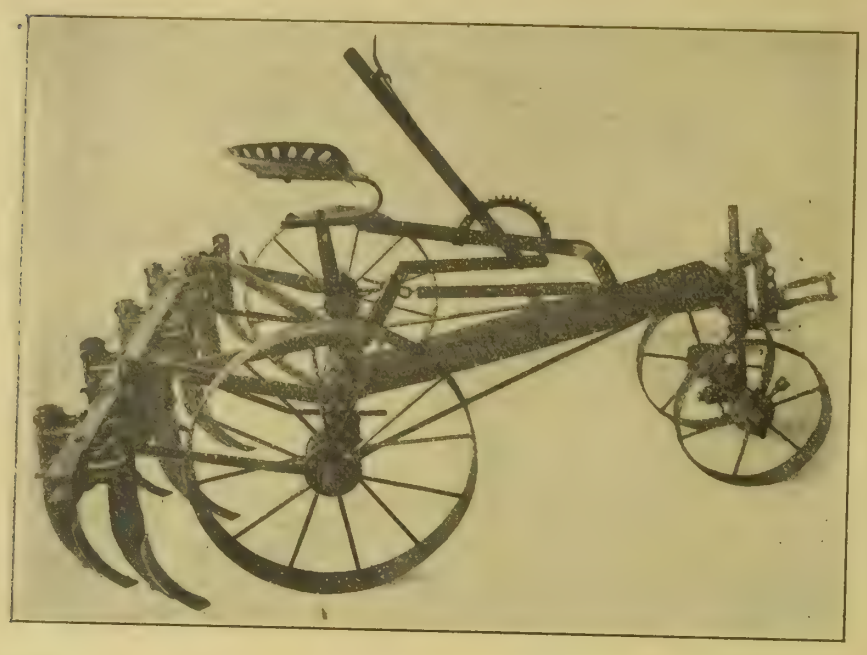
The Pacific Pipe and Tank Company of Los Angeles, San Francisco and Portland, is sending out a valuable booklet filled with information for engineers and all users of pipe for irrigation purposes. It will be mailed, if the Cultivator is mentioned, without cost to every irrigator who is interested. It contains only 24 pages, but is filled with much of interest in both text and illustrations. Part of the interesting information consists of ten reasons why the wood pipe is the most desirable to use. In the long list of specialties manufactured by this concern we note mining tanks, oil tanks, water tanks, wine tanks, gold storage tanks, vacuum settling tanks, and dozens of other appliances and complete plants.

The Junior Monarch Hay Press Company of San Leandro was established in 1865 and is permanently located in its new factory facing the railroad tracks between the Southern and Western Pacifics, and is shipping out a great many hay presses to all parts of the country. It is the largest hay press manufacturer on the Pacific Coast. Nearly seventeen hundred presses are now in use, giving general satisfaction. Its new improved power, which develops 30 per cent more horsepower than machines built formerly, is considered the best improvement made on presses in recent years.

The best day's run on record was made by Mr. Frank Rose, who baled eighty-two tons in one day, and King Brown baled sixty-nine tons in one day. These were made in adjoining fields, close to the Sacramento river, and were witnessed by a number of people.

Mr. F. W. King of Hawley, King Company, reports a good business. He states that up to date they have sold a total of 349 Southwick hay presses with particularly satisfactory sales of Buckeye Fertilizer Drills (now made to sow tankage), Deere Orchard Disc Harrows, and Flour City Gasoline Traction Engines—20, 30 and 40 H. P. The traction engine expert, direct from the factory, is for a short time making his headquarters at the store of the above named firm. Hawley King & Co. are also highly pleased with the many sales of 1911 models Oakland automobiles, a good proportion of which it is stated are being taken by prosperous California farmers.

The Arnott Improved Orchard Cultivator



WE are pleased to be able to announce that prompt shipments can now be made of the **New Arnott Cultivator** as shown above. This has been for years the most popular cultivator in the Southwest and with the **New Fore Truck** it is way in advance of any other orchard tool.

Sold by Leading Dealers everywhere, or write us direct if your dealer cannot supply you.

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EXCLUSIVE MANUFACTURERS

Give the Pomona Patent Pressure Gate a Trial

No rubber or wooden facing to rot or wear out. Absolutely water tight when closed. Locking mechanism is protected against rust or clogging with sand or dirt. Simple in construction. Cheap in price and as durable as solid iron.

THE LOCKING DEVICE is the simplest made, merely a tapering screw with split tapering nut socket. It locks the cover in any desired position or locks the faces, making an ABSOLUTELY WATER TIGHT JOINT.

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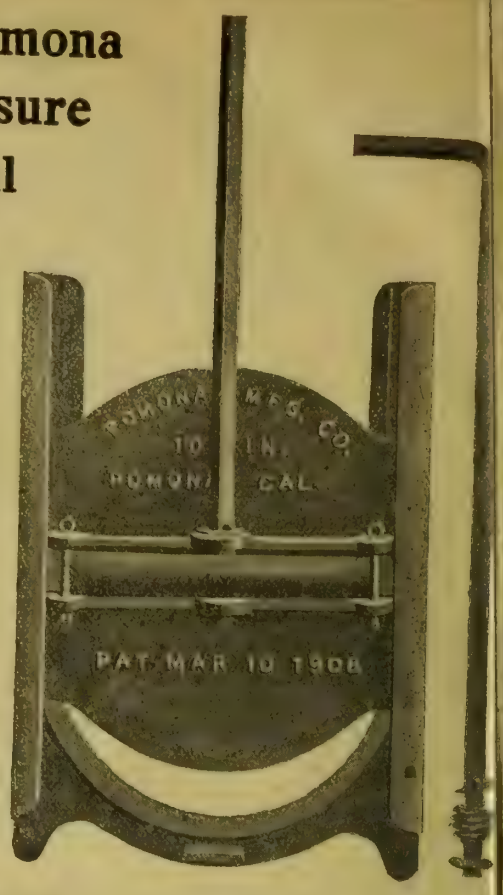

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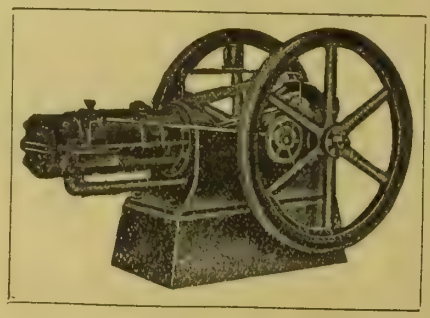

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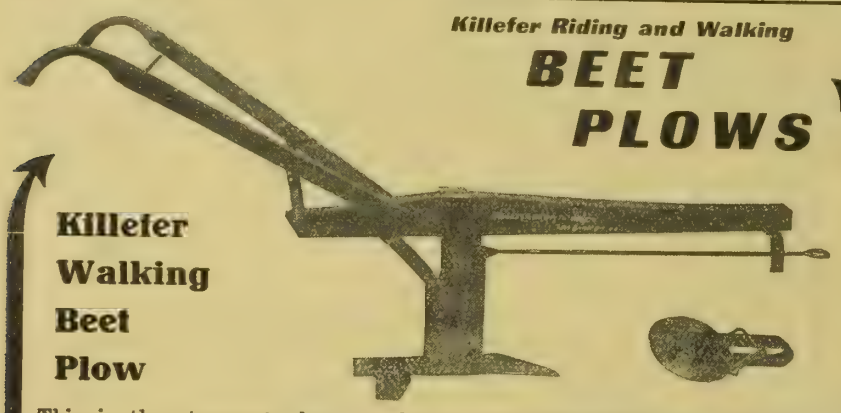
Killefer Riding and Walking

BEET PLOWS



Killefer Walking Beet Plow

This is the strongest plow on the market. Can be had with straight or offset standard, and has one piece land side. Nothing but hard plow steel is used in the Standard Shin Landside and point. Point and Shin are reversible. We guarantee this plow to do satisfactory work in any beet section.

Two Row Riding Beet Plow

It is especially adapted to large acreage, as it does double the work of single plows with but little more draft, and leaves the ground in fine condition for hauling off beets, as it does not throw up large clods.

The Standard Shin Landside Point and wings are made of very hard steel, which we have rolled for this work, and extras are always on hand for immediate shipment.

Both plows can be had with or without steering device. Write or call on us direct if your dealer does not have these tools.

Killefer Mfg. Co.

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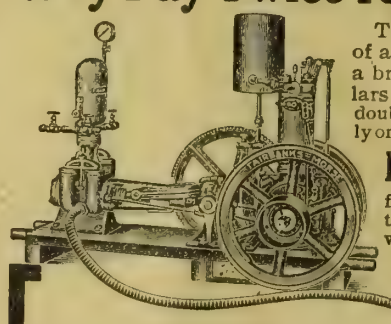
Tell us your troubles. We make special tools to order for handling special work.

Why Pay Twice for Your Spray Outfit?



The lack of sufficient pressure or the loss of a few days' time in spraying season from a broken-down outfit will cost you many dollars at the end of the season—more than double the cost of your spray outfit. Is it safe to rely on unknown outfits when you can get a reliable

Fairbanks-Morse Spray Outfit

for almost the same price? They put you on the safe side and insure your crop. Equipped with the well-known **Fairbanks-Morse** engine, they give an abundance of power and operate at the lowest cost. Then you can use this powerful engine for your work, such as pumping water, sawing wood, etc. Operates on gasoline, kerosene, distillate or alcohol. Outfit can also be furnished mounted on trucks with tower and tank complete.

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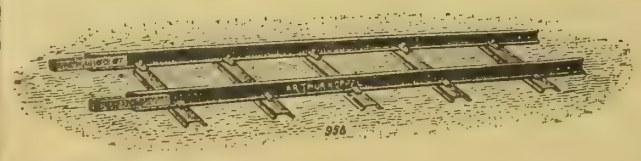

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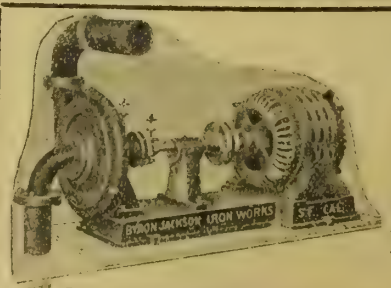

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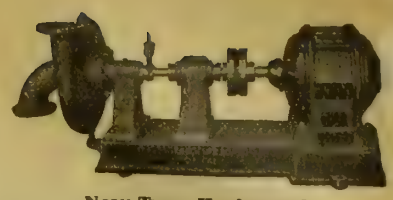
New Type Vertical Pump

Does It Not Seem Reasonable

To Assume That a Company



New Type Horizontal

which has been manufacturing one line of goods for over thirty years must be in a better position t furnish superior goods than one which has been in business a few months or years? The old concer has experienced engineers, superior shop facilities and, above all, a reputation and standing t maintain.

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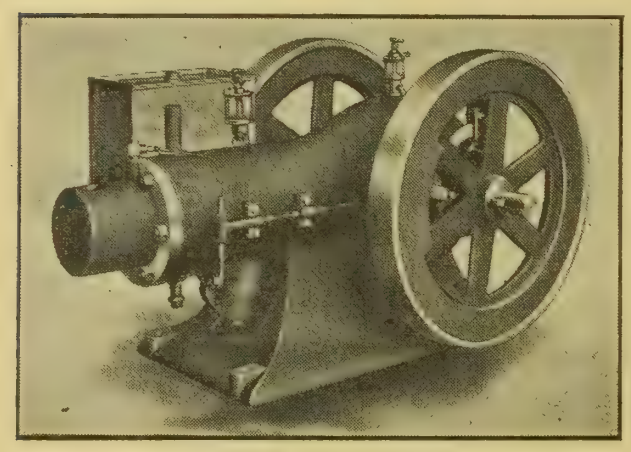

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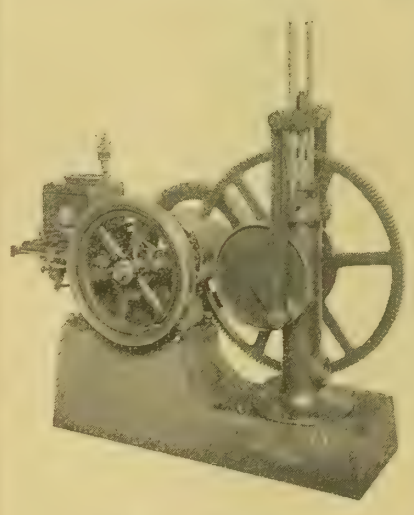
The Simple Gas Engine Co.

114 East 8th Street - Los Angeles, California

—AT LAST—



We have something to show you which will keep the boys at home and the housewife happy. No more turning the grindstone and washing machine until the back aches. Let the little engine do it. This little

Triumph Engine

is no common, cheap thing. It is made like a watch, handsome enough to put in the parlor. A ten-year-old child can set it in operation. Such a labor-saver! It will pump the water, churn the butter, run the washing machine, the cream separator, the corn sheller, the feed grinder, grind bones for the chickens, milk the cows, freeze the ice cream, rock the cradle, run the wood saw, spraying outfits, grinding mills, horse clippers, drill presses, printing presses and hundreds of other things. Only $95.00 for 2-H. P. Don't fail to call and see them, or send for circulars.

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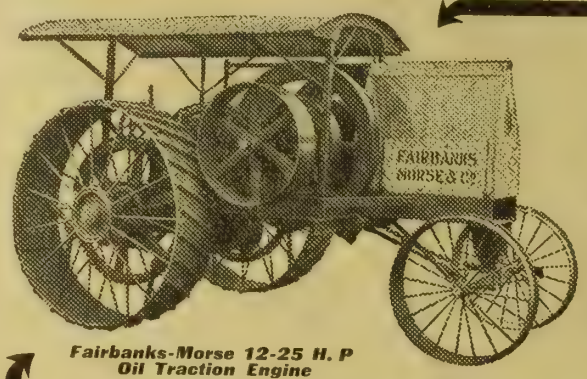

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California Cultivator

Vol. XXXVI. No. 26. LOS ANGELES: THURSDAY, JUNE 29, 1911 One Dollar the Year

Convention of the Pacific Coast Nurserymen

A Great Gathering at San Jose. Next Meeting Will be Held in Salt Lake City, Utah

On a typical Santa Clara Valley day, Secretary Brooks of the San Jose Chamber of Commerce, stood at the entrance of Saratoga Springs passing out individual cups to a bunch of Pacific Coast nurserymen. They all proved that they could drink water, and did so, for the waters of this spring are tasty and claimed to have medicinal qualities. Nor was this bunch of nurserymen all who were in attendance at that time, for hundreds of others, mostly from the valleys round about, were making a play day in the beautiful foothill sections which surround these springs. For the nurserymen this was one of the play days of a strenuous convention held in the city of San Jose. From Washington, Oregon, Idaho, Utah, Nevada, Montana and of course from California, and even from Vancouver, British Columbia, they came to discuss better business methods, and the growing of better nursery stock. We say it was a strenuous week, and every moment was filled, for the program which was given in the Cultivator of June 15th was followed out to the letter.

The play day mentioned and an afternoon spent at the grounds of the California Nursery Company were both most enjoyable and valuable as well, for the discussions entered into by members during these social times often bring out more information than do the set discussions of the formal sessions.

Mr. Eberly of the California Nursery Company proved himself as good a host as he was a poor speechmaker. Twice he was called upon to address the convention. and each time refused to comply, but in the complete meal which he placed before those visiting the grounds of the nursery company, he showed himself indeed a royal host. The best part of it was that every item on the bill of fare was a California product, at least so far as we saw in looking over the various edibles, from olives, grapefruit and cherries, to the sandwiches which we assume were made from California flour. The Shasta mineral water was likewise a California production, and it may be noted that those who did not like water were not compelled to drink it.

The first of these play day events in the week was made possible by the liberality of the Chamber of Commerce of San Jose. This body may be referred to in passing as one of the most energetic in the state in this, that it has just completed a campaign increasing its membership from something over 200 to over 2200. This was all accomplished within a ten day campaign which is the wonder of promotion bodies the world over. For the afternoon at the Niles Nursery Company's grounds Mr. Eberly acted as host, and the special train free to all delegates was supplied by the liberality of the California nurserymen and their friends.

The regular sessions of the convention were held in Odd Fellows Hall and the room was filled from start to finish of every session. Even the luscious fruits procured through the efforts of President Roeding, which were free to the attendants, were not sufficient to keep them away from the interesting discussions.

The best of feeling prevailed at all of these sessions, though at times much earnestness was manifested. This was particularly true on the day when Commissioner Jeffrey made his address. Nurserymen of this state have at times felt that county and state commissions were unjust in their enforcement of state and county laws, but more recently we believe a better feeling obtains and nurserymen realize that their own best interests are served not only by joining hands with those of the commissioners, who are competent, but by encouraging them in their work of suppression of pests and prevention of entry of others. The nurserymen's business goes and comes according to the profitableness of fruits crops, and the profitableness of fruit crops depends in large measure upon suppression of pests. But delegates from other states, especially those from Utah, are still in open rebellion at legislative control. We think perhaps from their statements they are in a way justified in their attitude. For example, the Utah delegates referred to a bill presented at their last session which aimed to control the shipment of nursery stock and in addition required all nurserymen to be placed under a bond of $10,000, which amount could be used in making good to any orchardist wronged through the purchase of trees not true to name. Nurserymen from that state boldly proclaimed that they could do their own inspecting far better than any county or other "bugologist." Mr. Jeffrey's address, however, stated the matter in such a way that we believe the general feeling of the delegates was that reasonable regulation should be encouraged.

This attitude was helped along by the address of John S. Armstrong of Ontario who maintained that the best results were accomplished by joining the authorities in the enforcement of the law.

The grading of nursery stock called for a thorough discussion which was presented by Mr. Breithaupt of Richlands, Washington. He raised the point that nurserymen in dealing with each other, and the people in dealing with nurserymen, were much confused with what "Number One," "Number Two," and "Number Three" stock might be. Some nurserymen grade their stock in this way and others grade "Two to Four Feet" and "Four to Six Feet," and still others grade as to height and caliper their trees. He appealed for the latter method as being the only sane way, for sometimes nursery planted stock will grow a six-foot whip of a tree which has small vitality and calipers little larger than a lead pencil.

Pedigreed stock came in for somewhat of a discussion, but some confusion obtained as to what pedigreed stock is. The discussion was not as interesting as it would have been had not one firm taken advantage of the interest in the subject to advertise itself. We believe that nurserymen should take up the matter of pedigree, but they should also consider that pedigree means something. The fact that buds may be taken from one tree which is known to be a good producer of good fruit, does not mean that they are pedigreed. Has the history of that tree been followed back for "generations," and what is its production under all kinds of conditions. A pedigree should only come after years of testing. Mr. Shamel in his work with Washington Navels at Riverside has dropped the word "pedigree" and is using the term "performance record." In the course of years these trees or their offspring will have secured a pedigree.

One of the interesting members on the program was "Rural Out of Door Adornment," by Johannes Reimers. landscape architect with the Western Pacific Railway. This paper with "Wild Flowers in California," and in fact a large number of other very interesting features, will be given in the Cultivator and the Rural Californian.

Plainly the nurserymen were brought into more sympathetic relations and a closer fraternal feeling obtained at the close of the session. A general enthusiasm was shown for high grade work and in suggestions for legislative and other action. The next meeting is to be held in Salt Lake City, Utah, and presumably during the month of June, 1912. The new officers elected are: P. A. Dix of Roy, Utah, President; Vice-presidents, C. F. Lansing, Salem, Oregon; A. W. McDonald, Toppenish, Washington, Charles Howard, Hemet, California; C. H. Smith, Centerville, Utah; Ray I. Hartley, Emmet, Idaho; J. D. Tighe, Billings, Montana; C. L. Trotter, Vancouver, British Columbia; Secretary and Treasurer, C. A. Tonnesen, Tacoma, Washington.

CONVENTION NOTES.

In the discussion regarding standardization of fruits, a Californian referred to various claims made, especially as to our nursery stock, and suggested that the safest way in advertising our claims for fine stock was for the various nurserymen to work to the end of pedigreeing and then standardize their trees, and meantime he suggested that it might be wise to "standardize our liars."

Some nurserymen suggested the advisability of a campaign of education of horticultural inspectors. After discussion, however, we think the opinion reached was that the education might be mutual. Certain it is the nurserymen left with a determination to work more in harmony with inspectors than they have in the past.

Some nurserymen find much embarrassment in competing with Japanese nurserymen. Many of them are most unreliable and tricky in their dealings with the trade which expects reliable firms to meet the prices made by the unreliable ones. Notwithstanding this, the fact was plainly stated that the only safe way for the nurseryman is to continue along the line of offering dependable goods at living prices.

Smudge pots in prevention of damage to nurseries have been found of less value than in orchards where they have materially raised the temperature and prevented frost injury. In the Northwest strawberry growers have made extensive experiments in an endeavor to save their fruit at blossoming time, and one attendant stated that these efforts had resulted in absolute failure. He considered the smudge pot or heating stove of no value for such low-growing crops. Mr. Roeding, however, maintained that great benefit had been secured from smudging in nurseries and creating a dense smoke just prior to sun-up. This he knew in one case had saved large quantities of nursery stock.

The question as to crown gall of apple trees being less frequent in budded than in grafted trees was answered generally in the affirmative, though some claimed there was no material difference. It was the unanimous opinion that inspectors had condemned trees for root knot or crown gall which were not affected. Trees showing an enlargement at point of joining of graft and stock are not necessarily affected with crown gall. At least several delegates asserted that they had seen such trees planted which made strongest and thriftiest growth and a large per centage showing healthy roots. The claim was that this was merely the enlargement caused by the healthy, healing tissue forming the union, yet such enlargements are almost invariably classed by inspectors as infections of fungus.

Prof. Wickson's talk on the nurseryman as an educator of the fruit grower was most informal. He referred to the public spirit manifested by many nurserymen in advancing the best interests of their home communities by educating the people to give greater beauty to roadsides and lawns by liberal planting of ornamentals. Especially did he refer to certain instances where nurserymen have given without price of their stock that their communities may be made more beautiful. None, he said. are drawn upon so heavily to meet requirements of public improvements. He spoke of the President of the Association as having literally donated miles upon miles of trees for street planting. Prof. Wickson paid tribute to John Rock, saying that this state was a great beneficiary of his life.

The Utah boys all extended the heartiest invitation to the members to meet in Salt Lake City next year and promised the time of their lives to all who would come.

Portland is working for the 1913 Convention. It is hoped that in connection with it will be held the annual meeting of the National Association of Nurserymen. If this should be brought about Portland will see a jolly bunch.

Luther Burbank was scheduled for a short talk but arrived in town too late to attend the session at which he was to appear, but he accompanied the nurserymen on their trip to Los Gatos and there delivered an address on the porch of the hotel. His talk was almost wholly in regard to spineless cactus, brought out by questions put to him by the members. In referring to his productions in hand which have not been given to the trade, he said that he had "more up his sleeve than ever have been sent out" and intimated that they would be of greater value than anything yet produced.

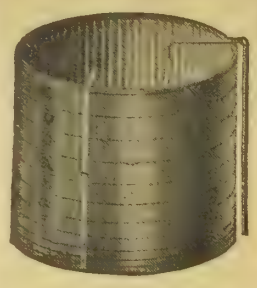
President Roeding's annual address was long and full of suggestion. From it we are able to quote at this time only a very few paragraphs regarding the possibilities of the association as follows:

"You have passed out of the period of swaddling clothes and are now on the highway leading to a stronger organization, which will ultimately count among its members not only the leading nurserymen of the Pacific Coast, but the recognized horticulturists who will assist in building up this great empire of ours, which although it stands today as the most important horticultural section of these great United States, is only in the infancy of its development. There is no institution that has not vicissitudes to pass through and our association has been no exception to the rule.

"It is due to the allegiance and perseverance of the nurserymen of Oregon and Washington, who held this organization together at all hazards, that our membership has reached a point where our strength will make us impregnable factors in dealing with horticultural problems.

"All the great irrigation problems of the day are being solved in these

(Continued on Page 771.)



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BREAKING UP HARDPAN.

When at the San Bernardino Citrus Growers' Convention we heard Mr. Kenneth MacRae speak of the satisfactory work done by an implement intended to break up the "irrigating plow sole or hardpan" which forms in all orchards where irrigation is practiced. During heavy rains of winter this hard stratum a few inches under the surface disappears, and deep plowing at that time helps in keeping it away during the early part of the coming summer. Various implements have been constructed to aid in keeping down this condition, all requiring more or less power to manipulate. Mr. McRae claims for his implement, novelty and complete effectiveness. We recently wrote him and asked for a description, together with a photograph of it. The photo is not yet available, but the description as sent by Mr. McRae is so plain that we think it will be sufficient in aiding anyone else in its construction. The first suggestion in the letter is for the making of a model to give the blacksmith the proper conception of the plan. Mr. McRae says: "Take a paper mailing tube, insert six splinters at right angles through the tube; imagine the axle, frame and wheels, and you have it."

The description of the implement we think even plainer than the description of the making of the model. It is as follows:

"Mine is built by our blacksmith and cost less than $30. To construct it we secured a piece of double steel well-tubing, four feet long, twelve inches diameter. We cut suitable holes in the pipe to admit inch and a half steel bars. These were cut in proper lengths to pass through the pipe and project sixteen to eighteen inches. In other words, these bars should be forty-eight inches long. These are drawn to a point at both ends, clamped firmly and centered inside of the pipe. For transporting along the road, wheels and an axle are necessary, so I inserted a disused heavy buggy axle, which is offset to allow it to pass the steel bars and yet have the cylinder centered on the wheels. This done and the axle fastened in the center, place the cylinder on end, spike in place, and fill with a strong concrete or cement. Then make a frame same as for a roller with a pivotal wheel in front. Put on a seat for the driver, for you will need his weight. Of course in use in the orchard the wheels are removed. Hitch on two or four horses, according to the condition of your ground, and see the steel bars cutting through the hardpan and fixing the soil to absorb the next irrigation. Care must be used not to put too many spikes in. I made the mistake first of putting in seven rows. This did not work, because the number was sufficient to support the machine and the spikes did not penetrate the hardpan.

"I believe the decadence of our groves so much talked of at the Pomona Citrus Growers Convention is caused by nothing else than this irrigation hardpan. The years of constant cultivation have created a crust which allows neither water, air nor fertilizer to go through it. Deep cultivation, especially deep plowing or sub-irrigation, destroys eight-tenths of all the feeding roots where this condition obtains. I built this machine to meet this condition and break up this crust without the destroying of those feeding roots.

"On one twenty-acre grove which did not thrive as it should I used this perforation freely last winter. The grove has taken on new vigor, has much better growth, and is in a better condition as a result. The ground readily takes twice the amount of water and makes cultivation more effective. Now, if some clever man will build one that will both prod these holes and deposit a column of sand, it will be a lasting cure. Any Cultivator readers are at liberty to have these machines built, or to use the idea with such improvements as they may suggest themselves.

"Incidentally, let me refer to fertilizing. I have used only cover crops and three to five pounds of nitrate of soda on 100 acres of groves for the past four years. The trees are looking fine, fruit is abundant, is firm and of good size. My yearly fertilizer bill used to be about $4,000; $1,000 to $2,000 pays it now. Would like to have Cultivator readers try this plan on a few rows, or say five acres. Try five pounds of nitrate of soda per tree on a few rows and put twenty to thirty pounds commercial fertilizer on the balance."

THE VALUE OF GREEN MANURES.

It is a well established fact that the soils of the arid regions are as a rule deficient in organic matter. This deficiency may be overcome to a certain extent by any of the three common methods of adding organic matter to the soil, which are as follows: (a) By green manures and crop residues; (b) by accumulations in pasturing; (c) by applications of farm manures.

Of the methods mentioned, the first is the most important and least practiced. It consists mainly in the growing of a crop which is plowed under while it is green and succulent, as it decomposes most readily at that stage. Dr. Cyril G. Hopkins, of the Illinois Station, in comparing green manures with farm manures, makes the following significant statement: "As an average, animals digest and thus destroy two-thirds of the dry matter in the food they eat, so that one ton of clover hay plowed under will add as much humus to the soil as the manure made from three tons of clover hauled off and fed, even if all the manure is returned to the land without loss by fermentation."

Leguminous crops, such as alfalfa, clover, field peas and vetches, are usually recommended for green manures. They have the special power of obtaining their nitrogen from the air through the agency of bacteria inhabiting the tubercles on the roots. Any of the above crops can be grown in the soils of the arid regions.

The characteristic advantages of green manures to the soil are as follows:

1. Increases its fertility by the large amount of organic matter which it acquires.
2. Increases its water holding capacity.
3. Utilizes soluble plant food that would otherwise escape from the soil.
4. Brings plant food from the lower soil to the surface soil.—Jas. D. Marshall, Colorado Agricultural College.

FERTILIZING ORANGES.

Sometime ago we requested Prof. J. H. Norton of the agricultural experiment station staff, in charge of the citrus experiment station at Riverside, to give to us formula for a fertilizer for citrus trees, the amount which would yield greatest percentage of profit, and while we realized in asking it the varying conditions which would affect results, we hoped for just what the Professor has sent us, his general idea. Fertilizing requires more intelligent consideration of general conditions than almost any other factor in farming, and he who would intelligently apply good coin to his soil in the form of fertilizer should make thorough physical examination. The chemical examination has much of value, but the farmer who sends a package of soil to a chemist and expects a reply stating just exactly what to do to secure good crops will doubtless meet disappointment. As a suggestion, we give herewith Prof. Norton's reply:

"I think of fertilizing as adding a definite percentage to the yield of the crop and the heavier the application of the fertilizer the less the percentage. Then it comes back to the value

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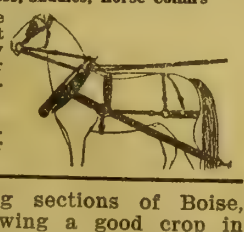

Fruit growing sections of Boise, Idaho, are showing a good crop in spite of damage feared from the early frost.

of the crop per acre as to how much fertilizer it is profitable to apply.

"I am trying to follow the practices of our most practical citrus growers as to their methods of fertilizing and from all I can gather I use in general as a basis to work from the following amounts of the three elements per acre for citrus groves: 125 pounds nitrogen, 250 pounds phosphate and 120 pounds potash.

THE OLIVE INDUSTRY.

While the olive industry in California was rather neglected for a few years, new life seems to have been given to it during the past year or so. A number of old orchards were cut down, and oranges or walnuts set out instead, but there is now a strong tendency not only to revive some of the older orchards, but also to set out new ones. The pure food law had some influence in this change, since formerly many of the producers of pure olive oil could not compete with the low priced product which contained a high percentage of cheap cotton seed oil. Furthermore, the only olives formerly sold in the eastern markets were the green pickled ones. The ripe olives have long been used on the Pacific Coast, but they had never attained popularity in the East, because they did not carry well and usually reached the eastern markets in poor condition; but since it has been learned that the ripe olive can be scientifically canned and shipped to any distance, arriving at its destination in perfect condition, the industry has received a new impetus.

In the establishing of new orchards as well as the rejuvenating of older ones, there is no question of more importance than that of the fertility of the soil.

In the earlier days of fruit growing in California the erroneous idea prevailed, and remains to some extent to this day, that the olive tree may be planted where no other fruit will thrive and that it needs little or no cultivation or fertilization. Under this idea many fortunes were wrecked in olive planting and much discredit brought upon the fruit as a profitable industry.

While it may be true that the production of the olive fruit alone does not draw heavily on the resources of the soil, nevertheless, to insure a satisfactory growth of tree, leaves and wood, the following amounts of plant food are required annually: Potash, 83 lbs. per acre; Phosphoric acid, 35 lbs.; nitrogen, 86 lbs. A mixture to provide, approximately, these ingredients would analyze: Potash 8 per cent, available phosphoric acid, 6 per cent, nitrogen 4 per cent.

This mixture should be applied in the early spring and worked well into the soil with the aid of a fertilizer drill, or by broadcasting and turning under with a plow or disc harrow.—D. I. D.

"NEFARIOUS WORK."

Lord Bacon, more than three hundred years ago, said: "There be three things which make a country great and prosperous—a fertile soil, busy workshops and easy conveyance for men and things from one place to another." Now the soil and its fertility is in charge of the farmers of the country; the workshops are in charge of the manufacturers, and the "easy conveyance of men and things" are in charge of the railroad companies in the main.

Suppose the manufacturers so handled their workshops as to constantly decrease their power of production, or suppose the railway companies allowed their tracks and cars to go to pieces, would we not hear a big howl from the farmers declaring that these two other partners in the country's destiny were lacking in patriotism and demanding the force of law at once to stop their nefarious work? Of course we would.

Well, what shall be said of us as farmers, when we deliberately destroy by our lack of knowledge and skill, the fertility of our soil on which depends at least one-third of the country's future greatness and prosperity?

Are we not lacking in patriotism Should not the force of law take hold on us and compel us to stop such "nefarious work?" Are we standing by our country as we should?—Hoard's Dairyman.

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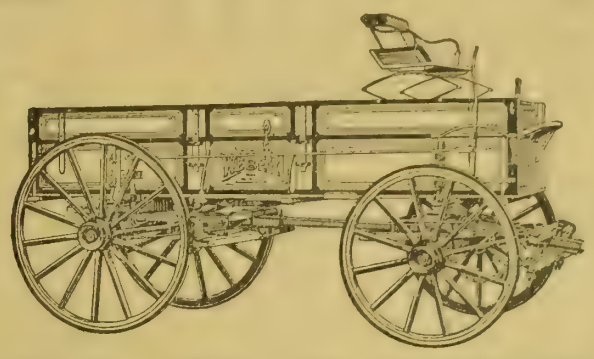

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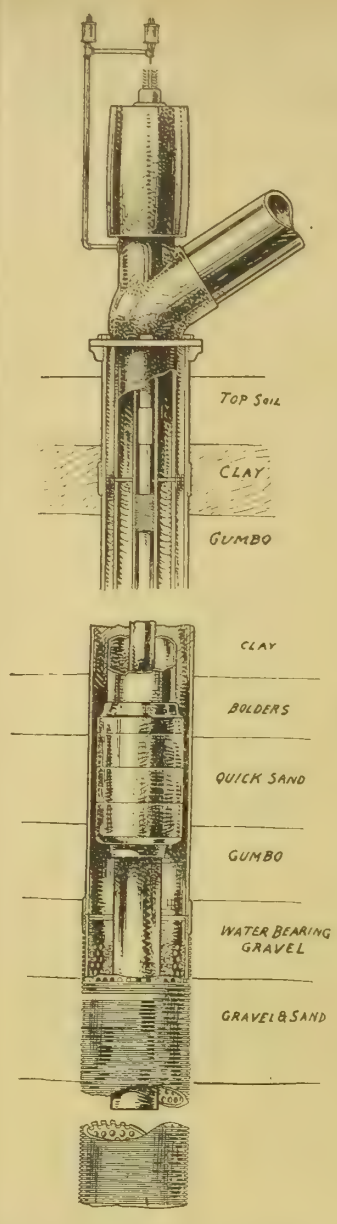

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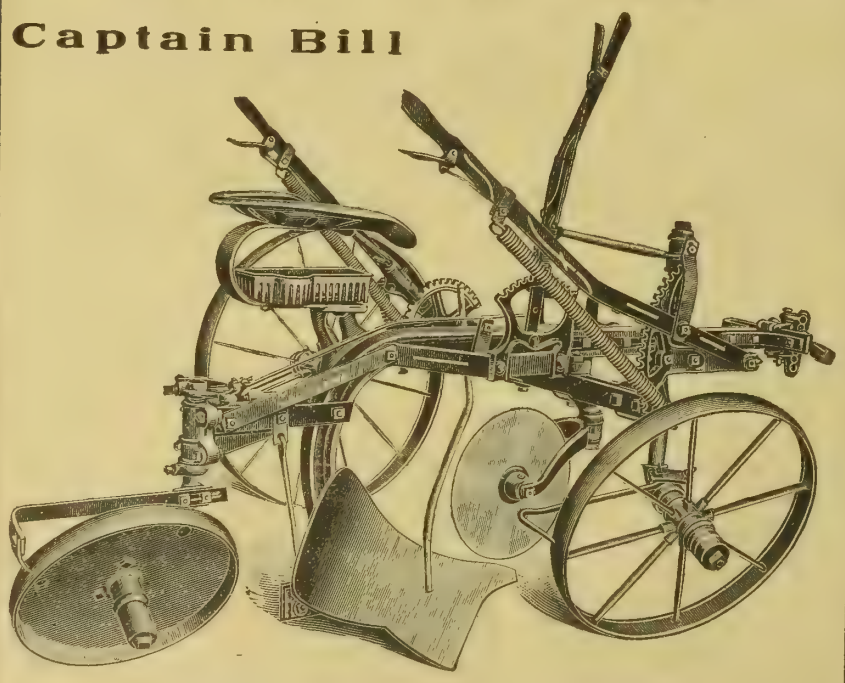
"OH LOOK! WHO'S HERE!"

Captain Bill



With his mouldboard 19 inches high and 51 inches long. Just what Mr. Farmer has been looking for, and it is here to stay.

The Captain Bill Plow is made to do what no other plow has ever done, and that is to turn a furrow 14 to 16 inches deep, and put the bottom soil on top and not allow it to fall back into the furrow.

The Captain has a long beam which holds him down and makes him draw without a jerk, which leaves a smooth-bottom furrow.

He also has three heavy wheels and axles which will stand the strain no matter what the condition may be.

His special draw-rod hitch and levers easy to adjust, make him the best plow on the market.

Don't buy until you have become acquainted with him and get our special cash prices on this line, as well as on other high grade implements we carry. Write for prices.

WESTERN IMPLEMENT CO.

No 131-133 N. Los Angeles St., Los Angeles

ARNOTT HARNESS $10.00 to $80.00

Everything guaranteed. Money back if not satisfactory. Factory in Los Angeles. California leather for all uses. Send for No. 10, eighty page FREE Catalogue.

ARNOTT & COMPANY 112–118 So. Los Angeles St. Los Angeles, Calif.

Deciduous Fruit Culture

MARKETING FRUIT IN STANDARD PACKAGES.

That California is not the only section needing to send out an honest pack of fruit is shown by the following communication appearing in the Gleaner:

Why was it necessary to establish and to constantly and sacredly protect, a standard value of money? It was so that every person who uses it would be assured his rights in the channels of business, and that the poor man's dollar should cover as much surface as that of the rich man; in fact, to establish two fundamental bases; viz., quality and quantity. Why then, is it less necessary or important to establish a standard of weights and measures for the protection of consumers who are daily and hourly forced to spend their dollars for the commodities of life? Go where we may and purchase where we will, we find a miscellaneous lot of barrels, packages and containers purporting to contain such parts of the standard bushel as pints, quarts, pecks, and half bushels, when, in truth, they are deceptive from start to finish. For instance, take the commercial bushel basket as is generally used by fruit growers in the marketing of fruits. They are made so as to look like a bushel, but they hold much less. To prove this, weigh up 60 pounds of potatoes and try to put them into one of the socalled bushel baskets and note results. They hold from 45 to 50 lbs. when well heaped, and no more; yet nearly all merchants make their deliveries to the consumer in these snide bushels, while in their purchases from the farmer they exact 60 full pounds per bushel, or, the standard crate measure; and more than this, woe to that consumer who buys in lots less than bushels, as the average merchant is awake to dodge the law and to skin his patron, said merchant always figuring to make every bushel of produce purchased to measure out five pecks instead of four—and the consumer pays the bill. How is this done? Note that measures used by most merchants are made of metal, made tall and with corrugated bottom. Being short in diameter, and tall, what is the result? It is this; that in buying a peck of apples or potatoes one gets but little more than a half peck, or with the tall half bushel the purchaser would get but little more than a peck, due to the singular construction of the measure. But should it be beans or peas or any of the grains that one wished to purchase, and one could get them measured to him with said measures, results would be different, as then one would get what he called for; but mind you, merchants sell beans, rice, peas and other grains only by weight; they then looking to their scales to do the work, knowing that the measures are government scaled and can't be doctored, while the scales can be made to vary from correct amounts. This intimation is not aimed at the merchant who deals out justice with his goods, but rather to that vast army of pretenders whose conscience wears a rind impenetrable to the chidings of honor. Take again the common quart box, as used for berries. If filled with flour, meal or bran, they would hold a legal quart, but when filled with berries, cherries or damson plums it would require at least forty of them to make a standard bushel; thus the consumer is out the eight boxes of fruit necessary to make the amount, as 32 quarts constitutes a legal bushel.

Short weights and measures, unless so marked that consumers may plainly see and know what they are getting, spell nothing short of theft. The writer is a fruit grower and shipper and speaks from the standpoint of actual experience concerning the ever changing forms of fruit packages, but, strange as it may seem, we have never, in our 38 years' experience, known of a package being made too large. Of course, the law plainly declares as to the length of stave, the required bulge and the diameter of head required in the standard three bushel apple barrel; but to dodge its use as a standard package another smaller barrel is made, and these dubbed as pear barrels, but entirely too often used as apple packages. This is fraud, pure and simple, unless some mark goes with the package plainly denoting its shortcomings, as this so-called pear barrel is fully one peck short of the standard for apples.

Nothing tends more toward the depreciation of a season's crop or the depression of markets and curtailment of consumption than does dishonest packing, "short" packages and the many irregular shapes and forms of containers that are being sent to market. Who among us could question the absolute fairness of adopting as a standard, for example, a full bushel, and then being obliged by law to mark all packages that contain less, either as "short bushel," "short half," "short peck," etc., thus would the consumer be put on his guard in making his purchases, as would also the full grown and all man producer be protected against the snide packer who insists on advertising to the world the size of his selfish soul as is represented in his deceptive package. We need no better index to a man's life than is found in his works. The bigness of his heart, as well as its smallness, can be easily figured from the handwriting that he daily places upon the wall through his dealings, and just so soon as his reputation is branded with the word "short" by his neighbors, then that unwholesome word "suspicion" is permissible.

We are living in an age of strenuous competition, and this has consequently led us into bad company, creating as it does a lot of small, petty deceptions which would be frightful could they be held up against us in the broad courts of honor. The finger of shame is now being turned toward the farm, and just so soon as the pure food commission gets through with the dirty work they now have on hand, then will their vials of wrath be poured out upon the heads of those among us who deserve the exposure. Can we expect to continue to engage in the honorable business of production and hope to remain immune from attacks of an exasperated and outraged public of consumers if we persist in dwarfing our calling through fraud? Is it not better for the farmer and fruit grower to aid in uncovering the rot among us than to have it sprung upon us by the consuming public? Yes, a thousand times, yes! God deftly paints the lily and the rose—spins the blush upon the apple and the peach and tints into gold the waving harvests of the world. We are His agents, distributing to the people from His bounties! Will we displace and belittle that blush and gold by placing in its stead the blush of shame? By all means, no! Let us work toward the standardization of measurements, and then strictly adhere to them. Give an honest bushel, and stand for an honest bushel in return.

STANDARDIZATION IN SACRAMENTO VALLEY.

Answering query as to the situation in Northern California in the matter of standardization, Mr. Marshall De Motte, of Shipaulovi Ranch, at Corning, writes:

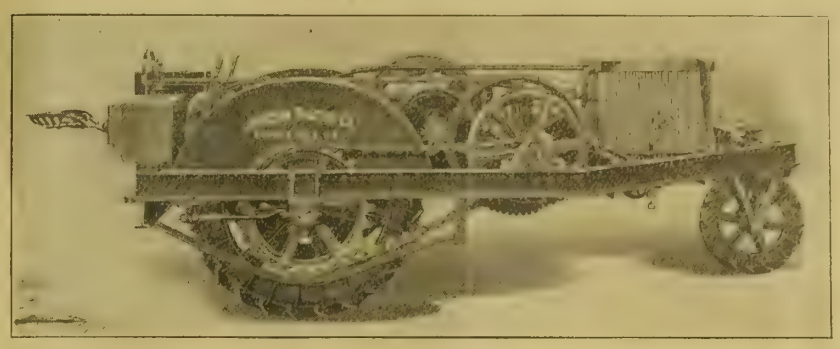
"Standardization of fruit pack has come to stay in the deciduous fruit districts in the northern part of the state. The very wise and careful work of our state horticultural commissioner, Mr. Jeffery, in the plans which formed the basis of the movement, has been proven in a year's trial to be well nigh perfect. In some instances communities are changing their standards slightly for this season, but this is generally for the betterment of the quality. One noticeable feature is the absence of opposition in almost every place, and where opposition has occurred it has been easy to persuade the opponent that he would do best by uniting with the forces of this advanced movement. I recently heard men from several districts say that through the working of standardization for one year they felt that the fruit business in their localities had

The Most Successful Tractor for Farm and Orchard

Use is the One Simple to operate and Simple in Construction

Mr. Farmer, Mr. Orchardist:

You will agree with us that the better you can till the soil, and till it when it should be "which is usually when it is too hot to get best results with the horse" the greater your profits will be.

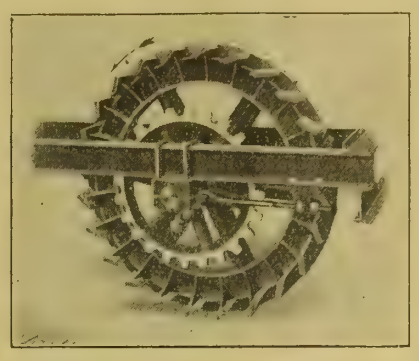


Have You Stopped to Consider

What it costs to plow, cultivate, etc., with high priced horses working them 90 days and feeding them 365. True, until the present you have had no alternative, but the JOHNSON TRACTOR is especially designed to meet the requirements of the FARMER and ORCHARDIST.

Our 40-Horse Tractor

Shown herewith is especially adapted for GENERAL FARM PURPOSES. Pully for pumping, sawing, threshing, or any and all power purposes is attached on shaft where crank is shown.



We Want to Tell You

More About This Powerful Engine

and show you how it will earn you money. Our catalogue tells a story full of facts and figures of living interest.

Be Sure to Send for the Book Mailed Free

Our 30-Horse Tractor

While especially designed for orchard work, is equally efficient for general farm purposes, and for stationary purposes can not be excelled.

We call especial attention to our

Tractor Wheel

which gives the greatest possible traction, does not clog, slip or ball up, and no possibility of shaking to pieces like a built-up wheel, and best of all does not pack the soil.

Johnson Tractor Co., Sunnyvale, California

been so benefited that they not only were getting more money out of their orchards, but felt an appreciable advance in the value of their orchard holdings already. It was impossible to cover all the North last year, but it is significant that not a place has backslidden, and that this year new places are uniting with the movement. It is truly remarkable that the abuses that have grown into the fruit business in countless years should be wiped out by the careful planning of one man, who has been able to obtain and hold the co-operation of all who have joined the movement so far. The North extends to the South her congratulations that this most progressive movement is appealing to her also."

DIVIDEND NOTICE.

The German Savings and Loan Society
(The German Bank)

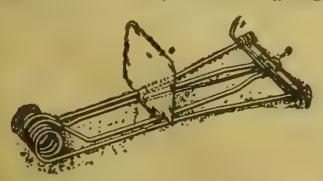
(Member of the Associated Savings Banks of San Francisco.)

526 California St., San Francisco.

For the half year ending June 30, 1911, a dividend has been declared at the rate of four (4) per cent per annum on all deposits, free of taxes, payable on and after Saturday, July 1, 1911. Dividends not called for are added to the deposit account and earn dividends from July 1, 1911.

GEORGE TOURNY, Manager.

MACABEE GOPHER TRAP



Small, simple, sure. At all dealers. If your dealer does not handle same, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid at special rates. Manufactured by

Z. A. MACABEE, LOS GATOS, CAL.

CALIFORNIA NURSERYMENS ASSOCIATON.

California nurserymen attending the Coast Association meeting at San Jose met in the Chamber of Commerce rooms of that city Thursday evening. George C. Roeding was elected temporary chairman and Mr. Valance temporary secretary. The object of the meeting was stated to be the getting together of California nurserymen who are often unable to attend the Coast meetings which may be some hundreds of miles distant from their homes; in addition, state quarantine, growing of nursery stock, and other matters of a local nature seemed to make the formation of a state organization desirable. Almost everyone present at the meeting expressed the belief that the step was a wise one, and after discussing the outlines of a constitution and by-laws, and signing the roll expressing determination to become members, officers were elected as follows: President, W. V. Eberly; Secretary, H. W. Kruckeberg.

This state organization is not to antagonize in any way the Coast Association, and this was made plain in the wording of suggested constitution which stated that the affiliation should be the closest. In fact, membership in the State Association constitutes membership in the Coast as well; out of the $5.00 annual dues, $2.00 is to go for Coast Association membership.

As to time of meeting some favored the State Fruit Growers Convention usually held the first week in December. Others, especially the San Francisco members, felt that that was one of the busiest seasons of the year in getting ready for the Christmas trade. Decision was passed up to the executive committee.

ENTHUSIASTIC FARMERS.

It is only the men who are with the different classes of farmers that fully understand the depth and breadth of enthusiasm that is manifested among them. If we are with the dairymen there is a rich vein of enthusiasm on account of their ability to produce more and get an increased price for it. Dairymen are, seemingly, prosperous and happy.

If we are with the stockmen of all classes, there is a glow of contentment and satisfaction on every face, no matter whether it be horsemen, cattlemen, sheepmen, hogmen or poultrymen, they all have their stories of achievements and successes that are told to express their satisfaction and pleasure, and to win the admiration of the listeners.

In a meeting of fruit farmers there is the same spirit of pride and satisfaction in their business. They can tell of great crops of all kinds of fruits, excellent prices obtained for the same, and a sum total that astonishes listeners. They tell of dollars growing on their trees and vines, and will ask, "In what other business can one make money easier than in raising fruits?" The supply of fruit increases, the demand keeps pace with it, and an abundance for them in the future seems assured.

Let the good feeling abound. It is the farmers that garner from the soil the wealth of nations, and it should be their right to enjoy a goodly share of the results of their labors. In fact, the farmers are coming to their own and are entitled to enjoyment. Let us encourage it.—Gleaner.

There are two classes of strawberries, known as staminate and pistillate, or perfect and imperfect varieties. The staminate or perfect varieties all have well-developed stamens and pistils, the male and female organs of the flower. These varieties, as a rule, will bear fruit when planted by themselves. The pistillate varieties have only the pistils or female part of the flower. In order for these to bear fruit, it is necessary that perfect or staminate varieties be planted near them. Usually, where pistillate and staminate sorts are used, one row of staminate is planted to three rows of pistillate. Planted in this way, the pistillate varieties very often bear more fruit than the staminate. There is no way of distinguishing the difference between these varieties when not in flower, although there are certain characteristics of plant-growth that may enable one very familiar with the strawberry to distinguish varieties.

STAR Portable Drilling Machines

More Profitable Wells

Can be drilled with the right machine. In buying a Drilling Machine, the first vital point is to be sure it will yield you the greatest possible service—and hence the greatest possible profits. You ***must*** know.

Star Portable Drilling Machines

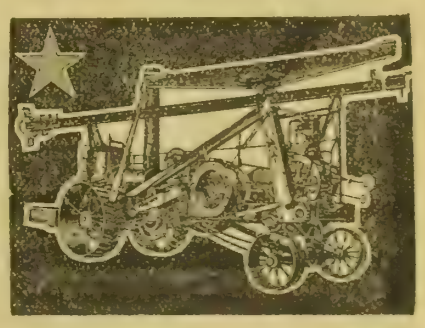
have stood the test for years in comparisou with all makes, and the very fact that fully 95% of all Portable Machines now at work in the Oil Fields are Star Machines is all the proof necessary as to their superiority for all kinds of Well Drilling.

Drilling Machines,--Engines,--Cordage,—Etc.

STAR DRILLING MACHINE CO.

225 Palmer St., Akron, Ohio.

Branch Office Los Angeles, Cal.



DAISY FLY KILLER

placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Can't spill or tip over, will not soil or injure anything. Guaranteed effective. Of all dealers or sent prepaid for 20c.
HAROLD SOMERS
150 De Kalb Ave.
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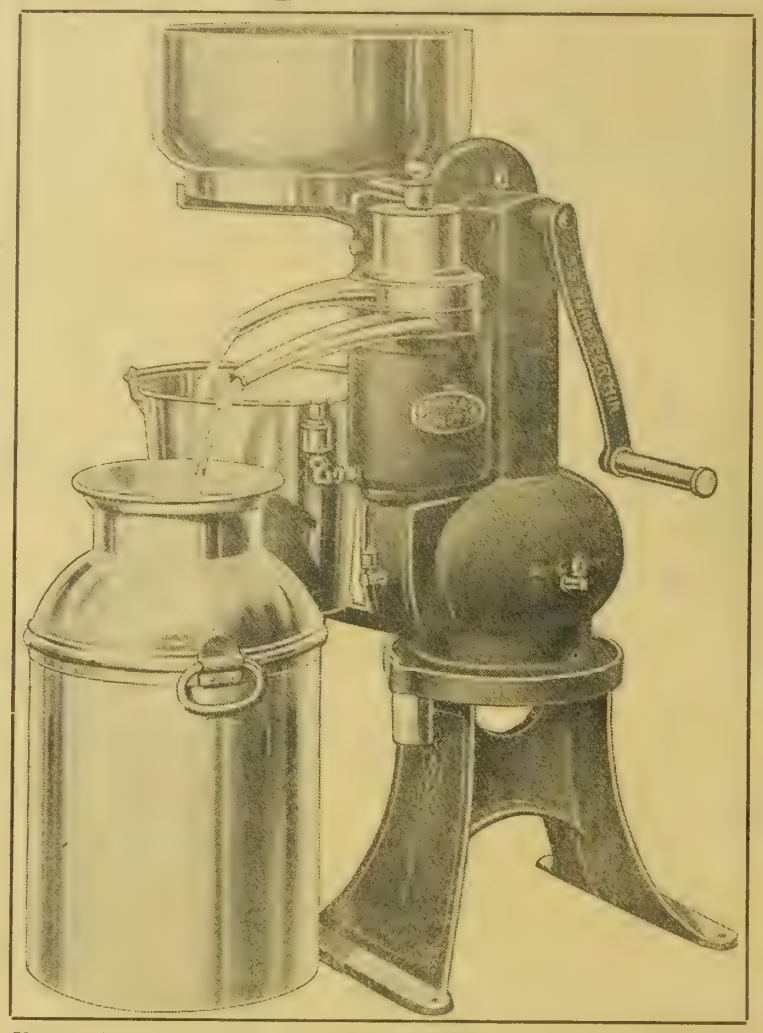
2 in. Pots For Sale 2 in. Pots

2nd hand pots in good condition $3.50 per 1000.

Chas. Howard Hemet, Cal.

Simplex Cream Separator



If you are in the market for a Cream Separator ***write us.*** We have all sizes and styles, also a few good second hand machines.

O. J. WEBER 225-227-229 East 6th St. **Los Angeles**

THICK CREAM
Means Sweet Cream

The density of the cream from the United States Cream Separator is easily regulated by aid of the **patented cream screw.**

Many users produce cream testing over **60 per cent butter fat.**

Thick cream is a great advantage in hot weather because the **milk** which **sours first** is so nearly eliminated. Creameries pay **top prices** for such quality.

United States Separator

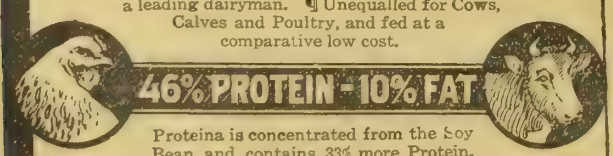
cream is in great demand at all creameries. Thick cream means less bulk to transport, but more skimmilk for feeding. United States Separators **hold world's record** for closest skimming. They are the **Standard Separators of the World.**

For your own sake don't buy a "cheap" separator or decide on any make until you have seen and tested the United States Separator. Get the large, illustrated U. S. catalog No. 20

Vermont Farm Machine Co.,
Bellows Falls, Vermont.

Cows Give 262 lbs. More Milk Daily

After substituting a part of their regular feed with Proteina, says a leading dairyman. ¶ Unequalled for Cows, Calves and Poultry, and fed at a comparative low cost.



Proteina is concentrated from the Soy Bean and contains 33% more Protein. The U. S. Agricultural Dept. says: "A bushel of Soy beans is at least twice as valuable for feed as a bushel of corn." ¶ POULTRY MEN FIND PROTEINA BETTER THAN BEEF SCRAPS FOR LAYING HENS. Write for signed letters from Poultrymen and Dairymen.

Proteina SOY BEAN OIL MEAL MANUFACTURED BY PACIFIC OIL MILLS SEATTLE

SOLD BY DEALERS OR PACIFIC OIL MILLS, SEATTLE

Germain Seed & Plant Co., So. California Agents
326-328-330 S. Main St., Los Angeles, Cal.

Live Stock and Dairy

Dairymen and stockmen are requested to write of their experience. Mrs. Sherman is always willing to answer queries and this, with experience of other workers, will make this department of greater value.

FEEDING THE BREEDING HERD.

In feeding swine, the same as in feeding other live stock, food will produce satisfactory results only when fed in a ration that is properly proportioned, so that all the parts of the animal will be well nourished and the digestive system kept in a healthy condition.

Results of numberless experiments emphasize the fact that rations containing a large amount of ash and protein are better adapted to promote the growth and development of breeding swine than corn alone. However, the increased cost of concentrated protein feeds makes their use in large quantities very expensive, but fortunately it is easy to obtain these elements in an economical form by using proteinaceous forage and pasture crops and providing the swine with large yards and good grazing.

An ideal combination of feed for the breeding herd consists of clover, alfalfa and blue grass pasture, supplemented with a limited amount of grain food.

Skim milk is an excellent feed, and mixed with wheat middlings in the form of a thick slop makes an ideal food for breeding swine.

A small allowance of corn may be safely fed to brood sows and animals that are lacking in condition. In many cases where pasture crops and skim milk are not available, the protein problem may be solved by feeding a small amount of digested tankage.

Concentrates may be used with very good results, the chief point being to feed bone, blood and muscle building food and in the right proportions.

When pasture and green feed are not available, clover and alfalfa hay run through a feed grinder or cutting box and mixed with the mill feed in the slop will give the necessary bulk and succulence to the ration.

The value of bulky and succulent feeds is recognized by the most intelligent feeders. Succulence balances the effect against dry, concentrated feed; it possesses general tonic and corrective qualities and stimulates the appetite for a more economical consumption of the other feeding stuffs.

Bulky foods act as dividers and assist in the more complete digestion of concentrated foods. Succulence and bulk are furnished by such foods as forage crops, pasture grasses, roots, vegetables and similar feeds that are usually inexpensive, desirable and very valuable in feeding the breeding herd at all seasons of the year.

These succulent and bulky feeds have a loosening effect upon the flesh, and are excellent for the sow toward farrowing, as they overcome the tense condition of the muscles resulting from a dry grain diet.

If the number of the brood sows is considerable the feeding of high priced grain food cuts largely into the profits. The mature sow that is not suckling a litter of pigs does not require a large amount of grain feeds.

If she is provided with plenty of grass and forage crops she will thrive with but very little grain food. During late years the importance of having an abundance of pasturage and forage crops for the breeding swine is more and more apparent.

By setting aside a number of acres and growing proteinaceous forage and pasture crops the cost of feeding may be greatly reduced and the animals will be more thrifty and vigorous.

In planning a system of pasture and forage crops we should plan to have the ground growing some crop all of the time.

Rye for late fall and early spring pasture is unexcelled; this may in turn be succeeded by alfalfa, clover, oats and peas, sweet corn and rape, and rye again late in the fall.

The droppings from the swine will soon put the land in a state of excellent fertility, and there will be no filthy yards and mudholes for the swine to wallow in.

Many acres of poor land may be rejuvenated by growing proteinaceous forage crops and pasturing them down with the swine.

The droppings from the swine, and the nitrogen gathered by the forage-crops, build up soil-fertility rapidly.

In feeding the herd boar, the same principle holds good. Since the breeding boar represents as great a factor in breeding as thirty or forty sows, it is very much more economical to feed the one sire, than thirty or forty sows.

The breeding boar cannot be too well fed and cared for. He should be kept in good, vigorous condition, and in as comfortable quarters as possible.

Feed him only the kind of feeds that are adapted to his requirements, and vary the amount according to the services he is required to perform.

It is necessary to feed him with food that will produce lean as well as fat, and give health and superb vigor.

With such grain foods as ground oats, wheat middlings, oil-meal and very little corn, supplemented w such bulky and succulent feeds alfalfa, clover and peas or roots, will be strong, thrifty and serviceab for many years.

Succulence and bulk in his ration will prevent injury from overfeeding, and he will be much more contented than when he is fed a less bulky ration of concentrated foods.

The practice of confining the breeding boar in a small pen, and feeding him a ration of fat-producing foods cannot be too strongly condemned.

The character of the feed, impo tant as it is, is not the only thi that needs attention in the care the breeding boar. Give him plen of room for exercise, and if he do not exercise freely himself, take horsewhip and walk him around oc casionally.

Ordinarily, however, if he is given a good-sized pasture or yard, he will take sufficient exercise, without r sorting to this trouble.—Farm Worl

Cream Separators, all sizes and prices. O. J. Weber Co., 225-227-229-231 East Sixth Street, Los Angeles.

BIOLOGY OF THE TEXAS-FEVER TICK.

In order that eradication of the ca tle tick from the states below th quarantine line may be the more i telligently and successfully carri out it is necessary that it should based upon the most accurate kno edge possible of the life history, ha its, etc., of the tick.

With the view of supplying possib useful additional data relative to t biology of the tick, the zoological d sion of the Bureau of Animal Indus and the veterinary department of Alabama Polytechnic Institute h conducted a series of investigati upon the life history of the tick, its l its and the manner it is affected by matic and other environmental con tions; and this data has just be published by the Department as reau of Animal Industry Bulletin 130.

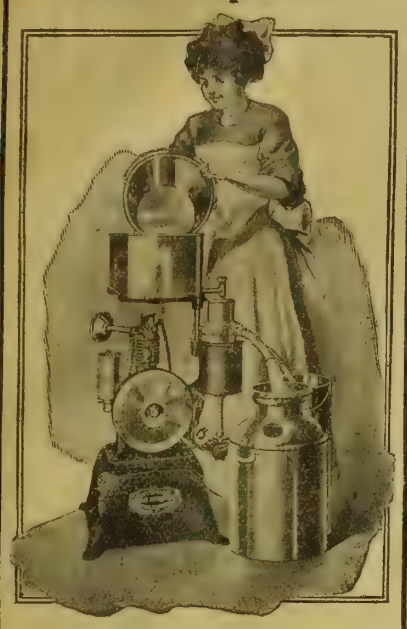
The work carried on during the six years by the Bureau of Animal dustry in co-operation with the s authorities has shown that the er cation of the cattle tick from the fected states is entirely feasible, its disastrous effect upon the cattl dustry of the South can be preve

The usual host of this tick is cow or ox, frequently, how horses, mules, deer, and some sheep serve as hosts, and mu considered in plans of eradic Hence, experiments were made ticks on some of these animals O. also upon rabbits, cats, dogs, and r But none of these, with the pos exception of deer are susceptib ed tick fever, consequently they s, from the tick as a simple pa and not as a transmitter of di s;

Only a part of the developm the tick takes place on the ho tion.

Anthrax Cure, Milk Fever Out al. O. J. Weber Co., 225-227-229-2 Sixth Street, Los Angeles.

AUTOMATIC
Cream Separator



CRANKLESS
and GEARLESS

Nothing like it has ever before been invented. One size machine for any size dairy. The drudgery of dairying now, a thing of the past.

It separates the milk perfectly faster than ten men can milk it.

Start the separator when the milking begins and it being both automatic and continuous in its operation, when the farmer is through milking he is through skimming.

Speed of bowl brought up in 15 seconds and will run for hours without the slightest variation.

It is destined to revolutionize the dairy business.

We are at least FIVE YEARS ahead of all competitors.

ARNOTT & CO.

Pacific Coast Agency

LOS ANGELES ... CALIFORNIA

Alfalfa Farms
San Joaquin Valley

3000 acres of irrigated alfalfa and fruit land in 20 acre tracts. On the Santa Fe Main line. Station on the land. In the heart of a proven district.

Merced Colony No. 2

Deep, rich, sandy loam soil; can be worked every day in the year. Abundant water from a long established irrigation system.

Write today for particulars.

Send this to us.

Co-operative Land & Trust Company

595 Market St., San Francisco

Please send particulars on Merced Colony No. 2

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ROADES & RHOADES

Expert Live Stock AUCTIONEERS

Conducted in all parts of California and in the States. Write for dates and terms. Twenty-five Years' experience

632 South Main St. Los Angeles

rest of the development occurs on the pasture occupied by the host. Therefore, studies were conducted both on the pasture, and the animals in the affected locality, and under conditions as nearly as possible like those in open fields, in laboratory investigations, tests, and experiments. These are described in detail, the results given, and conclusions stated.

As all information which would assist in removing the greatest barrier to live stock raising in the South should prove of value to the future development and prosperity of the country now below the quarantine line, so also, is it of interest to the dealers and consumers of beef and beef-products in all parts of the country.

LIVE STOCK.

The bringing to California of 26 head of registered Holsteins which cost their owners in excess of $400 per head, is an event which should aid the dairy interests of the state. The McAllister ranch south and east of Pomona, or more properly Chino, in San Bernardino County, has just brought in this fine stock of some of the best strains of this dairy breed. This ranch is the property of J. W. McAllister and his son J. W. McAllister, Junior. The intention of the McAllisters is to give to California one of the finest cattle ranches in the United States.

There is in the ranch about 3000 acres of land, 1000 of which is rich valley land capable of being put into alfalfa and 2000 acres lying on the hills which make splendid pasturage. At present the ranch is stocked with grade animals, but gradually these will be weeded out and nothing but pure-bred Holsteins retained. Mr. McAllister informs us that ultimately there will be 300 or possibly 400 registered Holsteins milking on this ranch. At present there are only 150 acres of alfalfa, but this will be increased in time. One of the best dairy barns in the state has already been constructed of concrete and corrugated iron at a cost of $7000, and one large silo, with three others in contemplation.

Amongst the stock brought in are: Aggie Cornucopia Pauline, a champion four-year old with a record of 34 pounds of butter weekly; three daughters of Homestead Girl's Sarcastic Lad, one of the greatest sires of this breed; a granddaughter of Hengerbeld de Kol and Aggie Cornucopia Pauline, and we must not forget that this animal was first prize winner at the Illinois state fair.

An opportunity will be given to lovers of fine stock to see some of these animals at the coming state fair at Sacramento, but those who are situated so that they can visit the dairy near Chino will be more than welcome, for Mr. McAllister informs us he will be pleased to show dairymen over the place.

NATIONAL DAIRY SHOW.

The Sixth Annual National Dairy Show will be held in the International Livestock Amphitheater, Chicago, Illinois, Oct. 26-Nov. 4. $200,000 has been expended by the association during its last five shows for the promotion of the dairy industry. The sixth show will not only be the largest but the most attractive and comprehensive in the history of the exposition. The plans of the association are to make it intensely educational in every department of the dairy industry it represents, and to establish the annual exposition as the clearing house of the dairy industry in the United States, Mexico and Canada.

No cow can properly digest and assimilate balanced rations and economically convert them into milk unless she has been properly developed.

During hot, dry weather, when flies are troublesome, it pays to let the calves stay inside all day and let them run in the yards or pasture at night.

Prepotency does not come by chance, but through years of proper breeding for certain characteristics and a specific function.

Until we get perfect animals we should search for a sire that in some particulars is superior to the cows in our herds.

Veterinary

Answers in this column by Fred G. Matthews, M. S., D. V. M., 1232 Central Ave., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Cough.

A cow has a cough at night, and quite a discharge of clear and watery fluid from the nose. She eats and drinks and milks well. Kindly tell me what the trouble is.—Subscriber, San Gabriel.

Many healthy cows cough occasionally at night, after eating heartily. Inspect the feed, hay, bran, etc., to see if it is dusty or moldy. Has the cow sufficient ventilation in her stall, or is she exposed to drafts of cold night air? Should changing the food or attending to the comfort of the animal not improve the condition, you could have a veterinarian test the cow with tuberculin. However, the symptoms given are not sufficient to justify much alarm.—F. G. M.

"Wolf Teeth" and "Blind Teeth."

Recently my attention has been called to a small tooth which sometimes grows immediately in front of the first upper molars in horses, and these are referred to as "wolf teeth" and "blind teeth," which are supposed to finally cause blindness if not extracted. Is this the case?—Subscriber, Holtville.

Rudimentary supernumerary teeth are often found at the point mentioned, but they never cause blindness or otherwise injure a horse. However, because of a widespread though erroneous opinion that blindness does result, a prospective purchaser may refuse the animal because of their presence, and upon this pretext veterinarians justify the practice of extracting them.—F. G. M.

Pigs Diseased.

Hard lumps have apeared, one on the upper jaw between the eye and the nose of one sow, and on the lower jaw of another. I opened one and found nothing. Is this a contagious disease?—Subscriber, Covina.

Hard painless enlargements upon the jaws often result from diseased teeth. Examine the tooth adjacent to the lump, and remove it if decayed. I would not consider this a contagious ailment.—F. G. M.

Constipation.

Two sucking pigs, and fed barley while running on alfalfa pasture, showed constipation, lost their appetite, and died in a few days.—Subscriber, Covina.

A colt two days old died of constipation. What is the dose of castor oil?—Subscriber, Covina.

Rectal injections of soap solution or starch water is the most reliable method of relieving constipation in young pigs and colts. The injections should be repeated till all hard particles are removed. An ordinary fountain syringe serves the purpose admirably in these cases. Castor oil is given in doses of one pint to horses and cows, two to four ounces to sheep and swine, one to two ounces to cats and dogs, and one teaspoonful to fowls. The proper dose for your pigs would have been one to two ounces, and for the colt four ounces.—F. G. M.

Lines of breeding which a century has evolved and stamped with approval ought to prove safer than the theories of a single mind, made tangible in a few heterogeneous crosses.

Milk giving is a habit that responds to encouragement or neglect. It is a function which may be developed or diminished by the treatment accorded the cow.

We need to have a clear idea of what breeding does, of what feeding does, of what care and environment do, if we secure and maintain a profitable dairy heard.

Do your cows milk hard? Send 50 cents for teat expander. O. J. Weber Co., 225-227-229-231 East Sixth St., Los Angeles, Cal.

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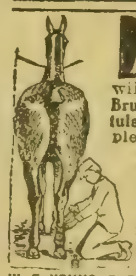

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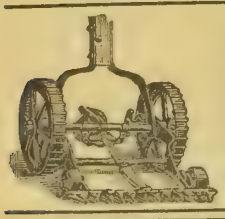

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Bees and Their Care

BEE KEEPING IN PIONEER DAYS.

By Delos Wood, Santa Barbara.

Although my recollections of bee keeping extend back over 65 years yet they do not reach back to the first effort in advanced bee keeping.

The days of the straw hive in this country were in the remote past before my day. But I am told that it is still in use in some of the old countries. My father was called an advanced bee keeper when I began at an early age, to take lessons from him. He had discarded the straw hive and "log gum," and used box hives. Not the soap and cracker boxes that may yet be seen in some city yards; his were square, made of yellow poplar lumber one inch thick by 18 or 20 inches wide, with a wider board on top projecting two inches on all sides to turn the rain, the hive being about three feet high, resting on a bench eighteen inches or more above ground. About midway from top to bottom of the hive, cross pieces were nailed inside to support the combs. For surplus honey three-inch holes were bored through the top and a box holding anywhere from five to ten pounds placed on top. Ten pounds of this comb honey was regarded as an average yield. Sometimes the bees would fill two boxes and at other times they failed to enter these small boxes. But we must have honey and so the top was pried off and the combs cut out down to cross sticks, and what a delicious mess it was, old tough combs, bee bread, honey and brood in all stages! I enjoyed it.

Most bee keepers waited until the fall and then robbed the bees by burning brimstone under the hives and killing the bees. Then the hives were put in the cellar and the honey cut out as wanted for the table when company came.

I knew nothing of drone and worker comb in those days. But you can imagine what would be built in by the bees to fill the vacant space. About once in three or four years father would pronounce the combs too old. Then he would drive the bees into a new hive and cut the combs out of the old one and melt them up for wax.

Along in May or June, the bees would begin to cluster on the outside of the hive for air, as all the air inside came through two or three half-inch holes at the bottom. When the entire front was covered, we kept close watch for swarms, and oh what joy to me when the cry of "bees swarming" came from the watcher. Then bells, tin pans and horns were called into action, and the bees were driven back and forth from one tree to another until they grew desperate and clustered on a limb in spite of the racket. Then when they were shaken in front of a new hive tipped back slightly to give a larger entrance, the hunt began to see who would be first to see the king and coax him into the hive. All swarms had a king, and hundreds of queens.

The king was a large, long bee with a sting, but His Royal Highness was above using his and I could pick him up with impunity. The queens were large, bunty bees without stings. They laid the eggs. The king lived in a long peanut-shaped cell, and the bees adored him, but killed off the queens at the approach of cold weather and only kept one or two through the winter to start the colony in the spring. Nothing was known as to the length of life of the worker bees, but I have heard it said they learned to recognize their owners on their return home from a journey of over a year's absence. Those hives from which we had cut the combs were usually the first to swarm on account of the fact that they generally raised more queens.

In case of any severe sickness or death of any of the near neighbors or one of the family it was considered absolutely necessary to tell the bees of the fact or they would not swarm or produce honey. But my father always insisted that it was a superstitious notion.

The first improvement in hives that I remember was patented and consisted of two half hives hooked together side by side, and when filled with comb and honey and about ready to swarm the hooks were taken off and a hand saw run through, separating the combs and one-half of the hive was moved to another place and an empty hooked to each of the full ones, thus making our first artificial swarms. It was generally supposed that bees would not work without a king and so one-half would prove worthless. But the patentee came to the rescue by making a beeswax king, and hanging one in each half and the bees worked the same in each, as the beeswax king did no harm where the real king was, and I may add, no good in the other.

THE SELECTION OF A LOCATION FOR AN APIARY.

By E. D. Bullock, Redlands.

In studying the selection of a location for an apiary, I have considered the altitude and its flora, the water and prevailing winds, the market and its accessibility.

Relative to the altitude and flora, botanists tell us that the best honey plants thrive at an elevation of 1500 to 3000 feet. This elevation is so plentifully supplied with honey-bearing plants, that it is called the honey zone.

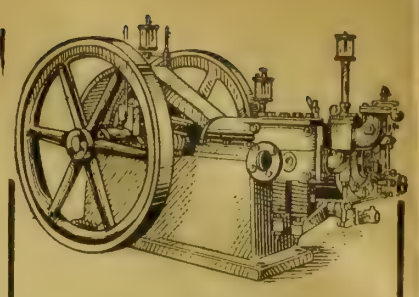
In this zone are found the alfilerilla, thriving from sea-level to a height of 3000 feet, and blooming from January to May; four species of manzanita ranging from 2000 feet to 9000 feet and blooming from February to November; here, also, are found the cottonwood and the willow. Black sage, queen of flowers, at the height of 1700 to 3000 feet, covers the unbroken hillsides with its wealth of bloom in April, May and June. The white sage grows in canyons and on plains, the elevation of which is between 1700 and 2500 feet, its period of blossoming extends into July, one month later than the black sage. Wild alfalfa, which produces light amber honey, is in blossom with the sages, unfortunately for the apiarist, at elevations of from 1200 to 2000 feet. These plants are followed by the wild buckwheat, which is found from 1200 to 5000 feet altitude and blossoms from July to December, and the blue curl which furnishes fall honey. In this zone only will we look for a location, and will locate at an altitude between 1800 and 2000 feet.

Convenient to the apiary should be a spring or running water. This is important. Bees watering at a pump spout or the watering trough of a near neighbor, cause trouble that ought never to be permitted.

A valley opening to the east is the first choice for an apiary. If practicable, place the hives at the highest point of the valley; lower down should be the honey house with its tank on the down grade. Then as the combs are taken from the hives, the honey goes down grade to the extractor, down to the tank, and down to the wagon which should be placed lower than the tank. In this arrangement of an apiary much heavy lifting is avoided. Once again the honey is moved down grade, this time, down the grade to market.

Nearness to market is desirable. But if you must choose between a poorer location near market, and a better location a few miles farther from market, take the more distant location. It is better to have something to haul a long distance than to have nothing to haul a short distance. Most of the above thoughts apply to a comparatively unsettled country. One point that needs to be emphasized is, that in a fairly well stocked district, one should buy out and only locate by buying out. Pay more for a site than it is worth, if necessary, but buy rather than crowd into a location. In a very few years the money will be more than returned. And in addition to the financial returns, the bee man will have a clear conscience. I do not know how it is with men in other vocations of life, but to the

(Continued on Page 771.)



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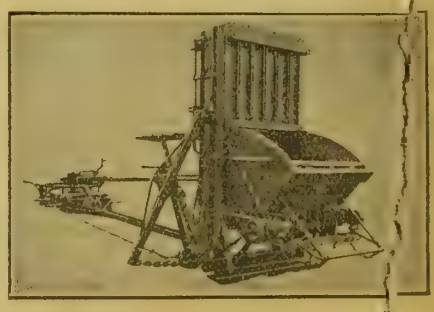

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General Agriculture

ALFALFA ON THE DESERT.

By A. N. Judd.

It is possible that some one just establishing a home on new land will appreciate a few words regarding one's experience in getting new ground ready for alfalfa. The first and all-absorbing question is securing feed for stock. Alfalfa is by all means the best; it is perfectly sure and is quickly ready for the stock of the new home maker.

If the soil is sandy and the wind blows hard enough to move it, a nurse crop is necessary to protect the young alfalfa; it is also of advantage in fall seeding to protect from the cold of winter. However, different times of seeding require different ways of planting this nurse crop. If planted in the fall, or say December, and it is desired to pasture it, sow directly in drills or broadcast. If the seed is tested and known to be first-class, ten pounds to the acre is sufficient. After the sowing, fine down the surface soil with a smooth drag and irrigate. The barley comes a little before the alfalfa and this tends to prevent the frost injury and the winter cutting of the young alfalfa plants. When it is safe from the frosts, say the middle of February or after, turn on the stock. They will prefer the barley for a long time while the young alfalfa is making roots, and that is essential to its future growth. If the pasture is divided so that the stock can be moved from one side of the field to the other, say on each piece a week, then changed, it is wise to irrigate the field not being used by the stock.

If you wish to sow to cut for hay, use Canadian peas as nurse crop. These may be sown in drills 20 inches apart, but drill the alfalfa seed in the usual way. The peas will mature in time to cut with the alfalfa for hay and by putting in small stacks so they will not mould they make the best of hay. Stock fed on such hay will work well without grain.

If you sow in the spring, use barley as a nurse crop, but sow the same as the peas in the fall.

Always have the ground leveled so as to take the water in perfect shape. When leveled, do not disk or plow but give light rolling lengthwise and sow across the borders. The firmer the ground the better the alfalfa seed will come. I may add that barley will tend to smother the alfalfa unless it is pastured; pasturing keeps it down and gives the alfalfa a chance.

In conclusion, I wish to urge every one to inoculate seed before planting. The Department of Agriculture will supply material and full directions. Your order should be sent in at least two months before it is to be used. By all means try this and be convinced.

THAT POSTAL DEFICIT.

The failure of the postal revenues to meet the postal expenditures is a subject of perennial discussion. The postal deficit, like the poor, we have always with us. Various plans and departures have been suggested to wipe it out. It has been suggested that the extravagant pay of the railways for carrying the mails be reduced. But with congressional bosses who would frank back and forth during the mail-weighing period tons of useless public documents for the mere purpose of stuffing the mails and increasing the railroad rake-off, this suggestion never got far.

It has also been recommended by at least one postmaster general that the government build and own the railway mail cars instead of paying the railroad more than their total cost annually for rent of the cars. But this recommendation never received consideration by Congress.

Recent disclosures of express company earnings add new and important arguments for a parcels post. It was Postmaster General Wanamaker who said that there were only four reasons why the people could not have a parcels post. These four reasons were the four big express companies.

The Wells Fargo Express company in the fiscal year 1909 earned net, after the payment of all expenses and taxes, over 86 per cent of the total value of all its property, and equipment used in its business, and received in addition $1,400,000 income from investments of the accumulated profits. It presented its shareholders with a special Christmas dividend of 300 per cent, or $24,000,000.

The American Express Company has been paying dividends of 6 to 12 per cent for years, on a capitalization half water; and last year received an income of $1,178,000 from investments of its additional, accumulated profits.

The Adams Express Company with a total investment of about $6,000,000, has, in recent years, in addition to high regular dividends, distributed additional, accumulated profits in special dividends, amounting to $36,000,000 and last year received from its accumulated profits not yet distributed an income of over $1,000,000. So that another special distribution dividend of 100 per cent is about due to the Adams shareholders.

The pertinence of these facts in connection with the postal deficit is this: These earnings represent what the public is paying private interests for the transportation of express—freight, parcels, and also mailable matter, and money, transported by the express companies partly in competition with the postal department and probably in contravention of the postal laws of the United States.

Now the public has little use for the independent express company arrangement. The public wants a parcels post conducted by the government for the transportation of smaller parcels and the railroads should furnish adequate fast freight service for the transportation of such large parcels and shipments as require exepdition. A parcels post, established on an honest basis, would give the public better service at lower rates, and yield a revenue that would wipe out the postal deficit. However, a parcels post is not recommended by the present postmaster general.

The present postmaster general calls attention to the postal deficit and recommends an increase of the postage rates on periodicals and magazines to meet the deficit. The present postmaster general is astute and able and he knows, or he ought to know, that the increase of postage rates on magazines, which he recommends, would not reduce the deficit but would increase it. He knows, or he ought to know, that if such an increase were made the express companies would make arrangements to transport and deliver large, bulky magazines and periodicals at a rate enough lower to get that business, and that they would get it away from the postoffice. He knows, or he ought to know, that this would result in the loss of a large revenue to the postoffice without a corresponding reduction in expenses, and that only the express companies and the railroads would benefit.—La Follettes.

An analysis of sheep manure indicates that it contains about 6.2 per cent of nitrogen, 7.3 per cent of phosphoric acid and 6.6 per cent of potash. It is higher in phosphoric acid than that derived from cattle. In other respects this analysis shows it to be not dissimilar in composition to ordinary yard manure. At prices prevailing for commercial fertilizers, say 18 cents for nitrogen, 4 to 5 cents for phosphoric acid and 5 cents for potash, it would be worth about $3.55 a ton. Of course, its value would depend on the care and skill with which it had been handled. It should be protected from leaching by covering and from fermentation by keeping moist. While the goat has made a good deal of progress in America in the past few years, it has not been as carefully studied as our other classes of live stock, and probably on this account it has been difficult to locate an analysis which would give the data desired.—Coleman's Rural.

The apricot crop of Durham, Butte County, will be about 200 tons.

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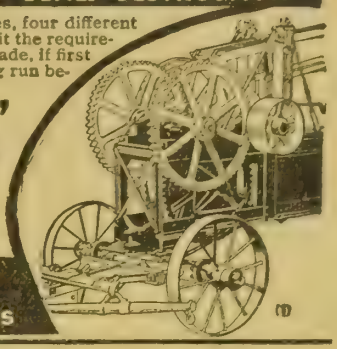

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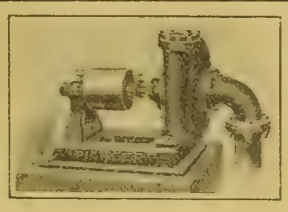

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A Journal of Horticulture and Agriculture.

Subscription Price One Dollar per year, payable in advance. Dates of expiration of subscription accounts appear each week on the address label. "John Jones 7-11" means that John Jones has paid his subscription to July 1, 1911. Notify us by mail if you desire to discontinue.

Advertising rates furnished on application. Copy for change of advertisements must be in the office on Saturday preceding date of issue. New advertising copy must reach the office not later than Tuesday to insure insertion.

Address all correspondence:
THE CULTIVATOR PUBLISHING CO.,
115 and 117 N. Broadway,
Los Angeles, Cal.

Circulation 16,371 Copies

This publication is owned and published by The Cultivator Publishing Company, a California corporation.
Frank H. Thomas, Pres. and Manager.
R. M. Teague, Vice-President.
C. B. Messenger, Managing Editor.
Offices and principal place of business, Nos. 115 and 117 North Broadway, Los Angeles, California.

The San Francisco office is in the Merchants' Exchange Building, room 733, seventh floor. M. C. Holman, manager.

The Eastern office is at No. 150 Nassau street, New York City. Fisher Special Agency, representative.

Entered at the Post Office at Los Angeles, California, as Second-Class Matter.

Thursday, June 29, 1911

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THE INDEX.

Some of the best reading matter in this issue of the Cultivator is on pages 774 and 775. It is the best reading because it refers to a vast fund of information which has appeared in the columns of the Cultivator for the past six months. We like to refer to the page on which this is given because these two numbers, 774 and 775, indicate the number of pages given to subscribers for 50 cents for the six months. We can add one page more, because if the last page of this issue is noted, it will be seen that the pages of the volume total 776. This means 3,104 columns. To be honest we must confess that not all of this is reading matter, though we hope everyone of the columns is read, for sometimes the advertising is of greatest interest. But of the 3,104 columns, over one-half, or 1620, are reading matter.

As so much of this has been furnished by practical field workers and those not directly connected with the management of the paper, we may be justified in suggesting that for the most of California producers this is reading matter of a value which could be found in no other publication. We do not believe any other paper on the Pacific Coast has more original matter furnished by field workers and scientific people than has the Cultivator. We would not claim all the wisdom, but we feel enough pride in this matter to beg our readers, who may also be subscribers to other farm papers, to make comparison in quantity and quality. As to quantity of reading matter furnished, we are 404 columns ahead of our closest competitor.

This affords opportunity for a suggestion made at the time the index was published six months ago, and also a year ago. The suggestion is to file away the papers. Almost every question of interest to producers in California is presented here during each year, and this index enables one to turn almost instantly to the discussion of the point at issue. This file with the index preserved makes the California Cultivator almost a complete library in itself.

A MARVELOUS STORY.

In December, 1909, we gave a "Marvelous Story" which was taken from the advertising columns of the Buffalo Courier. It referred to the scheme of a company with a high-sounding name giving all kinds of guarantees as to results from lands which it urged people to purchase in Florida. As the promoters themselves admitted; "Never have you had such a wonderful offer as we are making. Not only will the lands make you independent for life, but the work of this company pledged to propagate, distribute and market Luther Burbank's wonderful products, will place you in a position to receive immense profits." The lands were sold on the installment plan and in such a way as to appeal to school teachers, clerks and others with limited incomes. In the same editorial we referred to these extravagant schemes and added that "That this will catch thousands of Eastern suckers goes without saying, and the pity of it is that they will be largely those who can ill afford to lose their money." Now comes out in the Rural New Yorker a statement from one of these suckers, but strange to say the correspondent who gives his story and his experience in buying land asserts that it was absolutely worthless and reached only by a day's travel with a team of mules. "The land was nothing but the poorest kind of sand. Mr. McNiel raised one basket of beans and sold it for $1.00; he spent $7400 for irrigating, labor, etc."

DRY FARMING CONGRESS.

Those in charge of the dry farming congress which is to be held in Colorado Springs October 16 to 20, assert that the most valuable and instructive display of dry farmed agricultural productions the world has ever seen will be made at that time. It is urged that all sections send dry farming exhibits for this exposition. California should manifest more interest than she did last year, when at the last congress she put herself in a class with South Africa and South America by sending only one representative, Prof. Shaw of the State University, being the one delegate from this state. Other states of semiarid America sent forty and fifty delegates, all showing most intense interest. California is primarily an irrigation state, but the proportion of land under irrigation is small compared with that on which dry farming methods must obtain for all time to come.

Some of the Rocky Mountain states are already starting movements to perfect county organizations which shall take up the matter of making exhibits. The Colorado state legislature has appropriated $10,000 to be used in the promotion of this congress.

An interesting line of experiments is being conducted by Messrs. W. H. Volck, Horticultural Commissioner of Santa Cruz County, and W. S. Ballard of the Department of Agriculture at Washington, in the effort to secure a remedy for the downy mildew. The experiments are being carried on in the orchards of Mr. Charles H. Rodgers at Watsonville. They consist of all imaginable kinds of sprays upon the trees in every possible method of application. Some material results are being secured in the spraying with aniline dyes. Sulphur, Bordeaux, and other forms of bluestone sprays, lime, soap, crude oil, distillate, are all being used. Just what the results will be no one can predict. Doubtless another year will begin to show results, and we will be informed by the investigators as to the commercial handling of this trouble in the orchards.

The National Lumber Manufacturers Association has issued a voluminous report of nearly 300 pages, giving in full the proceedings of the Ninth Annual Convention, and a statement of the purposes for which the association was formed. The Secretary is Mr. Geo. K. Smith of St. Louis, Missouri, and the book gives complete list of other officers. It contains much of importance to the lumber industry and affords valuable information to all interested in the conservation of American resources.

Prof. Wickson made a point in his address before the nurserymen's convention that perhaps the most criticised men are nursery people. Mistakes are often made by the grower in ordering plants not suited to the location in which they are to be planted; also in his placing labels after plants are set out; again in not giving proper attention at the time of planting with the result that many die. Nevertheless the whole failure is charged up to the nurseryman who sold the goods. We presume the nursery people themselves would not set up the claim of infallibility, but possibly all of the charges are not justly laid at their door. Prof. Wickson jollied his hearers with the suggestion that criticism was of the greatest value to them, in fact, is of value to all of us in compelling us to stop and take stock of ourselves occasionally and figure out the amount of justice in the criticism. When we do this we are reasonably sure to take a step forward unless we allow the criticism to put us in a grouchy frame of mind. Then its value is all lost and we are the losers because of our own grouch.

The California State Agricultural Society is sending premium lists for the 1911 Fair, or as it is officially termed, the Fifty-eighth Annual Exposition. The Fair is to be held on the grounds at Sacramento from Saturday, August 26th, to and including Saturday, September 2nd. The premium list is said to be the most liberal ever issued by the association. Promise is made for a new grandstand, new dairy exhibition building, dairy barns, and other features adding to comfort and accommodation of visitors and exhibitors. We are told that applications for entry blanks are greater than any previous year at this time. The new officers of the organization are: A. L. Scott, President; C. Allison Telfer, Secretary. The list will be sent to anyone who is interested enough to ask for it.

San Francisco County has never had a horticultural commissioner appointed. Indeed, it is not usually regarded as a horticultural county, but we believe such an impression has been the cause of much damage to other sections of the state, as thousands of plants are sent out from that county without inspection, carrying insect or fungus pests. The nurserymen have felt that they were relieved from official inspectors, but now realize that the freedom has meant loss to them, consequently an effort is being made to secure the appointment by the county board of supervisors of a commissioner.

In referring to varieties of spineless cactus, their thornlessness and the quantity and quality of leaf produced, Lurther Burbank in a recent address said that there were more varieties of thornless cactus than there are of peaches; some produce great quantities of fruit, others but little fruit and much forage. Selection of varieties should be made with an idea as to forage or fruit desired. He spoke of one plot of an eighth of an acre, set 2½ by 5 feet, which yielded 46,000 pounds the third year from cuttings.

A suggestion which we recently heard made by a nurseryman has a hint which should be of value to others of his calling. It was in effect that the nurserymen should secure the establishment of a nurserymen's experiment farm. It was not elaborated any more than here given, but we imagine that if the nurserymen would combine and present the matter to the Department of Agriculture or our State University that suggestion might lead to securing state or government aid along this line. The nurseryman's calling is a most important one and every effort should be made to make it as exact as possible.

The total number of irrigated farms in the state of Washington is 7,405, which more than doubles the figures of the census of 1900. The total acreage now under irrigation is 334,378, an increase of 140 per cent over the ten years preceding.

Agricultural News Notes of the Pacific Coast

Northern California

Hop growers near Wheatland, Yuba County, report they expect a big yield.

An apple cider and vinegar factory is in prospect for Sebastopol, Sonoma County.

The sportsmen of Alameda County have declared war on the blue jay and butcher bird.

Twenty cars of fruit have been shipped from Vacaville, Solano County, this season.

Farmers of Clear Creek near Oroville, Butte County, will have a heavy crop of red oat hay.

Several carloads of mules were purchased in Durham, Butte County, for shipment to Honolulu.

Twenty-three counties of the state have acted favorably on the fair tax for the 1915 Exposition.

A wheat grower at Florin, Sacramento County, has found specimens of the Hessian fly in the wheat.

Citizens of Diamond Springs, Eldorado County, have organized a company and will build a creamery.

A farmer at Yankee Hill, Butte County, has just installed nearly 2000 blue-blooded Angoras on his ranch.

Trustees of Reclamation District 1001 held a meeting at Yuba City last week and discussed levee construction.

Eight additional patrolmen have been placed in the Plumas National Forest to minimize risk from forest fires.

Gridley peach growers have contracted some Tuscan Clings at $42.50 and Lovells at $30 for canning purposes.

An assessment that will total $200,000 is to be levied to build levees in reclamation district 684, San Joaquin County.

Property owners near Freeport, Sacramento County, are planning to organize a reclamation district and build levees.

Trustees of reclamation district No. 777 held a meeting at Like Oak, Sutter County, and decided to deepen the ditch to the tules.

Extensive carload shipments of cedar logs are being made from Beckwith, Plumas County, to be used in the manufacture of pencils.

A big standardization meeting was held in Fair Oaks, Sacramento County, last week. The growers seem unanimous in endorsement of the movement.

A demonstration was recently made in Fair Oaks, Sacramento County, of the use of dynamite as an aid to farming in breaking up hardpan to secure drainage.

Levees costing half a million dollars are to be constructed along the Sacramento River between the Feather and Bear Rivers. 33,000 acres will be reclaimed.

Strawberry growers at Orland, Glenn County, are doing well with strawberries this year and anticipate that increased planting will bring big profits next year.

The Davis Almond Growers Association held its first meeting last week and members expressed themselves thoroughly well pleased with the work of the state association last year.

Central California

Some Dinuba raisin growers have contracted their Sultanas at 5c.

Canneries do not expect to start on peaches until the middle of next month.

Apricot growers near Reedley, Fresno County, have received $60 to $65 a ton for their apricots.

The prune crop of the Santa Clara Valley, it is anticipated will be from 50 per cent to 60 per cent of normal.

The plant of the Corcoran Sugar Company has been sold to Los Angeles capitalists at a stated price of $750,000.

Greenfield, Monterey County, has just finished stacking its second crop of alfalfa and is busy irrigating for the third crop.

Turlock Cannery began on apricots June 20th and expects to have them well out of the way for peaches the middle of next month.

Packers are offering $90 a ton for Kings County raisins. Growers are not selling very rapidly, a number holding out for $100 a ton.

The first dried apricots of the season were shipped out from the Oleander district this week. The amount was something over a ton.

Plans are being made for the Prune Carnival to boost that Santa Clara County product at the Third National Industrial and Food Exposition.

The Kerman alfalfa mill was delayed in starting by the unusually cool season, but the heavy second crop now cutting will keep it more than busy.

San Jose Grange at its recent meeting heard an interesting exposition of the cause of sour sap in fruit trees by County Horticultural Commissioner Morris.

Dinuba, Tulare County, claims the largest eucalyptus for its age in the world. It is twenty years old and measures fourteen feet ten inches in circumference.

It is stated that though the number of peaches will be less this year than usual, size will be much better and tonnage will total much better than it has been supposed.

The Terra Bella section of Tulare is rapidly coming into prominence as a producer of citrus fruit and claims that before many years it will be a rival of Lindsay and Porterville.

Tulare County papers estimate that that county's output of oranges will be larger this year by 600 cars than in the past. The trees are loaded and the June drop was remarkably small.

The Santa Clara County Poultry Association elected H. Berar and E. R. Ever delegates to the State Federation of Poultry Associations which will convene in Santa Cruz next month.

Wheat harvesting is on in earnest in the Terra Bella neighborhood of Tulare County. Many of the big ranches have been cut up for fruit culture, but the income from wheat and grain is still a big factor in that district's prosperity.

Orange growers and others of Porterville have signed petitions asking the board of supervisors to refrain from joining the San Joaquin Valley exhibit at the Panama-Pacific Exposition. The county feels strong enough to make a great exhibit of its own.

Southern California

The new sugar factory at Anaheim will begin slicing the 15th of next month.

The Colorado River has passed its highest stage for the present flood season, about 26 feet.

School children of Orange County are valuable aids in the apricot orchards and dry yards.

Imperial Valley cantaloupe growers are netting about 75c a crate for unpicked melons in the field.

A prune famine for Southern California for the next four months is predicted by fruit distributors.

Saticoy bean ranchers are delighted with the cool foggy weather which has been favorable to crop growth.

Four thousand head of cattle from Arizona are being distributed through the Imperial Valley to be fattened on alfalfa.

Farmers of Julian, San Diego County, are planning to run an auto-truck daily to deliver their produce to the San Diego market.

The Pomona canners and dryers are finding a scarcity of apricots this season. As high as $45 per ton has been reported paid.

The Pomona Cannery opened for business June 26th. Extensive improvements and additions have been made to the plant.

The new sugar factory at Huntington Beach, Orange County, is ready for operation. It will take care of over 10,000 acres of beets.

The property of the Huntington Beach Canning Company has been sold and will be transformed into a rolled barley mill and bean cleaner.

San Bernardino County last year harvested 450,000 pounds of honey besides producing 5000 pounds of wax, the whole valued at nearly $30,000.

Brawley, Imperial County, is to receive some effective advertising in moving pictures of its Melon Fiesta and cantaloupe industry from field to train.

Some Crafton, San Bernardino County, citrus growers have experimented with an auto-truck for hauling oranges from groves to packing houses.

Directors of the Escondido Valley Poultry Association will hold their poultry show the first week in December, instead of in conjunction with the September Fair as formerly.

The directors of the Lima Bean Growers Association urge farmers not to sell their beans until after their annual meeting when they can be in touch with every feature of conditions for the year.

San Bernardino County's bee inspector is calling for a county ordinance compelling property owners to keep their land free from milkweed as the fluid exuded by the weed holds the feet of the bees and they starve to death.

The board of supervisors of San Bernardino County has found that apiarists of Utah are running their bees into that county to catch the early flow of honey, later taking their hives away. This has caused the enacting of a new ordinance prohibiting importation of bees into that county without inspection.

The Coast

Wheat and barley raisers of Almira, Washington, estimate a 700,000 bushel crop.

Idaho ranchers are experimenting extensively with rape and millet for forage crops.

Farmers of Yuma Valley are planning to get together for a big Fourth of July celebration.

The Pacific Logging Congress met in Vancouver, B. C., June 22nd, for a three days convention.

Orchardists at Keisling, Washington, are using powder in cultivation of hardpan orchards.

The Grange at Everett, Washington, objects to reciprocity and is out flat-footed for free trade.

The great Rattlesnake district tributary to Prosser, Washington, has over 19,000 acres in wheat.

A sheep man at Pullman, Washington, finds wool production twice as profitable as pork production.

Sheep shearing is on in the Boise section of Idaho. The clip runs a good average in quality and quantity.

Japanese gardeners have purchased 5000 acres of rich land near Galveston, Texas. Rice will be the staple.

The strawberry season of Prosser, Washington, which is just coming to a close, has been exceptionally good.

Miles City and its immediate surroundings claims the shearing of more than a half million sheep within one week.

A Yuma hog raiser last week shipped out 110 head of young Duro-Jersey sows which netted their owner $1320.00.

The first cotton of the season in Texas was baled in Cameron County last week. The first bale of 493 pounds brought a price of $1015.

Three hundred and thirty threshing outfits have been supplied by Walla Walla manufacturers to the harvest fields of the Northwest this year.

Pendleton's second wool sale resulted in no offerings of wool being made. The only sale reported recently was for a small clip at 12½ cents.

Many fruit growing sections of Idaho have sent in petitions to the state horticultural commissioner for the appointment of district inspectors.

The sugar factory nearing completion at Fallon, Nevada, on the Trukee-Carson irrigation project, has 2000 acres of beets already contracted for.

Hay cutting and curing begins this week in the Walla Walla Valley, Washington. Owing to the long period of cool rainy weather the hay crop is exceptionally good.

A new creamery company formed at Kennewick, Washington, will encourage the dairy industry by importing 200 or more pure bred dairy cows which will be distributed amongst dairymen.

Apple crop prospects in the Pacific Northwest are estimated by the Northwest Fruit Exchange as follows: Hood river, 50 to 60 per cent of 1910; Rogue river, 40 to 50 per cent of 1910; Milton-Freewater, 35 to 50 per cent; Wenatchee, same as 1910; Yakima, 30 to 50 per cent of 1910; southwestern Idaho, heavier than 1910; Virginia, 60 to 65 per cent.

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Profit in the Poultry Yard

Practical poultry people who may have ideas from their experience as to methods of feeding and housing and general care of poultry will convey a favor upon the Cultivator and its circle of readers by sending in concise accounts. Mrs. Basley is always willing to answer queries which with the experience of others should make this a most valuable feature in poultry life on the Coast. Opinions or matters of a personal nature should be omitted, but a concise statement of facts is always valuable.

TREATMENT OF DIARRHOEA IN FOWLS.

B. F. Kaupp, Pathologist, Colorado Agricultural College.

The Veterinary Section of the Colorado Agricultural Experiment Station has been experimenting with different remedial agents with the view of finding some drug that would, at least, curtail the enormous loss among barnyard fowls from the various forms of diarrhoea.

Space will permit the discussion of only one agent. The one that has thus far given us the best results is the Sulpho-carbonate compound, prepared by the Abott Alkaloidal Co., of Chicago.

One flock consisted of sixty birds. Several were sick at the time treatment commenced and four had died. The discharge from the bowels was of a greenish-yellow color, somewhat simulating fowl cholera. One thirty-grain tablet was dissolved in a quart of water and this fluid mixed with bran and corn chop. The mixture was then fed in clean troughs. In this way each bird got approximately one-half grain. This was repeated night and morning. No additional birds became sick, only two of those sick died, and the rest recovered.

Another flock consisted of 175 baby chicks. As soon as these birds were taken from the incubator, they were fed the unhatched eggs that had been cooked and chopped. This mixture was reported to possess an offensive odor. The birds began dying with symptoms of diarrhoea, white pasty vent, weak, dull, droopy wings, etc. One-half the flock died before treatment was begun. One-half tablet was dissolved in warm water and the bread saturated with it. The birds immediately quit dying.

Still another flock consisted of 200 birds, including a few turkeys. Cholera had appeared on the premises the fall before. The outbreak was studied in the field and laboratory. The germ (B. Avicepticus) was isolated. In the last outbreak 14 birds had died and several were sick. Similar treatment was used as in the above flocks, except that powder was used instead of the compressed tablets. One tablespoon, rounding full, was dissolved in each two gallons of water. This water was kept constantly before them. No more birds were taken sick and no more died after the sixth day.

The above is a good illustration of three types of diarrhoea in which we have found this drug by far the best agent tried.

The poultry people will probably be able to secure this drug through their local veterinarian or druggist. We have not investigated the commercial side of it.

WHY HENS CACKLE.

My theory follows: The jungle fowl of India, from which all our domestic hens are descended, lives where many predatory animals and reptiles also find their homes. The female jungle fowl for this reason seeks a secluded and safe place in which to deposit her eggs. When she is ready to produce an egg she retires to her nest and broods there for some time. In the meantime her mates have wandered away from the place where she left them. Probably several hens are absent from the flock attending to their maternal duties at the same time. When the egg is deposited the hen quietly goes to a distance from her nest and then begins to cackle in order to announce to her chief that the necessity for concealment no longer exists. The cock at once begins to cackle and the hen knows where to find the flock. Once she gets sight of the flock she ceases to cackle at once. This theory accords with facts.

I have six varieties of hens in close confinement and watch them pretty closely. I have hens that have never cackled so far as I know, and others that cackle once or twice when they come off the nest. I have one breed the hens of which rarely cackle at all after laying an egg.

I have some Pheasant Bantams, which in color and size are almost exact reproductions of the original jungle fowl. The hens cackle after laying an egg just as long as it takes them to find their mate. Very frequently the others of the little flock are close by when a hen comes from the nest and she does not cackle at all. The crow of this little cock is exactly the same as that of the jungle fowls I have seen, short and high-pitched, and he has the jungle bravery. He tackles anything, little or big, that seems about to injure one of his hens.

Domestic fowls have quite a long vocabulary, as plain and as understandable as the language we use in communicating intelligence from one to another. The poultryman who pays proper attention to his birds understands this language as well as he does his mother tongue. He can tell by its language when a little chick is lost, when it is ill, when it is eating or when it is getting ready to go to sleep. He needs to make no investigation to tell when a hawk flies over, when a hen is scared, happy or hungry. He understands what his fowls are saying even when he can only hear their voices. From the time "the clarion cock proclaims the morn" until the fowls fall asleep at night he understands their language and every sound they make is as intelligible to him as if they used the purest English. Miller Purvis, in Breeders' Gazette.

THE HARDINESS OF TURKEYS.

One subscriber disputes my statement that there is no difference in the hardiness and domestic qualities of turkeys, citing the Bourbon Reds as being particularly domestic, hardy and prolific. Such statements are not borne out by a careful consideration of facts. The Bourbon Red is only a few generations from a cross of Bronze and White turkeys, and there is no reason why it should be tamer, hardier or more prolific than either of its parents. I have a neighbor who has Bourbon Reds, and I do not see that they are better in any way than the White or Bronze turkeys of other neighbors, and I have an opportunity often to see all of them. In fact, one neighbor has a flock of Bronze turkeys that are as tame as Bantam chickens, which is the limit among fowls. Another correspondent takes the trouble to send me a government bulletin to prove that I was wrong in saying a turkey with a crest would not be considered pure-bred. This does not change the fact in any way. The bulletin mentions that ocasionally a turkey will have a small crest, but does not say such a bird would be considered fit to enter a show, which is the criterion by which we determine the breeding of fowls. Every one knows that there is a breed of turkeys in southern Mexico and the isthmian states of Central America which carries a crest, or rather an aigrette on its head. This is known as the oscellated turkey, but it has never been domesticated. A turkey with a crest is a freak which should not be used for breeding purposes, if pure-bred fowls are sought, as the crest would debar such a specimen from exhibition anywhere in this country, except as a freak.—Miller Purvis in Breeders' Gazette.

The balanced ration is highly desirable and will insure nomal development and rapid growth. For laying hens the ration should contain more protein than for fowls fattened for market. Laying hens also require more mineral matter, such as crushed egg shells, bone meal, etc., to form shells.

FERTILITY OF EGGS.

We are frequently asked how the fertility or non-fertility of an egg can be determined before incubation. It can't be done and keep the egg whole. If the egg shell is broken and the germinal spot on the yolk is examined, an experienced observer can say whether it is fertile or not. With the shell whole, and the egg known to be from a flock with which males are running, there is no test that will determine whether it is fertile or not until the egg has been incubated for a few days.

The fertility of eggs depends chiefly on the condition of the breeding stock, the number of females alloted to one male, the conditions under which they are kept and the food. If the breeders are in poor condition you will get many eggs that do not hatch well or that produce puny or weakling chicks.

Eggs may be fertile and yet not hatch well. This is because the germs are weak or poorly nourished, because of poorly balanced egg food content. This may be due to debility on the part of the breeders or to poor feeding. Similar trouble results from breeding from birds forced for egg production or from a male that has too many mates and is taxed beyond his capacity. Where such conditions exist chicks will die at all stages of incubation and some for several days after exclusion. The germ may also be injured by overheating the eggs or keeping in too warm a place while saving for hatching. Less frequently trouble may result from chilling the eggs. Strongly fertile eggs from good, healthy stock will often hatch well and produce good chicks under apparently unfavorable conditions. Obviously the remedy for unproductive eggs is to use only healthy breeding stock and to keep the breeders in good condition by good food and good common sense, care and management.—Am. Poultry Journal.

SELECTING EGGS FOR HATCHING.

In selecting eggs for hatching, great care should be exercised. There is great difference in eggs and although it is not generally known, it is possible to arrive at some idea of their possibility of hatching before they are put into the incubator or put below the hen. An egg which is to produce a strong chicken, should have a shell which indicates an even texture. If, by holding it up to a strong light, the shell appears to be porous or patchy, or there is a ridge or thickness encircling the eggs at some point, or a roughness on both or either ends, discard such eggs, and do not try to hatch them, for you will be disappointed. In a fresn egg the air cell is always small. As the egg becomes older, the air cell increases in size. A few practical tests will teach you the difference, so that you can quickly make the proper selection.—No. Dakota Farmer.

Always keep your poultry house light and dry. Lice and sunlight do not agree at all, and where there is a great deal of sunlight there are liable to be very few lice. Provide plenty of dust baths for your birds. If a hen can wallow in dust, she will usually keep reasonably free of lice. Add a good insect powder or the home-made powder to the dirt in the dust boxes. Carbolate of lime is also good to use in the dust baths, and it is also a good plan to powder this around the floor and walls. If the lice and mites get a foothold among your young chicks, they will make a clean sweep there.

Vegetables should form a good portion of the diet for poultry the year round is the opinion of Commercial Poultry. They promote health, increase the egg yield and are an economical feed. Celery tops, cabbage leaves and such other refuse vegetables as are available in the winter help. A good ration for laying hens is composed of wheat, buckwheat, oats and corn, the wheat predominating.

Milk is as good a feed for hens as for pigs, and will bring as much profit.

The surest way of having the best is to breed from the best.

Eggs can't be had without hens, but some can take most any hen and induce her to lay.—Coleman's Rural.

DON'TS FOR INCUBATORS.

1. Don't shake your incubator or the incubating eggs, as it ruptures the embryos and causes the chickens to die in the shell.
2. Don't have dirty, oily lamps or short wicks that smell up the incubator room.
3. Don't put the thermometer where the first chick that comes out of the shell will knock it down.
4. Don't worry about the hatch on the last day. Just see that the temperature is O. K. and forget it.
5. Don't use the incubator for a wash bench.
6. Don't set the machine in the hen house where vermin will get into it.
7. Don't lend your machine. Let the other fellow invest in one also; it will do him good.
8. Don't forget that the brooder must be ready for the chicks, so don't wait until the last moment before getting it cleaned and warmed up.

When you take the eggs out of the machine to air, it does not mean to cool them; although they do cool in the airing. When the eggs are airing, the incubator door should be closed in order to keep the egg chamber warm. It often takes an hour for eggs to reheat after being aired.—Poultry Standard.

Charcoal is a great absorbent and should be used freely in the drinking water. A little pulverized charcoal fed occasionally will greatly assist in maintaining the health of the fowls. The best plan is to have it handy and when feed is being mixed, put a spoonful in the mush. This should be done once or twice a week.

If you confine broody hens, do not neglect to give them feed and water. Too often they are forgotten and allowed to suffer. If they must be confined, put them near the feeding pens, where you will be reminded whenever you go to feed the others.

Success depends almost wholly upon management, no matter what breed you have.

You poultrymen put your hens on the right foundation when you use Lee's Lice Killer. There are other lice killers, but only one LEE'S—remember that. One of the best endorsements of

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Stallions for Sale—Acclimated animals. All harness broken, sound and gentle. Leader 40637. Dapple gray, 8 yrs. old. Ladoga Leon, 66619, 2 years old. Dark gray. Dam weighs a ton. Liberty 74310. Black yearling. These three are registered in the Percheron Society of America. Atwood, bay carriage stallion, 2 yrs. old. Solid color. Sired by Athadon, 1st dam by Junio, son of Electioneer. McKinney Don, 2 yrs. old. Solid bay with black points. Sire Stanford McKinney. 1st dam Belladonna, standard by trotting record. 2nd dam by Athaneer. Both well broken to buggy. Minnewawa Stock Farm, Fresno, Cal.

My Angora Goat outfit is for sale at $750; includes 230 goats, supplies, tools and use of ranch for first year. Located in the Sierras; fine water, climate, scenery and soil. Fred S. Summer, West Point, Cal.

Dairy Floating Thermometers and all kinds of supplies for the dairy at Guy F. Kelsey Co., 108 E. 8th St., Los Angeles. Phone Sunset Main 7496.

For Sale—Shorthorn bulls and Berkshire hogs. Bred for size and quality. H. L. Murphy, Perkins, Cal.

Three Holstein Friesian Bulls, splendid young animals for sale, well marked and subject to registry. Write at once to Geo. G. Roeding, Fresno, Cal.

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Wanted—Competent, reliable man on lemon ranch near Los Angeles. Have work also for wife. Must understand care of lemons and be willing to work. Permanent place for good man. Address Box O, Cultivator.

Local Representative Wanted — Splendid income assured right man to act as our representative after learning our business thoroughly by mail. Former experience unnecessary. All we require is honesty, ability, ambition and willingness to learn a lucrative business. No soliciting or traveling. This is an exceptional opportunity for a man in your section to get into a big paying business without capital and become independent for life. Write at once for full particulars. Address E. R. Marden, Pres. The National Co-Operative Real Estate Company, L 448 Marden Building, Washington, D. C.

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Have You a Cow?—Have you a creamery? Have you a cheese factory? **Write us.** Everything used in either a dairy, creamery, cheese factory, or for handling milk, cream, butter, or cheese. We are in a position to quote you prices on entire creamery or cheese-making outfits. We make a specialty of only the latest and best sanitary machinery and supplies. Send us a list of what you want and we will quote prices which we feel certain will interest you. O. J. Weber Co., 225-227 East Sixth St., Los Angeles, Cal.

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Imperial Valley Fruit Ranch to Let—160 acres in early table grapes, apricots, alfalfa and cotton; 2 miles from county seat. Tenant must have experience, and $3000 capital to furnish labor. Address Horticultural Dept., Box 2, El Centro, Cal.

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50 gallons to 50,000; 3000-gallon tanks at $29. Why buy new when we save you half and guarantee material? Demmitt Company, 120 N. Main St., Los Angeles, Cal.

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For Sale—Pomona deep well pump, 35-inch capacity. Used only 30 days. In first-class shape. Will sell cheap. Chris Robson, Highland, Cal.

For Sale—16 H.P. Foos gas engine, also 9 H.P. Both overhauled and guaranteed. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—Small gas engine with pump jack attached, separate if preferred. Bailie & Brandt Co., 943-945 N. Main St., Los Angeles, Cal.

For Sale—One 32 H.P. Fairbanks-Morse distillate engine, like new. Machinery Exchange, Main and Bruno Sts., Los Angeles, Cal.

For Sale—A complete tree spraying outfit cheap. Jordan Oil Co., Joy and Santa Fe track, Los Angeles.

SEEDS

Ahuacate (Alligator Pears, Avocados), Persea Gratissima. New crop is now coming from Mexico. None better for stock. $4.50 per 100; $40 per 1000. Montarioso Nursery, Box 1500, Santa Barbara, Cal.

NURSERY STOCK

For Sale—First class Eureka Lemon trees. Inquire D. N. Findlay, 218 Orange St., Redlands, Cal.

FARM LANDS WANTED.

Farms Wanted—We have direct buyers. Don't pay commissions. Write describing property, naming lowest price. We help buyers locate desirable property Free. American Investment Association, 12 Palace Bldg., Minneapolis, Minn.

AUTOMATIC POULTRY FEEDER.

Many poultry feeders have been placed upon the market, of more or less value. A new one to the Pacific Coast is now offered by the Bayley & Lyon Company of San Francisco. This appliance was first brought out a year and a half ago at Norwich, Conn. Before it was offered to the trade, however, a number of the machines were placed in experiment stations, and reports made by the staffs of these stations were so favorable that they are now being placed in all markets. They are well made, will last a lifetime, and, with it all, the price is low. Poultry readers should write Bayley & Lyon, who represent the Norwich Automatic Feeder Company on the Coast. It is said that 50 per cent of the labor of feeding is saved by the use of this device, and an actual saving of 25 per cent in the feed cost is another factor. The egg production has also been increased 18 per cent. The manufacturers say they have placed 20,000 of these feeders with Eastern poultry people.

GROWING.

A social event which those who participated in hope will be repeated every year, took place at the Mt. Washington Hotel, Los Angeles, last week when the business management and employes of the California Drug and Chemical Company gathered to celebrate the change of name of that concern and the great increase in its business. Of course there were heavily laden tables and enthusiastic speech making by the heads of various departments. This is the concern which has presented its announcement for several years to readers of the Cultivator under the name of the Braun Chemical Company. The addition of a general wholesale drug business and the confusion with other firms of the Coast is the cause of this change.

The Byron Jackson Iron Works of San Francisco has just completed a notable order for the Chicago-Rogue River Company, for pumps to be used in their plant for raising water to the ditches of the Josephine Irrigation and Power Co. of Oregon. The contract called for one ten-inch horizontal belt driven, 4-stage centrifugal pump to deliver 3500 gallons of water per minute under a head of 365 feet, and one 10-inch horizontal series 2-step belted centrifugal pump to deliver the same quantity of water under a head of 210 feet. The order was placed on May 1st, and shipment was made just two weeks later. The designing of pumps for duty of this kind calls for the highest type of engineering skill, and the layman who sees and admires the machinery in action little dreams of the problems that have to be solved in cases of this kind before the drawings are sent to the workshop. The Byron Jackson Iron Works make a specialty of work of this kind, and their engineering force is fully capable of handling any kind of problem connected with the pumping of water.

Questions and Answers

THE EDITOR AND STAFF

Questions to be answered in this department should be received at this office a week before reply is expected. Write only on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Lizards in Apiary.

In reply to Hemet, page 674, you can catch the lizards by placing a few of the flat spring-over mouse traps in the runs of the lizards. What a pity we cannot train the lizards to eat the ants and leave the bees alone! Why not try raising the hives on blocks? Procure some 2x4 scantling, and cut your block 5 inches long. Make a slope 4 inches long by 1 inch deep. Three of these blocks will level up a hive, one at back and one at each side, raising your floor board away from the lizards.—Joseph Gray, Wasco.

Ridding Apiary of Lizards.

Place a box, barrel or small tub that will hold water in convenient place in apiary or between hives in such a way that hives are about level with top of tub. Take a piece of thin board, a shake, side of orange box or the like. two inches wide and long enough to reach across the tub. Shave off one side, tapering from near the middle to each end, leaving only about three-quarters of an inch at each end. Then hollow out the opposite side in the middle for a few inches. Sharpen a piece of the board three or four inches long, and insert in the center of the hollowed out side in such manner as to evenly balance the board on the tub. As the lizard crosses this tipping board he is dropped into the water below. I have seen seven mice caught in a dishpan of water in one night by this method. A large bucket will do for lizards. Bait with cheese for rats and mice.—Subscriber, Ceres.

Irrigating Asparagus.

Last fall we transplanted our old asparagus bed, putting it on land that without irrigation would be high and dry before now. It has six or eight stalks to the plant and green berries on now. So far I have kept the ground moist. How much longer should it be irrigated? Would potash be any help to keep oats from lodging on summer fallowed land where there is no humus? How much should be used per acre?—Subscriber, Lakeside.

If you wish good results from the asparagus, continue to irrigate it until fall, just as you would any other crop that you wished to make a fine growth. If you keep it growing until the end of the season you should be able to use some of it next spring, but do not cut for too long a time. After next year you should have a full crop. Fertilize with stable manure if you can get it. —Q. A. L.

Plowing Out Old Alfalfa.

I have alfalfa badly run out, now planted with barley which is ready to cut. The alfalfa remaining would probably not make a third of a crop. Is it a good plan to reseed on old stand? Soil is sandy loam. If plowed out, how long would it take to get ready for alfalfa again? Would it be well to rent to Japs for truck farming in order to get rid of the alfalfa?—Subscriber, Highland Park.

We would not under most circumstances rent to the Japs for gardening, for the land is worth too much to permit of the exhaustion which would probably result. The method of handling and reseeding as given by Mr. Neff is as follows:

"When alfalfa is in the condition stated it will be much the best to plow the field instead of reseeding. In order to make a success the land should be plowed twice, using a sharp, thin plowshare. The first plowing should be as shallow as can be done to cut all the roots, then in about three weeks plow again as deeply as the plow will turn a furrow. It will be better to use a sixteen-inch plow than one narrower. It will be best to plant a crop of corn after the plowing, and follow with one or two crops of potatoes before sowing the land to alfalfa again, though alfalfa can be sown after the second crop of corn if the cornstalks are plowed under deeply so as to be out of the way of the mower."—J. B. N.

Gas-Tight Tents.

I have fumigating tents leaking badly. What can be done to fix them? Is crude oil satisfactory?—Subscriber, Fullerton.

If the cloth is old and rotten, the sooner it is discarded the better. If comparatively new and coarse-meshed, it may be helped for a short time by saturating with a solution of tannin. This tends to close the pores somewhat. A still better method perhaps is the use of the cactus solution. This is the leaves of the ordinary desert cactus thrown into water until the mucilage-like substance fills the water. This gives a coating which lasts for some time, but the best method of all is the original purchase of the cloth which is used generally. The ordinary duck of the tent maker proves rather too porous to be satisfactory. The cost of material is too great to use these tents after they have lost their gas holding capacity.

Red Ants.

How can I rid my place of red ants? They persist in coming into the house, cupboard and every place where they are not wanted.—Subscriber, Kingsburg.

One of the best remedies is a slight sprinkling with buhach, which is a California product, and if secured fresh will drive away ants or almost any insect infesting the place. We have seen shelves on which was some sweet the ants were after, surrounded with a very light sprinkling of the buhach, and within an hour every ant would have left, and the same place not be infested again for weeks. There are other remedies, some of which have been advertised in the Cultivator. We may refer to Kellogg's Ant Paste, which a great many claim is especially good. Another way is to follow out the trail until the regular home of the ants is found, and then carbon bisulphide poured down the hole and a wet sack laid over will usually destroy the whole bunch.

Damping Off.

I send you a young plant from my orange seed bed. After they have two, or at most but very few leaves, they die off by the thousand.—Subscriber, Porterville.

This is simply the attack of fungus usually spoken of as "damping off." It is caused by too much moisture at the surface of the ground. Some have overcome it in part at least by the liberal use of charcoal on the surface of the soil. The use of good sharp sand in surfacing up the seed beds is also a help. Again, one should be very careful and sprinkle the plants in the morning, so the sun will dry off the surface soon after the sprinkling. Sprinkling at night in warm season encourages the growth of fungus, and before morning thousands of plants will die.

Potash in Oats.

Would potash keep oats from lodging on summer fallowed land where there is no humus? How much should be used per acre?—Subscriber, Lakeside.

I think an application of 200 pounds of potash per acre would be a benefit. Sow it evenly over the land when you sow the oats and harrow it in.—Q. A. L.

Flavor of Oranges.

In the Cultivator of some weeks ago we answered the question as to the flavor of Arizona oranges and said: "Climate and soil conditions are no doubt responsible for the grade of fruit produced in Arizona." Dr. R. R. Snowden, of Los Angeles, now writes that if a representative sample of soil from Arizona orchards is sent to him prepaid, he will analyze and try to discover the difference between that and the soil of some orchards where oranges are not so good. We have written Dr. Snowden that we did not think soil analysis will definitely answer the question of quality of fruit. We think this matter of quality is one of balance in the forces of nature, and determination of any one factor will have little to do with quality.

Pears Dropping.

I send you small pears which turn yellow and drop always before they arrive at the size of a small cherry. What is the cause and remedy." I sprayed with the 4-4-50 Bordeaux to which was added Paris Green. Could it be that the Bordeaux was the cause of the failure?—Subscriber, Lakeside.

This was referred to Dr. J. E. Coit at the Whittier Pathological Station, and he writes:

"After examining the specimens with Professor Smith, we came to the conclusion that the pears are turning black and falling off on account of a lack of proper pollination. In making a cross section of those which were green on one side and black on the other, we find it invariably the case that on the black and shrunken side the seed have failed to develop. This denotes partial pollination. Where the entire fruit was black, we found no seed developing due to entire lack of pollination.

"Spraying will not help matters. The remedy is to plant near the non-bearing trees varieties which bloom at the same time and bear an abundance of pollen. If this is not practicable, you might put into the tops of the non-bearing trees a few grafts from desirable pollen-bearing varieties."

Weevil.

What is the best method of preventing weevils from getting into grain?—Subscriber.

The best method is fumigation with carbon bisulphide. One pound of the bisulphide will probably be sufficient for 100 bushels of grain. Place in tight bin where the gas cannot escape and leave over night, setting the bisulphide in shallow dishes on top of the grain. The gas is very heavy and will settle through all the grain and destroy everything that breathes. Of course, if the building in which the grain is stored is badly infested, other treatment may be necessary for perfect protection.

Drying Peas.

What is the process of drying garden peas for table use?—E. L.

The only method we know of is either the regular patented process of evaporation or curing fresh vegetables which has been advertised in the Cultivator and is doubtless the best, or as some have done, allowing the peas to become almost ripe, then drying in the sun. The first process mentioned gives the product which when prepared for the table is practically equal to the fresh peas from the garden, but appliances to conduct this process would be too expensive to install for home use only.

Germs Detected in Milk.

Can the germs from a tuberculous cow be detected in her milk, and will those germs endanger the health of human beings?—M. E. F., Goshen.

Health officers assert that these germs can be detected in the milk from tuberculous cows, but we venture that the claim that it can always be done would be disputed. There are various stages in this dread disease, and there might be times when the worst infected cow might fail to give off any germs in her milk. However, we do not wish to speak too positively in this matter because it is ground on which there has been much discussion and difference of opinion. It is safest to assume that there is danger of infection and discard all milk from animals known to be diseased.

Chronic Bronchitis.

A valuable cockerel after a hot spell became affected with a bronchial hacking cough. Careful examination revealed no obstruction. Olive oil, turpentine, kerosene and roup cures do not seem to cure. Never has lost bright comb and is vigorous. Can you help us? Do foamy soft brown droppings indicate worms in the bowels? Do reddish flesh colored droppings indicate the same? Will turpentine cure most safely and surely?—Subscriber.

Try a teaspoonful of honey with five drops of eucalyptus oil in it three times a day. Keep it up regularly for a week. This will usually cure. Honey is one of the most useful medicines in bronchial affections. Another good soothing tonic is a fresh raw egg put into a bottle and the same amount of olive oil added. Shake vigorously so as to mix it thoroughly and give a teaspoonful three times a day. Soft brown droppings usually indicate too much animal food or bad animal food, or indigestion. Add charcoal to the mash and carefully examine the animal food, as if bad it may result in ptomaine poisoning. The reddish color in the droppings is a leading symptom of worms. I have found turpentine and castor oil the best and safest remedy. Thoroughly clean and disinfect your yards. My chickens became affected with worms from the droppings of neighboring pigeons, and I have known of other fowls getting them from wild birds. Plant a green crop as soon as possible, and give the fowls as much green food as you can supply. At this season of the year fowls need more green food than most persons give them.—A. B.

Faulty Incubation.

What is the cause of chicks hatching and not absorbing the yolk, also the entrails around drawn in? This machine has made fine hatches throughout the season. Duck eggs in the same machine hatched 92 per cent. I applied no water, as the machine was standing in water part of the time and the moisture indicator indicated correctly. Chickens are covered with a sticky substance and do not dry fluffy.—Subscriber.

Evidently the heat was too great during the last week. This would make the hatch too early and the yolk would not be properly absorbed. The white would also be too much dried and would be sticky. These results come from overheating and are more likely to occur in warm summer weather than at any other season. I would advise you to run the machine about half a degree lower in the summer than in the spring for the whole hatch.—A. B.

Early Moult.

My hens were a year old last February and have been laying since early last fall. They are now moulting. Is this as it should be or not? I am a novice in the chicken business.—J. S., Kenwood.

If the inquirer had mentioned the breed it would be easier to give the reason of the early moult. If hens did not moult last year in their pullet year they are likely to moult early this summer, at least this is the rule. Also if your hens have been sitting and hatching chickens they usually moult early, and if you handle them right they will make good fall and winter layers from having an early and natural moult. If all our inquirers would bear in mind to mention the name of the breed that they have it would be easier to answer the questions. Each breed requires different handling and different food.—A. B.

Chicken-pox.

Some of my 7-weeks old chicks are dying fast. They have something like a wart come on their nostrils and eyes and some under the beak. Some I greased with sulphur and lard under the wings and on the head and for one day they seemed better, but the following day they died off fast. The skin under their wings looked cooked and has a bad smell. There is no pus in the warts and when I loosen the scab it bleeds, dark, thick blood. Can it be a form of chicken-pox?

Your chickens have chicken-pox. The cure is to put a little carbolic salve on each "wart" or spot, and give the chickens a little sulphur in their mash, about a teaspoonful for a dozen chicks per day for a week; feed soft food like bread and milk, and put a little Epsom salts into the drinking

(Continued on Page 771.)

San Francisco-Los Angeles Produce Markets

Los Angeles Market

LOS ANGELES, June 28, 1911.

Butter.

Prices on butter remain unchanged. Receipts are light, some days even below 50,000 pounds.

Prices to trade 2½c in advance of the following Produce Exchange quotations:

Extras	22½
Firsts	21½
Ladles	18
Country	15
Eastern	21

Cheese.

Local Anchor	16
Oregon Daisy	16@16½
Northern Fresh	14½
Domestic Swiss	18
Imported Swiss	30@32

Eggs and Poultry.

Eggs have recovered some of last week's lost ground and a two-cent advance is noted with a very firm condition prevailing at present.

Paying prices f. o. b. Los Angeles are:

Local Ranch, candled	26
Case count buying price	22
Northern and Imperial	20@24
Eastern	21

Dealers pay for live poultry f. o. b.:

Hens, per lb	13@15
Roosters	8
Broilers	18
Fryers	20@23
Roasters	21
Turkeys	22@23
Ducks	14@15
Geese	15
Guinea hens, doz	4.00
Squabs, doz	1.75

Live Stock.

The following quotations are f. o. b. Los Angeles on all stock:

Hogs, 175 to 200 lbs	7@7¼
Prime steers	6
Heifers	6
Calves, per lb	6½
Sheep, ewes, per head, shorn	4.75
Lambs, per head	3.75@4.25
Wethers, shorn	5.00@5.50

Potatoes.

Wholesale prices are:

Sweets, yellow, lb	15
Sweets, red	3.00
New potatoes, lugs	75@85

Onions.

Wholesale quotations:

Silverskins, ctl.	2.75
Bermudas, crate	1.90
Yellow Danvers	2.25
Garlic	8@10

Vegetables.

Wholesale quotations:

Artichokes, northern, doz	50@85
Asparagus, lb	7@8
Beets, doz. bunches	20@25
Bell peppers, lb	35
Beans, lb.	3@5
Beans, wax	4@5
Green chilis	12@13
Cucumbers, lugs	1.00@1.50
Cabbage, sack	1.15@1.30
Celery, new, doz	75@1.00
Carrots, doz	20@25
Corn, lug	50@75
Horseradish, lb	12½
Onions, green, doz bunches	10@15
Kolrabi, doz bunches	40
Leeks, doz	35@40
Lettuce, crate	75@95
Mushrooms, basket	3.50@4.00
Oyster plant, doz	35@40
Okra	4@5
Peas, lb.	3@5
Parsley, doz bunches	20@25
Parsnips, doz bunches	20@25
Radishes, doz bunches	15@20
Rhubarb, Strawberry	1.75@2.00
Spinach, doz	15@20
Squash, summer	35@40
Spearmint, doz	25@30
Tomatoes, Mexican, crate	90@1.35
Turnips, doz	30@35
Watercress, doz	25@30

Citrus Fruits.

Valencias	2.25@2.75
Grapefruit	1.75@3.25
Lemons	1.75@5.00
Limes, hundred	1.25

Fresh Fruits.

Wholesale prices on the market are:

Apricots, crate	1.25@1.50
Pearmains	2.75
Currants	8@10
Cantaloupes, ponies	1.15@1.25
Cantaloupes, standard	1.30@1.45
Cherries, black, bulk, lb	10@12
Cherries, white, bulk, lb	8@9
Figs, box	1.25@1.75
Grapes, Sweetwaters, crate	1.10@1.35
Grapes, Thompson Seedless, lug	2.00
Grapes, Black, crate	1.50
Bananas	4@4½
Loquats, lb	4@6
Loganberries	7@8
Peaches, lug	1.25@1.50
Pineapples	7@8
Plums, Clymans, lug	2.00
Dewberries	4@5
Blackberries	3@5
Raspberries	5@6
Gooseberries, lb	8@10
Strawberries	5@6
Watermelons, lb	1@2

Dried Fruits.

Wholesale prices are:

Apricots	14@18
Evaporated Apples, fancy, lb	18
Figs, box	1.85@2.25
Peaches	8@10
Nectarines	10
Pears	13@14
Prunes	11@14
Plums	10@11

Beans Dried.

Wholesale quotations:

Limas	6.25@6.50
Black eyes	8.00
Pinks	6.25
Lady Washington	4.25
Small white	3.75@4.00
Mexican reds	5.00@5.25
Garvanzas	4.50
Bayous	4.50
Lentils	6.00@7.00

Nuts.

Wholesale quotations are:

No. 1 soft shell walnuts	18
Chestnuts	10@12
Almonds, IXL, lb	17@18
Pecans, polished	15@16
Peanuts, Eastern	8
Peanuts, California	6
Pine Nuts	18@20

Honey.

Wholesale quotations:

Extracted water white	9
Extracted light amber	8
Comb water white	18@19
Light amber	15
Beeswax	30

Hay.

Buying prices f. o. b. cars Los Angeles are:

New barley hay	10.00@12.00
No. 1 old barley hay	12.00@13.00
Wheat hay	12.50
Tame oat	13.00@14.00
Alfalfa	12.50

Grain.

Wholesale selling price f. o. b. Los Angeles:

Wheat, new, cental	1.85
Corn	1.65@1.75
Kaffir	1.75
Millet	3.25
Popcorn	4.00@4.25
Egyptian corn	1.65
White oats	1.80
Rye seed	1.90
Seed barley	1.50
Broom corn	1.50

Feed Stuff.

Wholesale selling price f. o. b. Los Angeles:

Alfalfa meal	1.10
Cracked corn	1.70
Cracked wheat	1.95
Shorts	1.90
Bran	1.65
Oil cake meal	2.50
Feed meal	1.75
Rolled barley	1.50

San Francisco Market

SAN FRANCISCO, June 27, 1911.

Butter.

A decline of a cent a pound is made on butter extras; all other grades same as last week, with normal receipts.

Price to trade 2½c in advance of the following Produce Exchange quotations:

California extras, lb	21½
Prime firsts	21
California firsts	20
Seconds	19

Cheese.

Cal. flats	10@12½
Cal. Y. America, fy, new	12½@13½
Oregon, fancy	13½

Eggs and Poultry.

Eggs are very firm with slight advance and promise of still further strengthening of the market.

Official quotations of the San Francisco Wholesale Dairy and Produce Exchange are:

Fresh ranch extras	21½
Prime firsts	20
Firsts	19
Seconds	17
Eastern seconds	15
Select pullets	18
Hens, doz	4.50@9.00
Fryers, doz	5.00@6.00
Ducks	5.00@7.00
Broilers	2.00@3.50
Roosters, doz	4.00@9.00
Geese	2.00@2.50
Pigeons	1.75@2.25
Squabs	2.00@2.50
Rabbits, doz	2.00@2.50

Live Stock.

San Francisco prices, gross weight:

Steers	4.50@5.50
Cows and heifers	3.50@4.75
Calves, lb	5@6½
Hogs	5@7
Wethers, No. 1, unshorn	4½@4¾
Milk lambs	5
Ewes, No. 1, unshorn	4@4¼

Shorn, ½ cent less.

Potatoes.

Wholesale market quotations:

Oregon, cwt.	3.00@3.50
New potatoes, cwt	2.00@2.75
Early Rose	2.25@2.75
Eastern	2.00@2.60
Burbanks	2.25@2.50

Onions.

Australian	2.75@3.00
New green, box	50@65
Red new, sack	1.40@1.50
Silverskins	1.50@1.75
Garlic, lb, new	3@3½

Vegetables.

Wholesale quotations:

Asparagus, box	75@1.50
Beans, string and wax	4@5½
Bell peppers	10@15
Carrots	60@75
Cucumbers, box	50@1.75
Corn, doz	15@45
Celery, crate	1.50@2.50
Chili peppers, lb	12½@15
Cauliflower, doz	75@1.00
Egg plant, lb	15@20
Lettuce, crate	75@2.00
Okra, lb	6@10
Peas, sack	1.00@1.75
Rhubarb, Strawberry	75@1.00
Summer squash, lug	65@1.50
Tomatoes, crate	35@50
Turnips	60@75

Citrus Fruits.

Valencias	2.00@3.00
Grapefruit	75@2.75
Lemons	2.00@5.50
Limes, Mexican	4.50@5.00
Tangerines, halves	1.25@1.50

Fresh Fruits.

Apricots, crate	75@1.00
Apples, Early Harvest	50@75
Apples, box	1.00@1.50
Apples, new, green, 20-lb box	50@1.50
Cantaloupes, ponies	1.35@1.50
Cantaloupes, standard	1.50@1.75
Cherries, white, lb	4@5½
Cherries, black, lb	5@7
Cherries, white and red	55@75
Currants, drawer	90@1.15
Currants, chest	8.00@9.00
Figs, layer	65@75
Peaches, box	40@65
Pears, box	1.00
Plums, box	60@85
Loganberries, chest	3.00@3.50
Blackberries, chest	4.00@5.00
Raspberries, chest	5.50@12.00
Gooseberries, drawers	75
Strawberries, Banners	7.00@8.00
Malindas, chest	4.50@6.00
Pineapples, Hawaiian	2.00@3.50
Bananas	1.00@1.50
Watermelons, lb	2

Dried Fruits.

DRIED FRUITS—1911 crop, f. o. b., carload lots, per lb.—Apples, 8¾@9¾c; Apricots, 14½@16½c; Peaches, 8¾@10¼c; Prunes, bulk basis, 4¾@5½c; per lb., 3⅝@7¾c, with a premium of ½@1c on large sizes; Figs, 5@6c for White; Pears, nominal.

RAISINS—1911 crop; Seeded, per pkg. —Fancy, No. 16, 7½@7¾c; Choice, No. 16, 7@7¼c; Loose Muscatels, in 50 lb boxes—Standard, 4-crown, 6½@6¾c; do, 3-crown, 6c; do 2-crown, 5½c. Seedless —Muscatels, 5c; Sultanas, 6@6¼c; Thompsons, 6¼@6½c.

Nuts.

Walnuts, No. 1 soft shell	16@16½
Walnuts, No. 1 hard shell	14½
Almonds, '10, N P U	15c
Almonds, 10 Nonp	17
Almonds, '10, I X L	16
Almonds, Peerless	13½
Pecans	14@17
Chestnuts, California	6@8
Peanuts	5@5½

Beans Dried.

Limas	6.20@6.30
Pink	4.75@4.90
Black eyes	6.75@7.00
Small white	3.35@3.45
Large white	3.35
Kidneys	6.25@6.35
Garbanzos	2.50@3.25
Bayou	3.90@4.00
Horse beans	3.50@4.00
Red Mexicans	5.35@5.50
Cranberry	3.75@3.90

Hops.

Hops, coast, 1910	22@24
Hops, 1911 contracts	21@25
Hops, Oregon, 1911	21@25

Honey.

Water white, comb, '11	15
Dark comb	12½
Extracted white, '11	9@10
Extracted dark	6½
Beeswax, lb	24@30

Hay.

Scott, Magner & Miller say:

The amount of hay that we have received on the San Francisco market during the week ending today amounted to 2850 tons. A large proportion of this came in by the boats from barns and warehouses located on the water, and consisted entirely of old crop hay. There have been comparatively light arrivals by the railroads.

The reports from the various hay districts apparently show a much larger yield than even the most sanguine expected a few weeks ago, and even where the crop shows apparently short from former yields it is thought that the weight will probably make up somewhat to swell the tonnage of the total crop. There appears to be no effort made on purchase account in any direction, as it is still very early and the market as yet entirely undetermined.

The alfalfa situation is very quiet, and very little of this article is being brought into San Francisco. The crop reports on alfalfa are encouraging, and the yield and quality shown to be good. We do not see any outside outlet for alfalfa hay such as we had last season, which helped the general market materially.

We quote the wholesale prices in round lots on today's market as follows, viz:

Fancy wheat hay	13.50@14.50
No. 1 wheat or wheat & oat	11.00@12.00
No. 2 wheat or wheat & oat	10.00@11.00
Choice tame oat	10.00@12.50
Other tame oat	8.50@10.50
Wild oat	9.00@10.00
Stock hay	6.00@8.00
Alfalfa	9.00@10.50
Straw, bale	40@50

Grain.

Wheat	1.42@1.50
Barley, fancy	1.28¾@1.30
Barley, good to choice	1.25@1.27½
Oats, white	1.50@1.60
Rye	1.50@1.60
Mustard, brown	5½
Alfalfa seed	5½
Millet	3@3½
Flaxseed	5@5½
Broom corn seed, ton	25.00

Feed Stuff.

Alfalfa meal	14.00
Bran, ton	27.50@29.00
Feed cornmeal, ton	33.00@34.00
Cracked corn	33.00@34.00
Rolled barley, ton	26.00@27.50
Rolled oats, ton	29.00@30.00
Middlings	32.50@35.00
Oil cake meal	42.00@43.50
Cocoanut cake, ton	25.50@26.50
Mixed feed, ton	25.00@27.00
Shorts	29.00@30.00

Deciduous Fruit Market

Sacramento, June 24, 1911.

Manager McKevitt of the California Fruit Distributors reports:

The following gives number of cars of deciduous fruit shipped from all points in California for the week (7 days) ending Friday morning, June 23, 1911:

Cherries.

Forty-six cars. This week's report shows a gain of practically three cars over last week. The crop is now past its zenith and shipments may be expected to decline from this time on. The Santa Clara valley is the only section shipping at the present time.

Apricots.

Seventy-eight and one-quarter cars. The apricot movement shows a heavy gain this week. Fruit is coming from several different sections and is being widely distributed. Up to the present there have not been enough cars of this fruit to go around. No difficulty will be experienced in future, however, in supplying the demand. Movement will continue for the next week for about the same volume if the demand justifies, after which time a material falling off will undoubtedly be noted. Fruit is of good quality, free from defects and is giving splendid satisfaction.

Peaches.

Forty-seven and three-quarters cars. Peach movement now consists very largely of the Triumph, of which variety straight cars are now available for quotation. Fruit is of fair size and good quality. Hales and St. Johns will follow. A few of them will probably make their appearance the latter part of next week. Crop of early varieties of peaches is very good.

Plums.

Thirty-nine cars. Shipments of Clyman plums are now nearly concluded. Tragedy, Burbank and Climax are becoming more plentiful but are still scarce, owing to poor ripening conditions.

Pears.

A few early pears have already gone forward. More will be shipped this coming week. Bartletts are not expected to make their appearance until about the first of July, and there can be no considerable shipments of this variety until probably about the 10th of that month. Crop is looking fine.

Grapes.

Nothing new to report in this variety. Vines are growing vigorously, showing an unusual wealth of foliage, and great vigor. Bunches are numerous, well set and of large size. Promise is for a splendid crop of first class quality.

Weather.

Since our last report we have been having considerable cool weather, which has again retarded ripening. The months of May and June, up to date, have been the coldest on record in California for many years.

Citrus Fruit Market

LOS ANGELES, June 28, 1911.

The auction markets show a material advance over last week's quotations on Valencias and this in general is an indication of the tone of the market. There are some sections, however, of the Middle West which still show a little of the former weakness, but with the shipments kept within bounds there is little question that Valencias will clean up at most satisfactory figures.

Lemons are still in the dumps, caused by the two factors of heavy foreign receipts and cooler weather obtaining in most of the Eastern sections. It now looks as if there would be no more of the exceptional prices which prevailed two or three weeks ago. This does not mean that any disastrously low prices will prevail, for present indications are that the demand will be sufficient to keep the market fairly clear.

Shipments.

Shipments of oranges to date since November 1st, 1910: 32,341 cars, lemons 5,011, total 37,352. To same date last season: Oranges 22,245 cars, lemons 3,325, total 25,570.

LOS ANGELES, June 21.—Four cars Valencias and one car lemons sold.

	Avge.
Hawarden, fy or, Valencias, Riverside, shipped June 20	$2.30
H. C. A., Choice, fy or, Valencias, Riverside, shipped June 20	2.05
Woodland, fy or, Valencias, Santa Ana, shipped June 20	2.22½
Blue Ball, ch or, Valencias, Santa Ana, shipped June 20	1.97½
Liberty Girl, fy or, Valencias,	

Santa Ana, shipped June 19.....	2.22½
Beach, sd, Valencias, Santa Ana, shipped June 19	1.97½
Lone Palm, xc (Lemons, 35 boxes), Santa Ana, shipped June 19.....	3.72½
Beach, sd, Lemons (25 boxes), Santa Ana, shipped June 19.....	3.22½
Heap Good, or, Seedlings, Riverside, shipped June 14	1.00
Rubidoux, sd, Seedlings, Riverside.	1.00
California, ch, Valencias, Riverside, shipped June 14	1.00
Heap Good, or, Valencias, Riverside, shipped June 14	1.00
Heap Good, or, Seedlings, Riverside, shipped June 19	1.00
Queen, ch, Lemons, San Diego, shipped June 17	3.67½

LOS ANGELES, June 23.—Four cars Valencias sold.

	Avge.
Woodland, fy, Valencias	$2.22½
Sylvan, or, Valencias	1.97½
Blue Ball, ch, Valencias	1.97½
Woodland, fy, Valencias	2.22½
Sylvan, or, Valencias	1.97½
Hawarden, fy, Valencias	2.25
Arch, ch, Valencias	2.00
H. C. A., cd, Valencias	1.75
Arch, Valencias, halves	1.00
H. C. A., sd, Valencias	1.75
California, ch, Valencias	1.90
Squaw, fy, Valencias	2.15
Rubidoux, sd, Valencias	1.65

NEW YORK, June 26.—Two cars Navels, twenty-seven cars Valencias, two cars seedlings, five cars sweets, two cars St. Michaels and two cars lemons sold. Market strong on oranges, easier on lemons. Cloudy.

NAVELS—	Avge.
Eagle, A F Ex	$2.85
King, S A Ex	3.15
Czar, fy or, Tanson & Seats.....	3.00
Uplander, or, Growers' Ft Co.....	3.00
VALENCIAS—	
Glendora Heights, fy, A C G Ex...	$4.80
Glendora Heights, ch, A C G Ex....	3.85
Evolution, A C G Ex	3.35
Iris, D M Ex	3.80
Violet, D M Ex	3.25
Jasmine, D M Ex	2.95
Pinnacle, O K Ex	3.90
Golden Cross, O K Ex	3.75
Red X, O K Ex	3.10
Lotus, O K Ex	3.80
Monogram, O K Ex	3.55
Carmencita, S T Ex	3.60
Colombo, S T Ex	3.20
Iris, D M Ex	3.85
Violet, D M Ex	3.40
Golden Cross, O K Ex	2.65
Red X, O K Ex	3.25
Indian Hill, S A Ex	3.65
Volunteer, S A Ex	3.50
Whittier, S T Ex	3.55
Stag, A C G Ex	3.55
Hunter, A C G Ex	3.15
Quality, S T Ex	3.35
Violet, D M Ex	3.55
Uncle Sam, Riv Ex, Riverside.....	3.55
Billiken, Riv Ex, Riverside.....	3.20
Squirrel, A H Ex	3.05
Spanish Girl, A H Ex	2.95
Venus, xc, E. Peycke Co.....	3.20
Elephant, Elephant Orchards	3.65
Elephant 2nds, Elephant Orchards..	3.30
Czar, fy or, Hanson & Sears.....	3.40
Golden Flower, xf, Red, G O Assn...	3.15
Pico, S T Ex	3.15
Peacock, or, Worthley & Strong.....	3.20
El Toro	3.00
Peacock, Worthley & Strong	3.20
Brown Seal	3.00
Niagara, fy, Stewart Ft Co.....	3.10
Old Mission, fy, C C Chapman.....	4.35
Golden Eagle, sd, C C Chapman...	3.35
Duquesne, Duquesne Ft Co.....	3.70
Ft. Pitt	3.35
Euclid, or, Growers' Ft Co.....	3.75
Uplander, or, Growers' Ft Co.....	3.45
Regina, ch, Growers' Ft Co.....	3.25
Regent, sd, Growers' Ft Co.....	3.00
SEEDLINGS—	
Alhambra, S A Ex	$2.40
Volunteer, S A Ex (budded).....	2.70
Golden Cross, O K Ex (Floridas)...	3.20
Red X, O K Ex	2.80
Titus Ranch, fy, San Marino G P A..	2.55
El Toreador, S D Ex	2.45
SWEETS—	
Golden Cross, O K Ex.....	$2.10
Red X, O K Ex	2.80
Quail, O K Ex	2.75
Queen Bee, Q C Ex	2.50
Royal, Q C Ex	2.15
Volunteer, S A Ex	2.75
Prairie Chicken, A C G Ex	2.30
Homer, Q C Ex	2.60
Camel, Q C Ex	2.45
Colton Terrace	2.75
Tiger, S B Ex	2.85
Floral, S B Ex	2.50
Regent, sd, Growers' Ft Co.....	2.65
ST. MICHAELS—	
Squirrel, A H Ex	$3.20
Palm Tree, A H Ex	3.05
Regent, sd, Growers' Ft Co.....	2.65
Red Raven, Pattee & Lett	3.10
GRAPEFRUIT—Seedless—	
Queen Bee	$2.60
Royal	2.60
LEMONS—	
Quaker Girl	$3.90
Pet	4.60

BOSTON, June 26.—Sixteen cars sold. Cloudy and muggy. Market unchanged.

NAVELS—	Avge.
Orchard, or, National Orange Co.....	$3.35
Standard, std, National Orange Co..	2.55
VALENCIAS—	
La Mesa, Riv Ex, Riverside.....	$3.15
Glendora Heights, fy, A C G, Glendora	4.05
Evolution, A C G Ex, Glendora.....	3.15
Stag, fy, A C G Ex, Azusa	3.80
Rey, S T Ex, Fernando	3.55
Sierra Vista, A H Ex, Riverside...	3.55
Peasant, A H Ex, Riverside.....	2.95
Rey, S T Ex, Fernando	3.40
Clown, fy, Sparr Ft Co.....	3.40
Diamond A	2.95
Diamond B	2.85
Standard	2.60
Golden, Riv Ex, Riverside.....	2.85
Glendora Heights, xc, A C G Ex....	3.60
Stag, xfy, A C G, Azusa	4.25
Pointer, A C G Ex, Azusa	3.65
Tunnel, S T Ex, Fernando	3.10
Kenilworth, A H Ex, Riverside.....	3.25
Pinnacle, O K Ex	3.80
Tunnel, S T Ex, Fernando	2.85
Fox	3.35
Circus, xc, Sparr Ft Co.....	2.95
Diamond B	2.80
LEMONS—	
Purity, S S Ex, Tustin.....	$3.00
Arab, S A Ex	4.45
Quail, O K Ex	3.65
Marguerite, xc, Earl Ft Co.....	3.70
Excelsior, ch, Earl Ft Co.....	3.05
Pet, S A Ex	4.95
Greyhound, S A Ex	3.50
Diamond A	4.00
Diamond B	3.35

PHILADELPHIA, June 26—Nine cars Valencias, three sweets, one seedlings, two St. Michaels, three mixed cars and two cars lemons sold.

VALENCIAS—	Avge.
Carmencita, S T Ex, Fullerton.....	$3.50
Stag, A C G Ex, Glendora.....	4.20
Hunter, A C G Ex, Glendora.....	2.65
Native Sons, ch, King Ft Co.....	3.75
Fates	3.35
Golden Flower, fy, Red G O A.....	3.30
Salt Lake, sd A L King	3.25
Freedom, xc, Ind Ft Co.....	3.15
Old Oak, ch, Tustin Pk Co.....	3.00
Country Club, ch, Rialto Ft Co.....	2.90
Sun Glass, sd, Stewart Ft Co.....	2.80
Colombo, S T Ex, Fullerton.....	3.10
Pointer, A C G Ex, Glendora.....	3.25
Eagle, A G Ex, Highgrove.....	2.95
Golden Pheasant, xc, Ind Ft Co.....	3.40
Tustin Gem	3.35
Brownie, fy, Rialto Ft Co	3.30
Pointer, A C G Ex	3.20
Liberty Girl	3.10
Niagara, fy, Stewart Ft Co.....	2.95
Pico, S T Ex	2.85
Beach	2.80
LEMONS—	
Quail, O K Ex	$3.90
Blue Jay, O K Ex	2.70
Green Crown, A C G Ex, Azusa.....	2.35
Coyote, O K Ex	3.65
Red Shield, A C G Ex, Azusa.....	2.90

PITTSBURG, June 26—Twelve cars sold. Hot.

VALENCIAS—	Avge.
Iris, D M Ex, Monrovia	$3.55
Golden, Riv Ex, Riv.....	2.45
La Mesa, Riv Ex, Riv.....	3.15
Jasmine, D M Ex, Duarte	3.05
Don Quixote, S T Ex, E. Alhambra..	2.40
Clown, fy, Sparr Ft Co.....	3.40
Biplane	3.30
Medallion	1.75
Violet, D M Ex, Monrovia	3.35
Crystal, Riv Ex, Riverside.....	2.00
Golden, Riv Ex, Riverside	2.50
Alhambra, S T Ex, E Alhambra....	2.70
Carmencita, S T Ex	3.15
Cloverleaf	2.50
Dirigible	3.05
LEMONS—	
Mission, S T Ex, Santa Barbara.....	$2.75
La Mesa, A H Ex, Riv.....	3.30
Granite, A H Ex, Riv.....	2.90
Parrot, S A Ex	3.75
Goddess, S A Ex	2.85
Granite, Riv Ex, Riv	2.50
Festival, S T Ex, Santa Barbara...	3.35
Golden, A H Ex, Riv.....	2.75
Crystal, A H Ex, Riv.....	2.25
Hawk, S A Ex	3.20
Crystal, Riv Ex, Riv	2.35

CLEVELAND, June 26—Two cars Valencias, one sweets, three lemons sold. Market higher. Hot and muggy.

VALENCIAS—	Avge.
Moose, O K Ex	$3.50
Iris, D M Ex, Monrovia	3.45
Jasmine, D M Ex, Monrovia.....	3.20
Prong Horn, O K Ex	3.40
Violet, D M Ex, Monrovia.....	3.20
LEMONS—	
Red Shield, A C G Ex, Azusa.....	$4.40
Red Hill, S S Ex, Tustin	4.65
Evergreen, S S Ex, Tustin	3.45
Arab, S A Ex	4.95
Green Crown, A C G Ex, Azusa....	3.95
Purity, S S Ex, Tustin.....	4.35
Pet, S A Ex	5.00
Pup, S A Ex	4.15

CINCINNATI, June 26.—Warm. Raining. Market steady on oranges, declining on lemons. One car Valencias, one seedlings, two sweets, one mixed car and three lemons sold.

VALENCIAS—	Avge.
Eagle, A F, Highgrove.....	$2.35
Tustin Gem, Tustin Pk Co.....	3.20
Yankee Doodle, A F, Highgrove....	2.25
Old Oak, ch, Tustin Pk Co.....	3.00
LEMONS—	
Commercial, A H Ex, Prenda.....	$3.10
Blue Jay, O K Ex	3.70
Stock Label, V C Ex, S Paula.....	4.45
Coyote, O K Ex	4.25
Centauria, V C Ex, S Paula.....	5.00

"Were you ever in a railroad disaster?"

"Yes—I once kissed the wrong girl while going through a tunnel."—Toledo Blade.

The enterprising firm of Layne & Bowler Co., Santa Fe Ave., Los Angeles, whose advertisement appears in this issue of the Cultivator, has just issued a very valuable catalogue giving much information in regard to the pumps they manufacture. Besides describing the pumps, it contains chapters on: "How to measure your water supply," "How to make a weir," "Water measures," "Power to drive pumps," "Useful information and formulae for calculating pump problems," etc. This catalogue will be mailed free to any one desiring it, if you mention that you saw their advertisement in this paper.

Milk Coolers, all sizes and prices. Guy F. Kelsey & Co., 106 East Eighth St., Los Angeles, Cal.

Cream Separators, all sizes and prices. Guy F. Kelsey & Co., 106 East Eighth St., Los Angeles, Cal.

PACIFIC COAST NURSERYMEN.

(Continued from Page 755.)

states and territories, and it is only natural to infer that the horticultural progress will follow along the lines of the least resistance. It is a well known fact that the impounding of water from our great streams, fed by the inexhaustible supply of unfailing snows and glacial deposits of our vast mountain ranges, is largely responsible for the progress of horticulture in the Pacific Coast states. Who is the convincing factor in creating a change in the topography of the country and in finding its hidden resources, if it is not the nurseryman? Who pioneers the way for bettering the conditions of every rural community and frontier town, if it is not the nurseryman? What has brought about the remarkable changes in the great wheat fields, causing land which was only worth a few dollars per acre a decade ago, to rise in value to hundreds and even in many cases to thousands, if it was not the nurseryman, who through his experience gained in other sections where similar conditions existed, was in the position to make recommendations as to what to plant, to bring about these remarkable values? Who is it, if it is not the nurseryman, who is constantly by his association with other nurserymen, not only at home but abroad, trying to elevate our rural conditions, by introducing better varieties of fruits, a wider range of them, and also to make the homes of the farmer and fruit grower and the residences of the towns and cities, more attractive, by introducing ornamental trees, shrubs and plants, which would never be thought of, were it not for his investigations, which make him a competent judge of what to recommend to brighten and make all of us more appreciative of the beauties of nature?

"No power on earth will prevent a true nurseryman from continuing in this course; our field is a vast one and the difficulties we will have to contend with will increase as our horticultural development enlarges. I firmly believe that "In unity there is strength," but I am also impressed with another factor, and that is, each state will have its own problems confronting it and on account of the vast territory to be covered, the states should have their individual associations, which will affiliate with this association."

QUERIES.

(Continued from Page 769.)

water for a week. (A teaspoonful to each quart of water.) Permanganate of potash or Germozone (made of permanganate) in the drinking water is also very good. Chicken-pox is very infectious. It does not usually kill the old hens but is fatal often to the young chicks. Do not use much of the carbolic salve and do not grease with it or any grease under the wings of little chicks as it always makes them sick and often kills.—A. B.

LOCATION OF APIARY.

(Continued from Page 762.)

apiarist a clear conscience is an ever present consolation.

In concluding, I would like to say that the government is expending large sums of money in reforesting the mountains, $15,000 is soon to be spent in improving the fire guards of the San Bernardino range, with the view of a large reforesting policy.

A person much interested in this work suggests that the bee men unite in a concerted movement to influence the government to reforest the lower elevations with honey-bearing plants like the manzanita, buckthorn, sages and buckwheat. He also suggests that if such movement were made by the bee men it might result in reforesting the lower slopes with honey-bearing plants as the government is learning by experience that the pines planted below 5000 feet do not thrive.

If crude oil, which is being used so much for street work, should happen to get on a dress, it can be cleaned by using pure alcohol. This removes all traces of the oil and does not leave a stain. I have used it on a tan rajah and a white serge skirt.

Beeswax and salt will make rusty flat-irons as clean and smooth as glass. Tie a lump of wax in a rag, and keep it for that purpose. When the irons are hot, rub them first with the wax rag, then scour with a paper or cloth sprinkled with salt.

A wise old owl sat on an oak,
The more he heard the less he spoke.
The less he spoke the more he heard;
Let's imitate that wise old bird.—Ex.

ARNOTT GOOSE-NECK CULTIVATOR

Prices Greatly Reduced

Write for complete descriptive matter and price. All sizes 5 to 18 feet in width.

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During the dry season, chickens need a substitute for the "little things" they pick up during the wet season—insects, worms, bugs, green stuff, etc., etc. **Manhattan Egg Food** supplies the need. It costs 13¾ cents a week to feed 100 fowls sufficient to keep them in perfect condition. The fowls will repay this small outlay tenfold with increased egg production. Contains no drugs.

ALL DEALERS, or write us direct.

The Norwich Automatic Exerciser and Feeder
A Wonderful Poultry Feeding Device

The U. S. Government Experiment Stations report 50% saving in labor, 25% saving of grain, and an increased egg yield of 18%.

NOW READ THIS:

Use for 30 days. At the expiration of that time, if you do not see a marked improvement in your flock, if your egg production is not increased, and if you are not absolutely satisfied with the machine in every respect, or find one objectionable feature, return it at our expense and we will at once refund your money. Write for descriptive circular.

PRICE LIST.

	Actual Shipping Weight	
No. 1— 8-Quart Hopper	..12 lbs.	$3.00
No. 2—14-Quart Hopper	..15 lbs.	3.75
No. 3—20-Quart Hopper	..20 lbs.	4.75
No. 4—32-Quart Hopper	..30 lbs.	6.00

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WILL make your ditches—level your land—grade roads, throw up borders at ⅓ the usual expense. It's the Many Purpose Machine—the Irrigationist's best investment—the handy tool which you will find use for every day in the year—thousands in use. Our new catalog full of pictures of the machine at work, shows how it will save you money. Send post card for it, name of nearest agent and distributing point.

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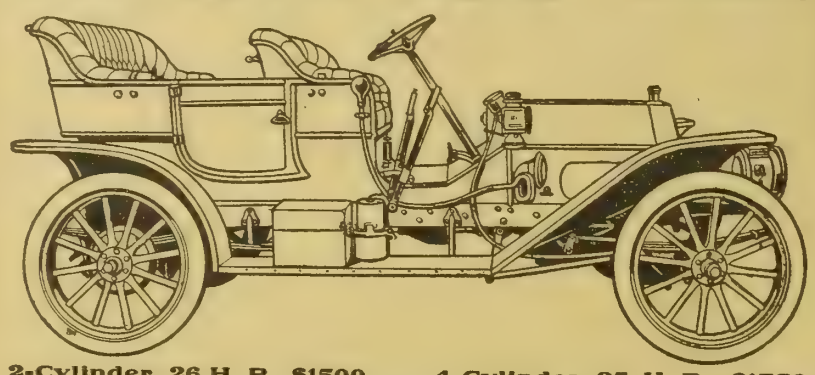

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Made in Los Angeles and factory open to your inspection. Come and see us.
Both Phones **Durocar Mfg. Co.,** 935 S. Los Angeles St. Los Angeles, Cal.

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Household Department

HOW DO YOU BATTLE?

Did you tackle that trouble that came your way
With a resolute heart and cheerful;
Or hide your face from the light of day
With a craven soul and fearful?
Oh, a trouble's a ton, or a trouble's an ounce,
Or a trouble is what you make it;
And it isn't the fact that you're hurt that counts,
But only—how did you take it?

You are beaten to earth? Well, well, what's that?
Come up with a smiling face.
It's nothing against you to fall down flat,
But to lie there—that's disgrace.
The harder you're thrown, why, the higher you bounce;
Be proud of your blackened eye;
It isn't the fact that you're licked that counts;
It's how did you fight—and why?

And though you be done to the death, what then?
If you battled the best you could,
If you played your part in the world of men,
Why the Critic will call it good.
Death comes with a crawl, or comes with a pounce,
And whether he's slow, or spry,
It isn't the fact that you're dead that counts,
But only—how did you die?
—Edmund Vance Cooke.

TEA.

So far, civilized man has succeeded in manufacturing only four essentially different beverages which are extensively used. And yet liquids are as important as solids in contributing to the cravings of the human palate. The four principal manufactured beverages now in use by civilized communities are, first, the extract of the coffee bean; second, the extract of the cocoa bean; third, alcoholic drinks, and fourth, the extract of the tea plant.

Tea is one of the most important manufactured beverages known to mankind, inasmuch as it can be taken for a lifetime without injury to the human system, providing it is made right, and taken as soon as made. The Encyclopedia Britannica says: "What is indisputable about tea drinking is, that it forms an agreeable means of imparting the proportion of water necessary to human nutrition, which, being taken hot, communicates to the system a beneficial warming glow."

Its properties have been described by one of the earliest Chinese writers, Lo Yu, who says: "Tea tempers the spirit, awakens thought, prevents drowsiness, lightens and refreshes the body, and clears the perceptive faculty. The gentle exhilaration which accompanies the moderate use of tea is not followed by the depression which succeeds the use of alcoholic stimuli. Experience has proven that tea sustains the mind under severe muscular or mental exercise, without causing subsequent exhaustion."

The intelligent use of tea is in knowing that it possesses two leading chemical principles, viz.: theine and tannin. The former contains the principal merits, and the latter the principal imperfections of tea. Theine is a gentle tonic which makes tea a mild stimulant. Tannin forms an acid which, if taken habitually to excess, by persons in delicate health, is apt to affect the nerves or digestion. The whole secret, therefore, of obtaining the beneficial properties of tea without injurious effects, is to secure without tannin, and this can be accomplished by never permitting tea leaves to boil, nor even to draw in the usual way, for over seven or eight minutes, after which time tannin begins to develop.

The average consumer approaches his grocer generally with the request for a pound of black or green tea, knowing little more than this about the article, and leaving the rest with the grocer. It is not suspected by either dealer or consumer that there are as wide differences in black teas, alone, as there are between tea and any other beverage.

There are about two thousand tea flavors. Until the last seven years the green tea leaves have been found chiefly in China, but since then excellent specimens have been produced in India and Ceylon.

Green teas are known as Gunpowders, Imperials, Young Hysons, and Hysons, according to the shape which the leaves take in the process of firing.

Black teas are divided into four great families. Congons, Indias, Ceylons, and Oolongs, the first three kinds being fermented teas, while Oolongs are unfermented. — Phebe S. Copps, Colorado Agricultural College.

IN COOKYDOM.

Being fond of cookies, especially of wafers, but not fond of the usual lengthy process of cutting them out, I have abridged this process in the following manner:

Mix the dough smoothly, and divide it into pieces of the size of your fist, or a little smaller if the cookies are to be very thin; flour the board and pin thoroughly, and roll out one of these lumps into a convenient oblong. Move it to another part of the board, and sprinkle it lightly with sugar. Now roll out the next piece in similar shape, lay it on the first, sprinkle with sugar, and repeat until your dough is all used. Trim off the edges evenly, roll out the trimmings, and lay this sheet on the rest; then, with a sharp case knife, cut into squares, oblongs or diamonds. Taking the piles (six or eight deep) one at a time in your left hand, separate the cookies and slip them on to the baking sheet; this can be done more rapidly than they could be moved, singly, from the board. By following this plan, I can roll and cut a large batch of wafers in fifteen minutes; the baking is, of course, a slower process.

It is easier to handle a soft dough when it is very cold, and for this reason I find it a good plan to mix cookies overnight and have them thoroughly chilled. I append two receipts for delicate, brittle cookies. I have never tasted the ideal home-made, soft molasses cooky; but grated orange peel and desiccated cocoanut help to vary the everyday product.

Sugar Wafers.

One cupful of brown sugar, one-half cupful each of butter (or drippings) and water, one teaspoonful of mixed spices, one-half teaspoonful of soda, a little salt, and flour for a soft dough. Roll very thin, and bake in a hot oven.

Gingersnaps.

Half a cupful of butter or drippings (bacon fat may be used), one cupful of Porto Rico molasses, one teaspoonful of soda, dissolved, two tablespoonfuls of vinegar, two tablespoonfuls of ginger, a little salt, flour for a moderately stiff dough. Knead, roll thin, and bake as above—Country Gentleman.

HOMELY HINTS.

To clean brass gas fixtures, rub them with cut lemons, and then wash the juice off with hot water.

If soot falls on carpet, cover it thickly with dry salt, then sweep it up quickly, and it will leave no stain.

The most satisfactory method of sprinkling clothes is to use a good whisk broom kept expressly for that purpose.

There are those who ever listen for, and these ever hear, a voice silent to others; it is heard in the passing crowd, above the noise of the world's traffic, in the silence of the midnight, in the quiet of the dawn. To these it is not what the world can give, but what it cannot take away, that seems precious. To them nothing but the best is really worth while.—Ex.

Be noble! and the nobleness that lies
In other men, sleeping, but never dead,
Will rise in majesty to meet thine own.
—Lowell.

TO FRESHEN SUMMER DRESSES.

A nice organdie or thin muslin often becomes wrinkled and flimsy, but not soiled, and it can be made to look almost like new by dampening on the wrong side with thin gum arabic water and then pressing carefully.

The best way to clean very sheer muslins and lawns when they need washing is to clean them with bran water without using soap or starch as the bran water cleans the fabric and stiffens it at the same time. This water is prepared by boiling wheat bran, about two quarts to a dress, in soft water for half an hour; then this water is strained into a tub half full of cold water and used instead of soap suds. The garment must be cleaned by pressing and squeezing between the hands, then rinsed through one clear water and hung over the line; then it must be ironed on the wrong side before it is quite dry.

Brown linen waists and dresses can be kept fresh and new looking by washing them through starch water into which a cup of strained coffee is stirred and the starch must be stirred until it is evenly colored before washing the garment.

Muslin of a doubtful color may be washed in rice water, without soap, rinsing out in rice water to keep the starched quality, and a little dissolved gum arabic should be added to the rinsing water, as it gives a newer finish to the goods, and the fabric will retain the stiffness longer.

To wash the pretty ginghams and percales successfully, shave enough white soap in warm, soft water to make a nice lather, then stir in enough borax to make the suds soft to the touch, then the garment must be cleaned by rubbing lightly between the hands, never on the washboard. The borax not only softens the water but helps to keep the color in the goods and if the color has not been set before washing the garments, it should be rinsed in cold water, slightly salted, to which a little vinegar has been added, then it should be hung in the shade to dry. To keep white dresses a beautiful clear white, wash them through hot suds in which a little borax is dissolved, then add a tablespoonful of borax to the water in the boiler and the borax is especially good to use if the garment has turned yellow or is not a good color of white.

In making starch for colored fabrics, dissolve a piece of alum the size of a hickory nut in warm water and add to every pint of starch used and it will keep the colors bright for a long time.—M. A. T.

LOVE IN THE HOME.

Discussing the matter of a loving home and answering the question as to "How may love continue," a writer in Farmer and Fireside says:

By expression. We like to do something for one we love; if we fail to do it, our love languishes. It grows by service. How the mother loves the crippled child for whom she does so much; how the wife loves with unspeakable tenderness the husband whose failing health is her ceaseless care. It is what we give that holds us, not what we receive. If a young man is constantly sending flowers and other little gifts to one he loves before they are married, because he wants to express himself, is it any wonder if his love droops when he suddenly ceases to do such things? If a young woman wishes to wear her prettiest dress when she is to see her lover and if she gladly sings his favorite songs, should she forget to please him when she is his wife? The form of service, what we do for another, may change, but it must not cease. How short-sighted are those people who have kind words and kind deeds for everyone but those they love. There is no place where courtesy is of more value than where it seems superfluous. Why should our work or our business crowd the best things out of our lives? Shall our hearts be so filled with plans and bargains and daily cares that those in our homes are forgotten?

In boiling or steaming puddings never allow the water to stop bubbling for more than a moment. Have ready boiling water to pour immediately into the kettle when the water begins to boil down.

SHIRT WAIST BOX.

Every girl needs a little box in which to keep her shirt waists. If it has to be in the bedroom, the top can be used for several purposes. Much care should be taken to put on the outside covering neatly, and to have the coloring harmonize with the rest of the things in the room.

Perhaps you have an old box that can be remodeled by one of the men of the household; if not, get a thin wooden cracker box. It should not cost over ten cents. Most grocers are glad to give them away. Fasten on the cover with neat brass hinges, costing about ten cents. For covering use pretty, flowered cretonne, plain burlap or even denim, which can be fastened to the box with fish glue. Don't use any more than you need, as the odor is unpleasant. Sew some little pockets to the lining of the cover before it is glued on, they can be used for odds and ends. These little boxes are sold in large stores for three to five dollars. Shirtwaists that are hung on a nail in the closet do not always give the wearer a neat appearance. —The Ranch.

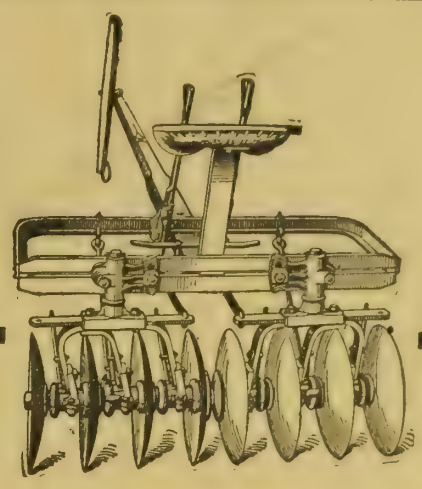
ORANGE DESERT.

Remove the skin and fiber from six oranges, then cut the pulp into small blocks; peel and dice three bananas; peel and cut a medium-sized pineapple first into rounds, then into small, wedge-shaped sections. Stand the prepared fruit in a cold place to chill. At serving time, arrange on individual salad plates as follows: First, around the outer edge a border of pineapple; inside this a row of orange blocks, then fill up the center with the diced bananas, heaped up to form a tiny mound. Finish off the top of the mound with a fine, fresh strawberry or a marashino cherry; sprinkle with sugar, and add at the last moment one tablespoonful of grape juice to each serving.

THE CHIN AND THROAT.

Remember always to arch the throat, almost as a horse does. If a woman, talking to some one, turns her shoulders slightly from him, and then glances back, the line of the throat is always good. For myself, I have at all times thought the delicate line from the tip of a woman's ear to the tip of her shoulder one of the most exquisite of the feminine body. Many artists, I believe, would agree with me. So remember what I say, dear ladies—do not spoil or hide that lovely contour with high linen collars or boning. Wear low collars, or if these are not becoming to you at least dress your throats comfortably.

Always carry the chin high. If, while you are still quite young, you can remember to thrust the chin upward and forward—not to an absurd degree, of course—you will not, with advancing years, have to fear those soft rolls of flesh above the collar that add so much to a woman's apparent age.—Anna Pavlova, in Harper's Bazar.



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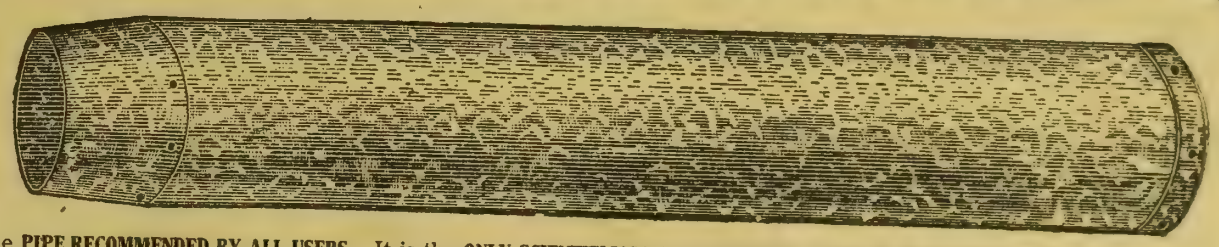

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FARMERS RALLY.

The people of Laton who are particularly interested in the development of that section have an aspiration to hold an agricultural fair the coming fall. To the end that it may be as successful as possible, a committee has written to the State University to learn what encouragement it will lend along this line. The idea is to raise locally several hundreds of dollars for cash premiums for best breeding animals, best quality of seeds, plants and products—in other words, a genuine county fair premium list. Competition is to be open to immediately surrounding sections. The community has one of the finest locations for such expositions and fairs, and with a little encouragement it could be made a complete success. It has been suggested that a farmers institute be held in connection. Commenting on the idea, when requested for advice, Mrs. Sherman has written:

"The idea seems a good one if the local people can be induced to exhibit largely. The difficulty of securing live stock from outside is great unless large prizes are offered. The expense of handling stock away from home is much greater than anyone realizes that has not taken stock to fairs. The advertising is often thought to help the breeders, but it is a fact that one-third the money expended to fit an animal for the ring and exhibit him will sell him if used to advertise in the papers.

"While as far as the funds permit the University is always willing to send judges for live stock, yet to escape criticism the classes must be large enough to justify the expense. When only a few animals are assembled it is not considered as educational to merely decide between two specimens of a breed which is best.

"A farmers institute does not fit in very well with a fair, for to the farmer a fair is playtime, while an institute is work. Now, as a suggestion, how would a farmers rally answer for the first year? Invite the farmers to bring horses for prizes, including a class for family horses and a pony class for the children. Have a few cows, also. These cows could be milked the night before at the grounds, and in the morning, and the milk tested for fat. Then in the afternoon have a few speakers from the University to talk on cow, horse and pig, and another on cereals and alfalfa growing. This would cost a trifle and could be held in the beautiful grove for one day. If this was a success this time, then next time a two days or three days affair could be arranged. The greatest difficulty in these affairs is they are started too big; the work falls on a few, and they are not likely to want to repeat the experience."

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One brother was tall and slim,
The other chubby and short—
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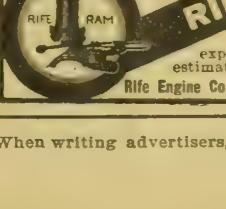

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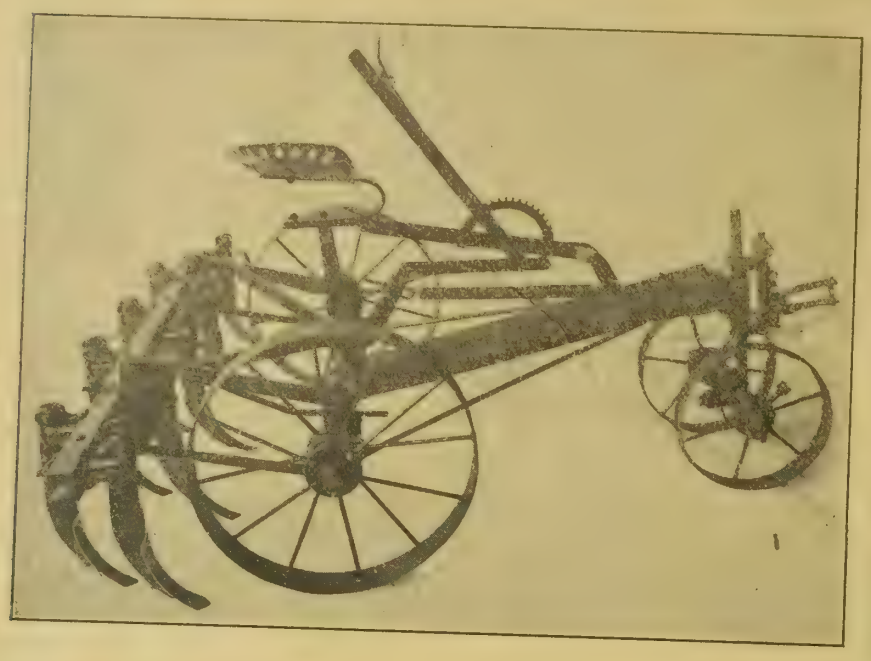

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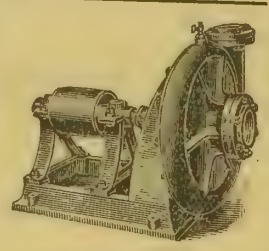

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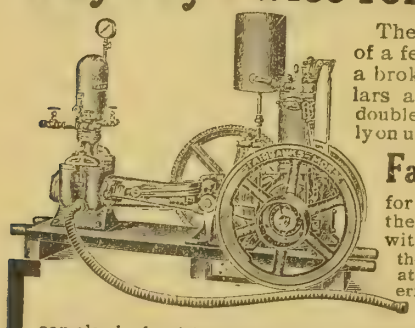

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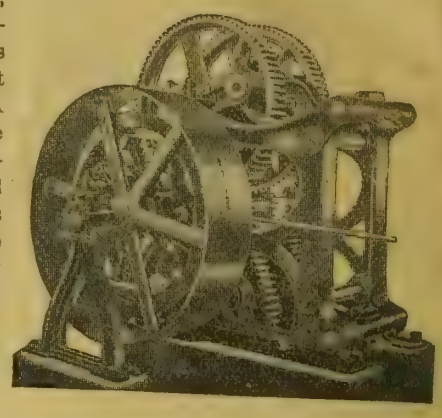

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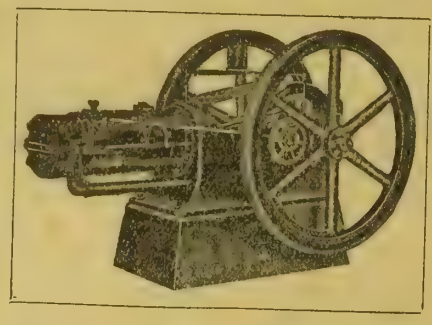

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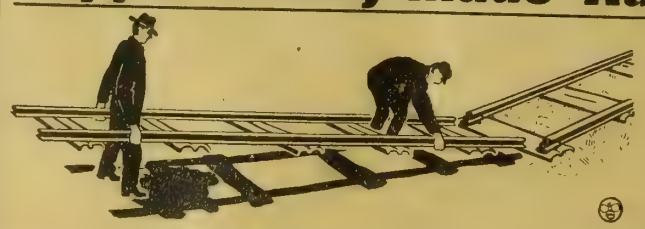

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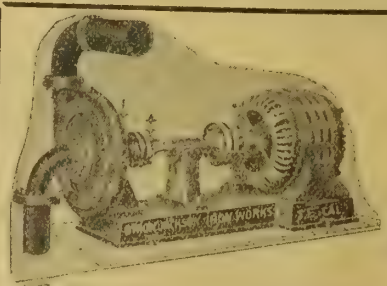

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